Space disturbances or magnetic storms as they are called, can have catastrophic effects. For example, the large magnetic storm of March 12-13, 1989, lasting 36 hours, cut electricity supplies to Quebec, Canada, shut down a nuclear power station, altered satellite orbits and disrupted communications world-wide. For people living in southern Australia it provided rare and spectacular displays of aurorae.

The Earth is immersed in the Sun’s outer atmosphere and this is the primary source of energy which feeds the solar-terrestrial interaction. Life on Earth is protected from this intense and harmful radiation by the Earth’s magnetic field which creates a surrounding cavity region, the magnetosphere. It is the study of the microstructure of this region that is one of the objectives of research conducted...
Solar Terrestrial Energy

signatures of the flow of energy from
sunspot cycle. It is the variability of the
frequency exactly the changes in the length of the
are indicators of solar energy
generation and radio wave
temperature variation in the Northern
hemisphere over the last
years follows
properties of solar energy output," Professor Fraser said.

The new Federal Government has
seen a change of Minister for Higher
Education with Mr Kim Beazley now
responsible for universities.

We do not know yet if there will be
substantial changes in University affairs,
and in particular await information
on Quality Management for which
funds will be available based on
performance.

Universities have always been about
quality management. Indeed this is part
of their reason for being. However, we
can take up this opportunity to improve
aspects of university work, in particular
for the benefit of students. It is important
that the academic community absorb
and deliberate over how such challenges
are to be handled. There should be wide
discussion and issues should be placed
in the context of the academic purposes
of the institution. I would want to assert
that as the way management and
administrative matters should be handled.
It is always useful to remind ourselves
why we are here, namely for teaching
and research, and to establish priorities
accordingly.

This issue of Uninews reports on our
research and scholarship as we expand
into a global context. As we go to press,
two more achievements have come to note.

Firstly, the Chairman of Renison
Goldfields, Mr Max Roberts, has
announced the establishment of a world
class centre of mineral and energy
economics at this University. Secondly,
this year's figures on 'Infrastructure A'
research funding, list the University of
Newcastle in the national top ten. Both
achievements demonstrate a continuing
focus on quality in academic pursuits.
Genetic Engineering

Plants that are genetically engineered to resist insect and viral attack could bring great benefit to Australia’s economy and environment.

Professor Ray Rose from the University’s Department of Biological Sciences, says that new genetic manipulation technologies will provide access to a wide array of resistance mechanisms and speed up the plant breeding process.

Working with researchers from the University of Adelaide’s Department of Crop Protection, the Newcastle group have, for the first time, introduced genes into a group of pasture legumes known as the annual medics. These legumes are particularly important for agriculture in Western and South Australia, Victoria and NSW, and could provide farmers with the opportunity for cheaper production and better soil maintenance.

Leguminous plants have the ability to add nitrogen to soil by utilising atmospheric nitrogen in a process involving bacteria in their roots. The need to use nitrogenous fertilisers is thus eliminated. In wheat-sheep agriculture, legume pastures provide grazing for sheep, and nitrogen for the coming wheat crop.

Unfortunately, pasture legumes are susceptible to a number of insect pests, including aphids, which attack the foliage, and weevils which attack the roots. The pastures are also susceptible to viral disease.

Traditionally, plant breeding was used to control pests and disease. Professor Rose explained that this poses some constraints as the appropriate resistance may not be available, or if available, may take many years to introduce.

The new genetic engineering strategy developed by the Newcastle group has successfully introduced test genes into the legumes. They have also shown that these genes are inherited normally.

The approach to virus resistance is via the introduction of part of the virus - genes coding for its protein coat - which prevents the multiplication and spreading of the virus.

The addition of insect resistant genes is currently in the planning stage. Studies at this stage are restricted to containment glasshouses, however, given that the approval for the release of genetically engineered plants is forthcoming, this new technology opens the way to economic and environmental benefits. The economic benefits of this technology would extend to the University as well.

"The university is naturally interested in the financial spin-offs that would result from the seed rights," Professor Rose said.

Plant genetic engineering is no longer futuristic, with plants more amenable to genetic engineering (such as tomatoes and potatoes) leading the way. It is likely that genetically-modified products will soon appear on US supermarket shelves. This is not because the US is more technically advanced, but because the debate surrounding the ethics of genetic engineering is at a more advanced stage.

In the US it is argued that if the product is safe for consumption then the question of whether the product was produced by genetic engineering or more traditional technology is irrelevant.

In Australia there is close monitoring of genetic manipulation technology, and all research organisations are required to work under strict guidelines. No genetically engineered seed has yet been approved for commercial release for agricultural purposes.

Professor Rose and his team of researchers are confident that genetically engineered plants will indeed will be given the go-ahead in Australia. "Genetic engineering of plants has the potential to help feed the planet in an environmentally sound way," Professor Rose said.

"Some existing agricultural practices are harmful not only to humans, but to the environment as well, so genetic engineering should be given a fair hearing."

PHOTO: Tissue with gene inserted (r) and without gene (l).
In a society dictated by fashions and trends, designer cars, houses, clothes, furniture and jewellery play an important role in the lives of socially aware consumers. So why not “designer fats”?

Oils Ain’t Oils

DESIGNER FATS FOR A HEALTHY NATION

As more and more Australians strive towards a low-fat diet, scientists and food technologists strive towards providing a varied selection of low-fat and low-cholesterol products. “Designer fats” could offer a viable alternative to existing products and actively help in the fight against coronary heart disease and cholesterol.

The concept of “designer fats” was suggested by Professor David Roberts, from the University of Newcastle’s Department of Nutrition and Dietetics, following evidence that Eskimo people (whose diet consists largely of marine products) had a low level of heart disease. Further studies indicated that marine oils contain high levels of Omega-3 fatty acids which act to reduce blood clotting and thereby help prevent coronary heart disease.

Professor Roberts and his team of researchers at Newcastle are studying the effects of marine oils and seed oils on membrane function and structure to determine how they impact on coronary heart disease.

“Our basic research involves looking at the structure of the fats in marine oils which will lead us to a greater understanding of how different marine oils give anti-thrombotic effects,” Professor Roberts said.

The team believes that the important “clot buster” fatty acid may occupy a specific position in the triglyceride chain of marine fats. They are currently analysing the fat of a number of Australian fish species, in the hope of finding a naturally occurring source of the “clot busting” fat.

But fish oils don’t tell the whole story. Seed oils, which contain Omega-6 fatty acids, have an important cholesterol lowering effect, achieved by altering the production of lipoproteins (the cholesterol carriers) in the blood.

Professor Roberts and his team are interested in the balance between the two groups of fatty acids. “It is the combination of the Omega-3’s and the Omega-6’s in the diet which determines the risk or prevention of heart disease,” he explained.

