

CAMPUS NEWS

Profile of Harry Goodhew, Archbishop of Sydney

Harry Goodhew, previously Bishop of Wollongong, was installed as Archbishop of Sydney on 29 April 1993.

As the roles of the church and universities have been intertwined through the centuries, so have the paths of the University of Wollongong and Sydney's Archbishop Harry Goodhew.

In his role for the last 11 years as Bishop of Wollongong, Richard Henry Goodhew, 62, officiated at numerous graduation ceremonies.

He graduated from the University with an Honours Masters degree in History and Politics.

Recently he was instrumental in establishing an Anglican residential college in Keira Street where students can live and study in a Christian atmosphere.

The Archbishop first suggested the idea of a residential college more than eight years ago.

The University made available land on the northern side of the campus for a 250-student residence but the Church was unable to raise the funds to develop the site.

However, a grant from the Fairfax Foundation allowed the purchase of the old YWCA building in Keira Street and its transformation earlier this year into the Richard Johnson College, named after the First Fleet Chaplain, which houses 25-26 male and female students.

The Archbishop's studies at Wollongong University have coloured his distinctive, yet gentle, leadership style.



The new Archbishop of Sydney Harry Goodhew

For his thesis which he started in 1986 and finished in 1991, he explored the role of leadership at local church level, discovering that leadership style was the major factor determining the nature of congregations, above and beyond other factors such as population level or economic circumstances.

'It's been very helpful to me because it's meant that I've been able to carry that across in my work with local churches and I've had to reflect with an academic edge on the nature of Christian leadership,' he said.

'There's an element in Christian understanding of leadership – we call it servant leadership – which has nothing to do with traditional status.

'It's the empowering of people to develop their gifts and permitting them a stake in whatever the issue is, or whatever

the organisation is trying to do.'

In his thesis, he has identified four major areas: firstly, a leader must set a vision of what has to be done; then pursue the task; create a climate suitable for the task at hand; and organise the resources to complete the task.

'You take the whole organisation as being represented by an arrow and the leadership the tip and the bow. It aims the direction and helps focus the energy. But it's not there for its own purpose. It's a team effort.

'I think it grows out of the perception that every individual is valuable and every individual ought to have a possibility of contributing the thing which they feel is important, whether it be the workplace or the church.

'In the life of the church we have a notion that God gave everyone a gift or a talent and that ought to be gathered up for the good of the whole.'

Archbishop Goodhew is in the midst of his doctoral studies at Macquarie University which gives him access to the National Church Life Survey, a huge research work involving 300,000 people from 6,000 congregations.

However, he has had to postpone his work, which he began two years ago, while he takes up his new position.

The Sydney Diocese is Australia's oldest. Today it still covers a huge area from Broken Bay in the north, Lithgow in the west, Talong near Moss Vale in the Southern Highlands and Burrill Lake near Ulladulla on the south coast. The diocese is home to 60,000 regular churchgoers.

Continued page two

Brief News

A clean sweep for the campus

The Landscape Section of Buildings and Grounds has purchased a ride-on sweeping machine to help keep the University's roads, paths and paved areas clean and free of litter.

The machine has the capability of sweeping at a rate of 7000 sq.m per hour.

However, this is no reason for any of us to stop 'doing the right thing'. Please continue to place litter in the many bins provided.

This campus is the envy of many and we all need to do our bit to keep it attractive.



The recently opened antiquarian and second hand book shop in Wollongong wants to buy good academic classics.

Call in to 59b Crown St between 11am and 6pm. (Leave plenty of time to browse around the fascinating collection). Something you are particularly looking for? Ph 26 9966

Acting Vice-Chancellor

Professor Gerard Sutton will be Acting Vice-Chancellor from 16 April until 10

Profile of Archbishop Goodhew

From page one

'The role of the Archbishop in the diocese is to set direction – and I have a series of Assistant Bishops who'll help me,' he said.

'There will be the Bishop of Wollongong (who the Archbishop will appoint in the coming months), and Bishops of Parramatta, North Sydney and Southern Sydney.

'I may create another one. That allows a Bishop to be closer to the people.'

Archbishop Goodhew has a reputation as a parish builder. Apart from presiding over the Synod, planning a strategy for the diocese and his other 'bureaucratic' duties, he hopes to work as much as possible at grassroots level.

'I suppose the things we'll be doing first of all will be to talk to people, he said.

'We are essentially called to help people form a new relationship with God and we are committed to helping people in the Church who have established that sort of relationship to mature in it, and to play a part in their



The new ride-on sweeper

June 1993 during the Vice-Chancellor's absence overseas on Nuclear Research Reactor Review, AVCC and University of Wollongong related business.