And that’s where the concept of “designer fats” comes in. A designer fat containing the crucial balance of Omega-3 and Omega-6 fatty acids could help prevent high cholesterol and coronary heart disease. “Incorporating these fats into products such as ‘fat spreads’ for use in cooking and baking, will provide consumers with a choice when selecting which fats they want to include in their diet,” Professor Roberts said. This concept of adding “designer fats” to food products is still a “long way down the line”. But the Newcastle group is confident of determining which fats (from fish oil or seed oil) are useful, combining these useful fats, and then feeding the product to an experimental group. “We anticipate that the final product will be beneficial in reducing some of the clotting factors and altering cholesterol levels,” Professor Roberts said.

The team at the University of Newcastle is in a unique position to undertake this research. The expertise within the Department covers a number of specialty areas, including food technology, nutritional biochemistry, dietetics and consumer science. “We will therefore be able to offer a viable product to industry for incorporation into existing foods,” Professor Roberts explained.

Unlike other designer products, “designer fats” could well be a feasible option for a large percentage of the population, concerned not with external appearance, but rather with their own and their family’s “internal” health and well-being.
Can the brain influence the immune system? And does this have any bearing on whether we are sick or well? While a link between positive thinking and robust health has long been suspected, science has never been able to prove it. A Newcastle research team, however, has now scientifically proven a link between the brain and the immune system and are set to rewrite the textbooks.

Professor Maurice King is co-ordinator of a group of researchers in the University's Psychology Department which is collaborating with colleagues in other disciplines to study links between the brain and the immune system, with a success rate that has the eyes of the world turning to Newcastle.

"Basically, what we've established is that the brain not only talks to the immune system, but the immune system talks back to the brain and there is a constant intercommunication between the two systems," Professor King said.

In laboratory trials, researchers Diane Bull and Michael Exton gave rats a fever-inducing drug, simultaneously with saccharin water. The next time the rats were given saccharin without the drug, yet they had the same fever reaction. The process also worked in reverse when rats were given a fever and then given a naturally occurring hormone that reduces fever, with the saccharin. The next time these animals were given a fever, only the saccharin was required to reduce the fever.

"We never cease to be amazed at the results," Professor King said. "The psychological effect of the saccharin can actually suppress a real fever. This is not the body pretending to have a response, it actually goes through the physiology of having the fever or suppressing it."

Dr Maryann Gauci, Bruce Tolluch and Judy Barrett, part of the psychology team who have been working in the field of psychoneuroimmunology for a decade, have recently succeeded in proving the brain/immune system link in human patients. Using volunteers who suffer
from allergies, the researchers were able to simulate an allergic response.

The volunteers were first given a novel blue drink and then had allergens (house dust mite) injected into their nostril, causing an allergic response. On their second visit, the volunteers were again given the blue drink but the injection contained only saline solution. Yet the same allergic response was elicited as though the injection were of allergen.

The researchers measured the enzymes that are associated with the release of histamines in the allergy sufferers and they changed in response to the blue drink. “So it is not the person mimicking the allergic response, it is actually the biochemical and physiological pathway being activated by the brain,” Professor King said.

“I think, if we can get it right with our allergy studies, the next thing we propose is to start with asthma,” Professor King said. “But we must be sure these contentious procedures are right before we proceed to life-threatening conditions.”

The group had also studied whether one “personality type” was more susceptible to allergies than another. They found that the type of person who tends to be prone to allergies is somewhat hypochondriac. “The other surprising thing is that people who tend to be socially introverted (shy) also seem to be prone,” Professor King said. “And if you put these two tendencies together then you will tend to be allergy prone, and this is particularly true of hayfever sufferers.”

Despite their successful findings, Dr King realises that any techniques discovered that could cause the body to learn to boost the immune response or control immune system diseases that threaten life (most notably AIDS), will be a long time reaching widespread medical application. “Medical authorities are very, very conservative about adopting anything new and this would have to be tried out for a long time before it could actually be accepted into general practice,” he said.

Their work, however, is already moving into the production level in the field of veterinary science. Professor King explained, using chickens as an example. “If you have say 2,000 battery laying hens, they are prone to infection from various sorts of pathogens and have to be injected with vaccines on a regular basis, which involves physically lifting each bird. Putting the vaccine into the water supply is unreliable but we are able to condition the birds to a certain flavour in the watering system so that the birds immunity would be boosted when they tasted it.”

The findings of the psychology team will, however, eventually herald a new era for those suffering from immune system ailments. The gap between the wisdom of folklore and science has been narrowed a little by the imaginative efforts of the Newcastle team.

Beating a Path to Our Door

Professor J. Bruce Overmier, an experimental psychologist from the University of Minnesota, said Newcastle was one of only a handful of places, out of hundreds worldwide doing research in the field of psychoneuroimmunology, finding success.

In Newcastle for a research program, Professor Overmier came to study the methodology the Newcastle team uses in its program. “This group has published several successes and in my laboratory we have had several failures, so I wanted to learn what were the differences in our methodology...what is the magic in their fingers.”

While Professor Overmier found the research conceptually similar to his own, the actual applications of it were different. “We work with skin sensitivity in rats, but here they closely tie laboratory work to clinically relevant study. Our team is not as tightly integrated as the Newcastle team... they are not as enthusiastic in America about co-operating across disciplinary boundaries. The personalities, the style, the intellectual openness are unique and I am certainly going to try and emulate their successes in my institution,” Professor Overmier said.

“You have to formulate a way of talking with colleagues...so) people are willing to sacrifice some of their turf,” he said. “It is my impression that clinicians here are more willing to co-operate in clinical extensions of basic research.”

Professor Overmier praised Newcastle University’s Psychology Department staff, saying good people with special skills and talents were crucial to their success. “Universities are always talking about reducing infrastructure but if you do you can destroy the base for internationally important research successes,” he said.
There are nearly 400 reported cases per year of anti-venom use in Australia. Fortunately, the death rate from snake-bite has dropped to about one per year, and there have been no recorded deaths from Funnel-web spider bites since the introduction of anti-venom in 1980. This now means that the most important factor in determining outcomes after such a bite is the correct application of appropriate first-aid.

Have you ever wondered why the Australian first-aid practices against snake or spider bites were altered from slashing the area of injury (blood letting) and applying a tourniquet (limb threatening) to tight bandaging and immobilisation of the affected area. The reason is straightforward, namely that the venomous fangs usually puncture into tissue and not directly into the blood stream.

Snake or spider venoms contain large molecules which cannot directly be taken into the bloodstream. The venom is removed from the tissues by the lymphatics, the vacuum cleaners of the body. Like blood vessels, lymphatics are present throughout the body. Lymphatics are specifically able to remove tissue fluids containing large molecules.

Why then, does tight bandaging prevent uptake of the venom? An understanding of the lymphatic system will enable researchers to answer questions such as this.

Dr Doug Howarth and Dr Ian Whyte from the Department of Nuclear Medicine at the John Hunter Hospital, and Dr Dirk Van Helden, from the University’s Faculty of Medicine, are currently trying to unravel the mysteries surrounding the lymphatic system. They are particularly interested in the flow of lymph through the system and how this relates to the transportation of venoms.

“The fate of foreign substances such as venoms is two-fold,” Dr Howarth explained. “First, they are assailed at the lymph nodes by immune-competent cells which leads to swelling of the lymph nodes. Second, these lymphatics empty residual toxin into the blood stream.

“Once in the main circulation the venom may cause serious illness or death, unless an anti-venom is present. Therefore the trick is to prevent the venom from reaching the circulation,” Dr Howarth said.

That’s where the tight bandage comes into play. The key here is that sufficient compression can prevent lymph, or at least decrease lymph flow, while not blocking the circulation of blood.

This has the obvious advantage of delaying both the onset of action and effective concentration of the venom. This may allow the body time to break down the venom without irreversible damage. Importantly, for the more toxic venoms it provides time for hospitalisation and application of an anti-venom.

“There are many subtleties associated with this treatment, for example, there is a requirement for complete immobility,” Dr Howarth said. Without this, the venom...
can transport readily despite the pressure bandage. On this basis, one wonders why immobilisation itself is not a sufficient remedy to prevent the flow of lymph. How then, is lymph transported?

“Each of the millions of lymphatic vessels in our body is divided into multiple chambers by frequently occurring unidirectional valves,” Dr Howarth said.

Many of the chambers have smooth muscle around their walls and act as primitive “hearts” to propel lymph in a forward direction. Parallel with such active pumping, external compression of the chambers by skeletal muscles such as the muscles of the leg or forearm, can also propel lymph.

The team of researchers propose, therefore, that the pressure bandage prevents the heart-like propulsion of lymph, but cannot override additional propulsion through external compression of the lymphatic chambers.

Another issue of considerable importance, being undertaken by Dr Dirk Van Helden from the Faculty of Medicine, is to understand how the primitive “hearts” are activated to constrict (ie. “what makes them tick”). This has relevance to how lymphatics function generally. In the case of the venoms it is obviously desirable to minimise pumping, however, for normal function, adequate lymph flow is critical to the prevention of oedema.

The lymphatics are also an integral part of the immune system. This is not only because of the role of the lymph nodes but also because the lymphatics return immune-competent cells back to the circulation.

Despite the incredible advances made in modern medicine, the lymphatics largely remain a mystery. Because of their small size and subtle function, their role in many of the body’s vital functions has not been researched in any depth. Hopefully, in the near future there will be greater understanding of this remarkable system.

### Not All It's
Cracked Up To Be

We all know that when a building foundation moves, cracking is likely to be a result. But what is the relationship between crack size and foundation movement? How much cracking can be tolerated? How much foundation movement can be tolerated before cracks become too big? Can we predict the likelihood of cracking given knowledge about the soil?

These are some of the questions a research team in the Department of Civil Engineering and Surveying is attempting to answer. The work has particular relevance for Newcastle and surrounding regions because of the high incidence of mine subsidence and the presence of shrink/swell clay soils. Both these conditions make cracking in buildings particularly common.

However, virtually every other city in Australia has similar problems (except perhaps for mine subsidence). Annual damage due to cracking in buildings has been estimated to run into millions of dollars.

Most structural engineering is concerned with attaining adequate strength of a structure to ensure safety of occupants. Little research attention has been given to the question of cracking, deformation, vibration, etc. These are so-called ‘serviceability’ criteria.

The research team is composed, principally, of three investigators each addressing a main strand of the work. One part of the project is concerned with the movements of soils due to climatic changes such as moisture content. This work, under the supervision of Mr Peter Kleeman, has concentrated on using field data to develop a mathematical model of soil shrink/swell behaviour. It is also using field observations obtained by the Department of Housing and the Mine Subsidence Board. A separate project headed by Dr David Smith, is concerned with identifying regions of swelling clays and classifying them.

The second part of the project consists of correlating building damage with foundation movement, and foundation movement itself must be related to soil movement. There are a number of gaps in our understanding of these correlations and, hence, experimental work is being carried out in the laboratory. Several full size single skin masonry walls, for which cracking is a particular problem, are being tested together with their strip footing foundations. This work is being undertaken by Professor Adrian Page who has long specialised in masonry design and research. In all, some 15 wall panels are being tested, some containing openings for doors and windows. Others have superimposed loading due to higher storeys.

The third part of the project consists of a probabilistic analysis since it is expected that the various uncertainties involving soil modelling and structural modelling of the masonry walls will require any answers to be presented probabilistically. This work will be supervised by Professor Melchers commencing later in 1993.
3D Images Help Doctors

Surveyors are usually thought of as being "measurers of land". They delineate property boundaries, map all sorts of areas, set out construction sites and so on. However, surveyors themselves will point out that they have considerable expertise in measuring a range of other objects - statues, industrial equipment, building facades or even the moon.

In one branch of surveying, known as photogrammetry, researchers and practitioners have for many years been trying to measure sections of the human body as an aid to biomedicine. Photogrammetry is the science and art of using two dimensional images, mainly photographs, to determine accurate three-dimensional information about the subject of the imagery.

The photogrammetric method of deducing three-dimensional shape may seem to be a straightforward application of the geometry of three-dimensional stereoscopy. In fact, to achieve their accuracy levels, photogrammetrists have to cope with a range of problems, including lens distortions, film distortion, and more importantly not knowing where the cameras were in space at the time of imaging.

For at least a couple of decades now, photogrammetrists have been attempting to adapt imaging methods to help medical practitioners. Primary attention has been given to measuring the shapes of faces to aid facial re-constructive surgery and the shapes of backs to aid scoliosis detection and treatment. But, in fact, very little photogrammetry has ever reached significant routine usage by medical practitioners. The major impediment can be attributed to an aspect of photogrammetry that has been its very strength.

Photogrammetry used with conventional film photographs is a means of abstracting an immense amount of detail about an object, and at great accuracy, but it is at the cost of prolonged work by an instrument operator. However, the electronics revolution has provided two developments which together may now permit these difficulties to be overcome - the electro-optical recording camera and the computer.

The electro-optical camera, a variant on the home video camera, generates digital images each of which comprises an array, (typically about 500 x 500 in size) of reflectance values, or "picture elements". This does not provide the same detail as film, but the level of resolution is adequate for most medical applications. Moreover, with computer processing of the images, the determination of the shapes of some areas of the human body - and indeed measurement of many other objects - can be automated.

In the University's Department of Civil Engineering and Surveying, Dr Harvey Mitchell is leading a project to develop a device to achieve these aims. A prototype device is now being refined for use with hospital patients. Two small, synchronised digital cameras, mounted 150 mm apart, simultaneously record a stereoscopic pair of images of the patient's face or back. A slide-projector is used to add texture to the otherwise featureless human skin.

Using programs on a personal computer to process the images, somewhere between 500 to 1000 points on the back surface are located in three-dimensions to an accuracy of about one millimetre, from the stereo-images, to define the back's surface shape. The procedure is fully automated and requires little human intervention. More importantly, the procedure has the advantage that the patient need hold still only for as long as it would require to take an ordinary photograph and is not inconvenienced or put at risk by the imaging process.

The task of the computer programs is, in principle, to achieve what the human eyes do: that is, to take in two images and to deduce three dimensional shape. The camera/computer combination is of course not so versatile, as current image matching theory cannot handle the complex objects faced by humans in daily vision and it is not so quick - but its judgement of shapes are more accurate than a human observer can achieve.

PHOTO: Contours superimposed on digital image of a face. The diagonal grid has been used to apply texture to the object to aid processing.
Up to thirty percent of children in the Hunter Region have had asthma at some time. Fifteen to twenty percent have had symptoms in the past twelve months.

Breathing Easy

Many of these children (particularly school age children) are embarrassed about using their ventolin puffers in public and avoid acknowledging that they have a chronic illness. The reason? A general lack of knowledge and understanding about asthma - a condition which kills more people in Australia each year than does the AIDS virus.

Teachers may feel they are unable to cope with having asthmatics in their classes. They too lack knowledge about asthma management.

With this in mind, researchers from the University's Faculty of Medicine have joined forces with school teachers and administrators, asthma educators and the Regional Asthma Support Group, to develop a comprehensive asthma education package for schools.

According to Associate Professor Richard Henry, the asthma education project has attracted a great deal of interest from the Region's High Schools. A survey conducted by the team of researchers indicated that more than 90 percent of school principals felt that asthma was an important problem in schools and that staff didn't know enough about the condition.

"Asthma is very common to children and lots of asthma attacks occur in schools," Professor Henry said. "This is partly because kids spend so much time at school, and also because exercise is one of the major triggers," he added.

The asthma education project offers a practical hands-on package to school teachers. Children respond well to the simple exercises and concepts outlined in the package. The package has been introduced to seventeen of the Region's schools. However it will be distributed more widely if the expected benefit of the package occurs.

Prior to introducing the package into schools, Professor Henry's group conducted a one-day teacher-training workshop at which teachers were introduced to the package. This ensured that teachers gained the necessary knowledge and confidence to teach their students about asthma management.

Professor Henry says the main emphasis of the program is on co-management of asthma. Patients need to be aware of their condition. "In order to effectively co-manage your own asthma you need knowledge and understanding," Professor Henry said. "We are certain that Year 8 students will have the intellectual sophistication to grapple with the issues and take responsibility for their own health."

The asthma education project developed by Associate Professors Richard Henry, Graham Vimpani and Peter Gibson, with the assistance of an NH&MRC grant, is unique to the Hunter Region. "The notion of teaching people how better to manage their own asthma is not new, but the idea of incorporating it as a formal part of the school curriculum is," Professor Henry said.

The project is a good model of how the University is working with the community to develop programs of local, regional and national significance. Asthma education is essential if asthma sufferers and their families, peers and colleagues are to effectively manage the condition.
"Indigenous people on campus face a complex conflict every day because their value systems emphasise cooperation. Competition, however, stratifies the community into those who 'are/can' and those who 'are not/cannot'. Aboriginal and Torres Strait Islander people who know and operate successfully within their own cultural 'mode' must also learn to operate within a non-Aboriginal mode. We must draw Aboriginal people into the institution's decision-making, persevere with the difficulties and ensure that our processes are respected. Only then can change happen."

On a different tack, Professor Alan Ward's work focuses on the history of Pacific colonisation and the interaction between indigenous customary law systems and European legal systems, and in particular the extent to which customary systems are now recognised in law and administration.

Because indigenous peoples today have complex and changing aspirations, their traditional values and relationship to the land are merging with an impulse to engage in modern development. Traditional land tenures, for example, must adapt to meet the changing aspirations as well as preserve valued tradition.

The concept of 'native title' has been belatedly recognised here as in Canada and New Zealand. Professor Ward argues that there may still be something to be gained by indigenous peoples from the common law, despite its failure to yield much for Aboriginal land rights before the Mabo case.

"In British legal tradition, the Executive (the Crown) itself is subject to the rule of law. Recent decisions in Canada and New Zealand, and some judges in the Mabo case, hold that the Crown has obligations of trust and fiduciary responsibility to indigenous peoples," Alan says. "No subject can be deprived of property or personal liberties arbitrarily. In New Zealand, Crown breaches of this principle are being dealt with retrospectively and could be here too."

While many Aboriginal people who suffered under British law don't readily see solutions available under that same law, Professor Ward notes that Maori people have made it work for them. With the Mabo case as the first such win for Aboriginal people whose rights were over-ridden by the colonisation, this approach could provide redress for Aboriginal people in South East Australia.

In New Zealand, the Treaty of Waitangi was signed in 1840 by over 500 Maori Chieftains and the first British Governor. The Chieftains recognised British sovereignty in return for guarantees of customary land rights, Chieftainship, and full rights as British subjects. The Treaty confirmed (with some new, explicit dimensions) what was already enshrined in British common law. However, judges from settler societies favoured their own interests and the distortion is only now being corrected through the courts as Maori people seek redress through access to capital and resources. This should relieve their economic marginalisation and restore the wealth of the tribes with land rights, fishing quotas and shares in mineral exploitation bringing a measure of self-determination which political and legal rights alone can't confer.

Professor Ward's contribution to the Treaty deliberations over the next three years will be to help plan research into claims. Claims-based research will be complemented by a nationwide strategy to quantify and describe the injury done.

It may be easier where Maori people have one culture, one language and one customary law, where all people are kin, and where they themselves, having migrated through the eastern Pacific, made different accommodations with the settler people, but nevertheless nothing equivalent is yet happening in Australia.

There is value in looking at overseas experience and learning the positive lessons. Distinct races and cultures will always exist. Indigenous and settler peoples must live together. Research into the past and administrative reform in the present can make that co-existence more fruitful.
A group of researchers from the Institute of Coal Research (ICR) at the University hope to answer these questions during the next three years - and also solve several associated problems.

Led by Dr Raj Gupta and Professor Terry Wall, the group has received a $216,500 research grant from the Japanese company, Ishikawajima-Harima Heavy Industries Company Ltd (IHI), which is enabling the University group to undertake research into the effects of mineral matter in coal during combustion. The group is also hoping for other related findings.

Institute Director, Dr Konrad Moelle, said that investigation of mineral matter in coal was an important aspect of world-wide coal research.

The Newcastle project is also aiming to further reduce emissions from power stations. Australian coal mining companies are supporting the research by providing samples of their coal in addition to coal from other countries.

"Researchers have looked at the influence of mineral matter in coal on combustion on many previous occasions. Final results from this specific IHI sponsored project are not expected before September 1995," said Dr Moelle.

"IHI is a world-class manufacturer of boilers and combustion chambers for coal-fired power stations and several members of the company’s research staff are co-operating in our work."

The Japanese researchers, under the leadership of Mr S. Miyamae and Mr R. Ishimoto, will make frequent visits to Australia for the research project.

Dr Moelle said coal quality and combustion performance was of great significance as major changes in coal technology were imminent, notably in the field of gasifiers which are relevant to coal-fired power stations.

Photomicrograph of coal macerals in transmitted light.
Karel Grezl has learnt one very important asset when dealing with South-East Asia - patience is a virtue.

South-East Asia

No matter what your plans, if they don’t fit with Asian philosophy and cultural understanding, your chances of success are limited.

and Patience

Karel Grezl, after a number of visits to South-East Asia, now talks easily about credibility, long lead times, months and years instead of days, hurdles, relationships....

The Chief Executive Officer of the University’s commercial arm (TUNRA), Mr Grezl says dealings can be long and complicated. More to the point, they can be frustrating.

Mr Grezl and other TUNRA representatives have now made a number of trips to South-East Asia, particularly Indonesia and Singapore, to market Australia’s modern technology.

TUNRA has great belief in its antenna tracking and control technology and has been assessing international market potential. It chose the recent Communications Technology Indonesia ‘93 exhibition to launch into the South-East Asian market knowing full well that financial results would be ‘well down the track’.

“The survey response in Indonesia was very positive,” Mr Grezl said “It’s a country that has an under-developed communications network for its 13,000 islands while its economy for 185 million people is very strong.”

TUNRA’s Industrial Electronics Division (TIED) in conjunction with the University’s Centre for Industrial Control Science (CICS) has developed the Orbtrack antenna tracking and control unit. The expertise evolved from the satellite and radar tracking research of Associate Professor Rick Middleton and Professor Rob Evans (now at University of Melbourne).

The expertise now includes tracking and control hardware for the Australia Telescope at Culgoora (NSW) and the Orbtrack antenna tracking controller which is a joint development by the University, CSIRO’s Division of Radiophysics and OTC Australia. Orbtrack was licensed out by TUNRA on behalf of the joint owners for further development, manufacture and marketing and about 40 units have been sold to OTC for installation in Australia, Nauru, Cocos Islands and Antarctica.

TIED has also been involved in a defence signals project in Western Australia and a prototype antenna tracking controller for OTC Australia for an unmanned earth station in the Cook Islands.

“Our experience has indicated that computer-based technology available at this University for antenna tracking and control is in demand and that it is very clear that patience and perseverance are keys to success for the international commercialisation of technology,” Mr Grezl said.

“We believe Indonesia provides an ideal platform to launch this technology into other areas of South-East Asia, but we know there are no quick returns.”

The recent trip to Indonesia was TUNRA’s third visit in five months in order to consolidate its position as a provider of technology, expertise and services to the large Indonesian market. Visits to a number of launch and ground station sites on Java with representatives of the Indonesian National Institute of Aeronautics and Space (LAPAN), the exploration of collaborative possibilities with LAPAN, discussions with PT Indosat on a proposed upgrading of an antenna at Jatiluhur and discussions with Sisindosat on a possible agency agreement were all on the agenda.

In May a paper was presented in Bandung by Professor Middleton at the United Nations/Indonesian Regional Conference on Space Science and Technology for Sustainable Development.

“It’s step by step.....going through ‘initiation rights’.....understanding the cultural dimension which is an extra to the business world.....knowing that it’s relationship driven.....knowing that it’s time....”
What makes a good newspaper? Or good television or radio? Is broadcasting a public service or a business? In Australia at the moment, questions like these focus on recent changes in the Fairfax Press and the content and layout of the “Sydney Morning Herald”, the struggle in Newcastle between NBN and Prime television and the future of the ABC. In some parts of the world, the question is whether or not people have a paper to read, a radio to listen to or any television to watch.

Unesco Communication Review

Since the 1960’s, UNESCO (the United Nations Education Scientific and Cultural Organisation) has worked to improve the quality of communication for people in the developing world. Sometimes UNESCO has provided the facilities to enable people to print and publish their own papers, or set up their own broadcasting systems. With others it has helped to train people to work in those media. Often it has convened conferences and workshops where people have been able to get together and decide what sort of communication systems or cultural institutions they wanted. In Australia in 1968, UNESCO conducted the conference that led in turn to the establishment of the Australian Film and Television School in 1972 and the Australian Film Commission in 1975.

Every ten years, UNESCO takes stock of its Communication Program, reviewing its performance over the past decade and plotting its course for the next. This year, that evaluation is being undertaken by Frank Morgan, Head of the University’s Department of Communication and Media Arts.

“It is an extremely difficult project,” Mr Morgan said. “It involves an enormous range of questions, including levels of skill and professional practice, cultural identity and economic viability in a great diversity of countries. Then there’s the paper!” The stack of reports, from which he is gleaning material for a survey later in the year, is over a metre high.

While there is a worldwide appetite for American music and popular television, people also clearly want their own press and broadcasting. They prefer not to be swamped by a single global feed of words and sounds and pictures. But there are difficult choices to be made. Unemployment is endemic, especially in countries where half the population is under 15.

“Do you use television to divert them with sex, drugs and rock and roll and zapper-pow cartoons, or do you use it to teach people how to grow and make and sell thing better?” he asks.

Once a television producer and documentary film-maker, Mr Morgan came to Newcastle following a term as Deputy Director of the Australian Film, Television and Radio School. In that position in 1983, he set up the ASEAN-Australia Media and Information Program. He reviewed the South Pacific Commission’s regional program in 1986-87 and the Asia-Pacific Institute for Broadcasting Development (AIDB) in Kuala Lumpur in 1988-89. Last year, AIDB made him an Honorary Fellow in recognition of his work in the improvement of communication internationally.

Mr Morgan was originally due to spend January and February overseas with visits to Unesco communication projects in the Pacific, South America, the Arab States, Africa and Asia. A sixty percent budget cut at UNESCO headquarters and a few bureaucratic bungles meant that the project had to be redesigned and he had to start with the paperwork.

His major complaint is that the yellow fever shots he had to suffer don’t seem to deter the mosquitos on campus.
It can cater for large and very grand concerts and also small, intimate musical performances with equal style and panache. Where is it?

In the centre of the city of Newcastle, it forms an integral part of the Civic Centre and is surrounded by other important cultural and civic buildings including The City Hall, The Art Gallery, The Cultural Centre, the historic Baptist Tabernacle and St. Andrews Presbyterian Church. What is it?

It is the University of Newcastle Conservatorium Performance Complex, a beautiful and culturally appealing building which is reputed to have the finest acoustics in the Southern Hemisphere.

Built to take advantage of the sun from its northerly aspect, the Performance Hall is entered through a tower located on the south-east corner of the site. This tower is a reflection of the one on the original building and complements St. Andrew's steeple opposite.

Similarly the tower and loggia are designed to reflect both the classical style of the existing building and some of the architectural elements used in the Church.

Foyer space can accommodate small exhibitions of artworks or sculptures and also allows a pleasant area to relax during intermissions.

Dean of the Faculty of Music, Professor Michael Dudman, says the auditorium is designed under traditional volumes for acoustic purposes, resulting in a 'theatre in the round' layout similar to the Newcastle and Sydney Town Halls. He says this layout allows the Conservatorium to have only small groups in the stalls area and create the impression, psychologically, that the Hall is 'half full' rather than 'three quarters empty'.

"Acoustic requirements have resulted in the ceiling and walls being heavily modelled to achieve the long reverberation times. The decoration used throughout the auditorium is based on the Art Deco period, with current modern details and colour schemes creating a unique environment," Professor Dudman says.

"The decoration in blues, pinks and silvers is designed to create a richly decorated atmosphere conducive to artistic and creative music. It is a pleasure to perform in these beautiful surroundings.

"The organ loft which houses our magnificent Classical Organ, is the centrepiece of the Auditorium and the focal point of many concerts held here."

"At the rear of the Hall above the Gallery is a lighting and recording studio capable of providing high quality recordings," he says.

The Conservatorium is presenting a comprehensive concert program for 1993. A series of Sunday concerts, a Twilight Keyboard Series on Wednesday evenings, the Discovery Series in conjunction with the Hunter Orchestra, Musica Viva and many other concerts auger well for a busy performing year.
Convocation

Warden’s Column

The choice of this issue’s theme “Forged in the Hunter to succeed for the world” is timely and appropriate for our University and its convocation. With funds for tertiary institutions in this country becoming more difficult to find, we must sell ourselves to the outside world more than ever before.

For some reason we have been reluctant to sing the praises of our University and university staff.

Take, for example, the exciting work being done by TUNRA, our University’s commercial arm, in both Indonesia and Irian Jaya.

TUNRA Chief Executive, Karel Grezl, Manager of the Industrial Electronic Division, Ian Dick and Technology Development Manager, Stephen Wellink, have been marketing satellite antenna tracking and control in Indonesia which could yield outstanding results.

Such achievements are carried out by our graduates around the world almost every day, as shown by some of the recent winners of our Convocation Medal for Academic Excellence. Three who come to mind are Dr Peter Ramadge, who is now Assistant Professor at Princeton University and one of the world’s most talented engineers, and Dr Robert Ether, also in the US, and our own Dean for Research, Professor Ron MacDonald, who are both world leaders in their areas of physics.

Darrell Williamson is another local graduate who has become a world leader in his field, and is Head of Engineering at the ANU. And, only last month, another graduate, Paul Broad, was appointed to head the Sydney Water Board.

Our convocation members have never stopped “looking ahead” for the benefit of the Hunter Region and the rest of the world.

As this will be my last column as Warden of Convocation, I would like to thank all those who have worked with me on the Board of Management. My thanks also go to theconvocation officers who worked with me, Nicolette Connol, Margaret Wells, Alison Kinder and Kim Britton.


graduation ball sponsors

Convocation wishes to thank the following sponsors for their generous support of the 1993 Graduation Balls, held on May 1 and 8:

Major raffle prize donors:

Austral Presentations: Mystery flight for two

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Richard Townsend Ballroom Dancing

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Balloon Boutique

Greater Union Tower Cinemas

Well over 1,000 graduates and their friends attended the two balls.

Paul Broad

When Paul Broad began work as Managing Director of the Sydney Water Board last month, he came armed with a copy of a Chinese book, The Art of War, written 3,000 years ago. The friend who sent him the book said it would be more use than an adviser as he faces the challenges of his new job.

As well as this formidable manual, the young corporate crusader also took with him an arsenal stock ed with a steely determination and a cache of ideas and convictions amassed during his years at Newcastle University.

Responsible for winning the loud and clamorous battle to corporatise the Hunter Water Board and introduce the user-pays system to Newcastle’s reluctant water consumers, Paul feels Sydney will only present minor skirmishes in these areas.

“I think there has been a great deal of cushioning of the user-pays concept and there is more acceptance of it today,” Paul said. “The reform process we’ve undertaken in the Hunter has been seen as successful,” he understates, with the Hunter authority now one of the country’s most efficient. The introduction of the user-pays system saw a 30% drop in water consumption in the region.

And while corporatisation and user-pays are definitely part of the battle plan for Sydney, Paul has no ambition to put the “broad”-sword through the administration. “It is too heavy and it seems to me a few hard decisions need to be made, but I am not going to Sydney to slash and burn,” Paul said.

The new managing director sees his major battles being joined with conservationists and others protesting the Board’s proposed water treatment plants.

The 41 year old economics graduate from the University of Newcastle and former treasury worker brings his economic
rationalism to bear in this field as well. "Water treatment has to happen," he said. "In a modern city you can't just rely on having pristine catchments and throwing in a bit of chlorine to maintain its purity...protecting the health of the community is our responsibility."

And the health of Sydney's large community is not Paul's only responsibility in his new job. "I will be running what is a very big player with the environment, a major consumer of the nation's limited resources, an organisation that affects all our lives, that we can not survive without."

Motivated by a restless desire for a new challenge, Paul left the relative comfort of his position as managing director of the Hunter Water Corporation, to test himself in a bigger game. Recalling the words of advice given to him by his dying father last year, "don't ever look back and say what if", Paul believes himself an idealist. "I do things from a higher value reason, that's what drives me," he explained.

And many of the values Paul brings to his business life were instilled in him at Newcastle University. Graduating from his Commerce degree in 1973, Paul returned to do his Masters in 1978/9. "University life was wonderful," he recalls. "I grew up and turned from a boy to a person of the world, and it was then I developed a social conscience."

Paul still thinks about many of the principles taught to him in those years. "The University of Newcastle was great for providing me with the opportunity of thinking about a great range of social issues."

And Paul is still studying. He turns again to Sun Tzu's Art of War on the desk in front of him. "The breadth of thought they possessed 3,000 years ago is amazing," he muses. "It is really important to study that breadth when you are running an organisation human behaviour and how we relate to one another in society."

The impression that Paul's holy grail, an efficient, lean Sydney Water Corporation, is well within his grasp is reinforced by his air of calm and confidence. Those who would stand against him would do well to formulate their own battle plans.

John Robson

John Robson, the 1992 Newton-John Award winner, told an audience at the Convocation Dinner, what it was like for him growing up during the Great Depression.

It was a time of great hardship and privation for John and his family and he recalled visions of a generation of young men, who were unable to work, frittering their time away on Redhead Beach. But apart from the memories, John gained a legacy from those years that led him to dedicate 40 years of service to the arts in the Hunter region.

On receiving the Award, John shared the ethic he learned from his struggling parents - "it is more blessed to give than to receive".

MONEY-SAVING OFFER !!

Not yours. Ours.

We're changing our publications program to make the budget go further and leave more for teaching and research. Our new print list will be made up of a special annual update edition, and a series of lower cost specialty editions.

If you're on our graduate and staff mailing list now, we'll go on sending you this annual update on the University's achievements and programs. We want to keep in touch, and we want you to keep in touch.

If, however, you'd like to go on the list to receive the other publications, please fill in the green form we've enclosed and we'll make sure you receive all of our "special list" publications.
It's young and enthusiastic and already has established a niche in the national market.

A Place in the National Arena

Journalists and commentators readily telephone for comment or background information and the easiness in gaining information is resulting in an enviable reputation.

Playing a significant role both in the analysis of employment issues and in the practical implementation of reform in the Australian labour market and workplace, the ESC - better known as the Employment Studies Centre - has brought together the expertise of several departments at the University of Newcastle, including Economics, Management, Law and Geography.

Last year the ESC was influential in shaping the Federal Government's view of unemployment and what to do about it. The Centre can claim some credit for the measures which finally appeared in the August Budget, particularly the Local Government Capital Works Program.

The Centre's Steering Committee comprises Dr Roy Green, Dr Duncan Macdonald, Professor Barry Hughes and Mr John Burgess. Dr Green says they don't mind being 'on tap' as their expertise should be used in the regional, state and national spheres.

He says it is not unusual to be telephoned at all hours, to appear on various television shows or to comment on radio shows around the nation.

Linking into the aims is the Hunter Workplace Case Studies, a major project in which the ESC is developing and refining in a regional context the framework of the Australian Workplace Industrial Relations Survey (AWIRS) to specific cases. Twenty-five workplaces in the Hunter Region have been surveyed in the first stage with six in-depth case studies currently being completed.

The case studies will evaluate a range of issues including the extent and nature of change occurring in workplaces across a range of industries in the Hunter Region; the reasons for introduction of change (award restructuring, product market conditions); the process involved in the implementation of change and award restructuring (including roles of management, unions, consultants etc); the timeframe in which change is occurring; factors which facilitate change and those which impede change; the impact of changes on efficiency and equity.

Dr Green says the focus of the project is to determine what makes for successful workplace bargaining and what impact there has been on workplace bargaining both from an efficiency and equity viewpoint.

"We expect the results of the in-depth case studies to be available mid-year and these will then be integrated into the Federal Department of Industrial Relations workplace bargaining research project (along with another four similar projects in Sydney and Melbourne)," Dr Green said.

"Preliminary results of the survey are being used by the Industry Commission and as far as industry strategy is concerned, the Hunter Region view is very important."

The ESC has made giant strides at a time when Australia is looking at its industrial relations policies and practices. It is at the forefront of comment which can only bring credit to the University and, importantly, the Hunter Region.

The main activities of the ESC are research, consultancy, training and teaching while the aims are to: • contribute to a better understanding of employment issues in Australia, including workplace industrial relations, human resource management, occupational health and safety, segmented and regional labour markets, labour history and the economics of work and pay • provide a focus within the University for teaching, research, information and advice on employment issues both nationally and in the Hunter Region • promote contact with practitioners and other research bodies by disseminating the results of research by members of the Centre to the wider community in Australia and overseas • advise companies and trade unions on ways of improving management, work organisation, pay and reward systems, training arrangements, methods of communication and opportunities for employees, including women and disadvantaged groups • advise government and public agencies on the future direction of wages policy, technological change, employment and earning trends, training and job design, workplace productivity bargaining and labour market reform.
Overseas Students

BENEFITTING OUR REGION

About 750 overseas students have taken up studies at the University of Newcastle this year. They bring with them considerable benefit for the University - but what about benefit for the region?

The 'Dawkinisation' of Australia's higher education scene placed far greater pressure on universities to become more accountable and to pursue other avenues of financial income besides government funding.

The introduction of courses for full fee-paying overseas students has been one avenue eagerly pursued by Australian universities. Universities recognised they already had the academic expertise but setting up the infrastructure to cater for the influx of overseas students has not been an easy task.

Most universities in a very short time became well-versed in providing services and overseas students are now 'part of the scene' on nearly all university campuses.

Pro-Vice-Chancellor (Development), Dr Les Eastcott, has been involved with overseas students since day one and has played an active role in promoting the University of Newcastle in South-East Asia and other parts of the world.

He is one of the first to admit that the introduction of courses for overseas students has not been easy. The initial days of working on shoe-string budgets have disappeared and the increase in work for the International Students Office is testimony that overseas students are targeting Newcastle as a place for study.

Marketing an educational program is a challenge. It is more than a product in the traditional sense. There is a fine line between maximising our market potential and seriously damaging our reputation as a high quality university. Not the least of the problems is designing marketing strategies which address traditions and expectations of different cultures and do not offend traditional values about education.

"I suspect Australian universities may be very close to crossing the line," Dr Eastcott said. "If so, the long term consequences are substantial."

But what do overseas students bring with them? Dr Eastcott says it is much more than just dollars.

"Many people see our overseas students as a source of income and that to a large degree is correct," says Dr Eastcott. "But there is much more - the cultural impact of these students is immeasurable."

Overseas students pay annual fees ranging between $9,000 and $22,000 and all are advised to bring between $10,000 and $11,000 in addition to their pens and paper.

That means about $7.5m will be pumped into the local economy this year in addition to the fees received by the University. Whilst the boost for both University and regional coffers is substantial, there is the added advantage of students visiting various parts of the Hunter Valley and New South Wales while studying in Newcastle and therefore adding to our tourism industry.

However, Dr Eastcott says encouragement of overseas students to study in Newcastle makes sense culturally as well as economically.

"The meeting of Australian and overseas students serves to provide a widened cultural experience which is good for both cultures," he said.

"There is however one very important aspect that we don’t see in Australia when we talk about overseas students," Dr Eastcott explained.

"The knowledge and experience these students take with them when they get on the plane to fly home is immeasurable."

Their days of study in Newcastle will always stay with them. They are ambassadors for both the University and region - that impact in their own country cannot be underestimated."

Dr Eastcott stated that we should not only be concerned with importing overseas students.

"Encouraging our Australian students to broaden their cultural and educational horizons is an important part of the growing internationalisation of higher education," he said. "Already the University of Newcastle’s student exchange program contributes to this with our exchangees to overseas universities being uniformly positive about their experiences."

PHOTO: Courtesy of The Newcastle Herald

Overseas students graduate with a Bachelor of Nursing degree.
Portrait Honours Retiring Vice-Chancellor

Retiring Vice-Chancellor, Professor Keith Morgan, quipped that it was an unusual occasion, one where people could come and see the hanging of the Vice-Chancellor.

The reason for his comment was a magnificent portrait painted by the renowned Australian artist, Judy Cassab, which was to be unveiled before the assembled guests.

The portrait, commissioned by the University Council, was presented at a special ceremony, where it was acclaimed as an excellent portrayal of Professor Morgan.

The background of the portrait's creation is a story in itself.

No stranger to painting portraits of famous people, Judy Cassab is a woman of disarming charm and naturalness. Even though her portraits hang in the most hallowed halls of Australia and overseas, she modestly refers to herself as an observer of people, one who acts as a conduit to transfer the likeness to the canvas.

Each portrait requires five sittings of two hours duration. She says that these five sittings in such an intense atmosphere are the equivalent of 15 years of friendship.

“You get to know a person intimately,” Judy says. “I am vitally interested in what they have to say about their childhood, about their young years, about their career.

“I think in this world of short attention spans, television and lack of conversation, people enjoy sitting for a portrait, because other than the psychiatrist's couch, perhaps there is no other place where they can talk about themselves.

“And whereas I can imagine psychiatrists listen because it is their job, I listen because it is important to me and what I put into the painting,” she says.

It is hard to define exactly what the quality is in the painting that is so lifelike. Probably it is because no person's face is altogether balanced and many moods can be seen at the one time.

This is where Judy’s exceptional skill and perception play their part. “I speak with my brush. One eye smiling, one sad. The mouth, one corner smiling or benign, the other cynical,” she says.

The conundrum is explained.

An artist since the age of 12 in a small village in Hungary, Judy says she is grateful every day for her gift. “I never take it for granted and I always think that the least I can do is to use it. “I don’t paint more than two portraits at a time because I don’t want to get into a routine. I want every portrait to be the very first experience - like love,” she says.

The period after the five sittings is where the procedure starts to get interesting. Judy then turns the painting upside down so that she can see it is an abstract. She explains that this prevents her being influenced by who the subject is and allows her to concentrate on the colours, the tones and the forms like an abstract picture.

Her method has produced a fine portrait of Professor Morgan, one which joins those of other Vice-Chancellors in the Purdue Room of the Great Hall. It takes its place in the history of the University and that of the Region as a fitting tribute to Professor Keith J Morgan, Vice-Chancellor between 1987 and 1993.
Thai Interest in Special Education

The University's Special Education Centre, located in a peaceful setting near the eastern entrance, has become the focus of attention for the Thai government.

Thailand is investing millions of dollars in the provision of Special Education services and is using the University of Newcastle's Centre as its model for future development.

The Centre, established in 1976, has an international reputation for excellence because of its broad range of specialisations and its facilities. Visitors from many countries regularly come to the Centre and are impressed by its services and by the commitment of staff.

Thai interest stems from initial contact with the Suandusit Teachers' College in the late 1980s and has developed through

Assistant Professor Dr. Foreman, the Centre's Director, said the Thai interest in student services is because of the possible inclusion of Thai students in the Master of Special Education program with students spending a year studying in Newcastle as part of their program.

Dr Conway, also Course Director for the M.Spec.Ed., said negotiations were at the stage where the course could start next year, the current program requiring only minor changes to meet the special needs of Thai students.

"The practicality of our course has been very attractive to Thai officials and there could be up to 40 Thai lecturers involved during the next five to six years."

The Thai visitors, led by Chief Architect, Mr Chala Partamapat, and Special Education specialists, are following the model here in the training of the University and potential for students.

"They are following the model here in the training of teachers in Special Education service."

There are 36 teachers' colleges in Thailand and the government hopes to build at least six Special Education centres, the first two being in country areas.

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There are 36 teachers' colleges in Thailand and the government hopes to build at least six Special Education centres, the first two being in country areas.
He calls it a "fine art comic strip". Others call it "one man's labour...a portion of his soul". John Montefiore, a Lecturer in Fine Art at the University since 1975 has been awarded the prestigious Sulman Art Prize for 1993 by the Trustees of the Art Gallery of New South Wales.

John says the 18 metre wide work which incorporates 41 pieces arranged in 15 panels, took 25 years from conception to completion and embraces many philosophies, both Eastern and Western. The idea was formed after a three-year sojourn around Europe, part of the NSW Government Travelling Art Scholarship.

The narrative moves from left to right and portrays the many stages of life, the changes in seasons from light to dark, bringing into play a spectrum of colour also from light to dark. Not only does the colour and theme move from left to right but also vertically. This is where the positive and negative weave their spell and compel viewers to question their own interpretation of life's mysteries.

"It is a narrative painting, following the human life cycle from conception to ascension, depicting the change of the seasons, the stages of the rising and setting of the sun and the heavenly or positive and hellish or negative forms of all existence," John says.

"Archetypal images arranged in 13 sequential steps incorporate birth to death, sunrise to sunset, growth and decay, innocence and experience. The upper panels use images adapted from the many religions and mythologies and represent man's high ideals. The lower panels, often with black humour, depict the different holes we dig for ourselves or fall into, through sheer misfortune.

"The circular panels at the beginning and end of 'Life Series' are mythic interpretations of creation and fulfillment. The 'tree of life' image is used for the beginning and the 'fountain of life' at the end," he says.

Art critics applaud his work. "What is impressive is the sheer dedication to the task. From a precise system of colours, motifs, metaphors and rhythms has emerged an overwhelmingly engaging work, detailing the major stages of the human life cycle, with its spiritual and hellish possibilities... He shows a true understanding of the universality of symbolism and of its power..."

Even after this prodigious work and many others, John Montefiore is not an artist who is content to rest on his laurels. Keenly interested in philosophy, he is currently working on a 20 metre wide by four metre high panelled painting entitled Magnum Opus and is also working on a book about art with an academic colleague, Professor Norma Talbot.

John Montefiore can only be described as an artist of great standing.