D.Phil. for study into humour in Japan

Marguerite Wells from the Department of Modern Languages has been awarded a Doctor of Philosophy (D.Phil.) from St Antony's College, Oxford.

The topic of her thesis was 'Humour in Japanese theatre' with special reference to Shingeki, the modern theatre of Japan.

The thesis was a study of the development of humour in Japan.

It shows that the role of humour in Japanese society has been regarded as problematical by Japanese writers, who, for the last century, have been arguing that humour should take a more prominent place in Japanese life.

It examines the background to this conviction, showing how societies may develop a conventional wisdom that values humour positively, negatively or ambivalently, resulting in different rules governing the use of humour, and different courses of development of the humorous and comic traditions.

homes, families and where they work.

'My own philosophy is that the Archbishop needs to be out and about amongst people.

'So, for the remainder of this year, I'll be spending a lot of my time visiting parishes, lay people and clergy from various regions to allow them to speak to me about their concerns and the issues they feel are important.

'In addition to that I feel a sense of responsibility to the community and I'd be anxious to bring the influence of the office to try to achieve good things for people.'

In particular, Archbishop Goodhew is concerned about the pressure the economic recession has put upon family life and how it has disillusioned youth. He spent his final days in Wollongong on his 'Can the Recession' food drive.

As for leaving Wollongong, Archbishop Goodhew said what he'd miss most would be 'that lovely escarpment up there. For years I've been jogging at

the back of the mountain and up and down these beaches'.

He hopes to maintain contact with the University, the Chancellor Dr RM Hope, Vice-Chancellor Professor Ken McKinnon, Professor Bob Young and Dr Ann Young, both from the Geography Department, Jeff Wragg from Psychology, Noriko Dethlefs who teaches economics, Engineer Dr Peter Anderson, Professor Brian Moloney from the Languages Department and Jim Langridge in Administration.

On the direction that the University has taken, Archbishop Goodhew said 'I think its done a super job. But I don't see a University as only in terms of providing people with the means of getting jobs.

'I'd always want to encourage universities to remember their religious origins and that religious issues, great issues of meaning, should always be part of the intellectual life of universities – I'd like to nudge that along a little bit.'

Resources

University of Wollongong
Environment Consortium Newsletter No. 1, 1 April 1993

Establishment of Environmental Institute proposed

The establishment of an "Environment Institute" has been under discussion at the University of Wollongong for a number of years, primarily as a result of initiatives of Professor Jim Falk.

These discussions proceeded the recent initiative to establish research "institutes" by the amalgamation/consolidation/aggregation of research groups and programs in areas of perceived research strength.

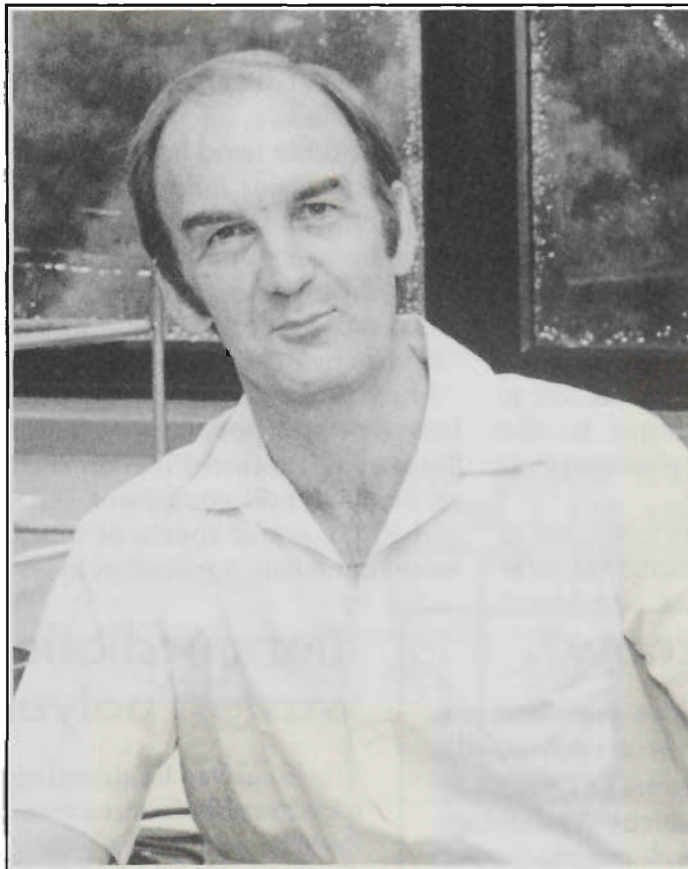
The "Environment Institute" would be different from the other institutes as it not only involves a number of departments, but involves parties from almost all Faculties in the University.

As currently proposed it will not only be a focus of research strength but will provide a coordinating role in the teaching of environmental issues, complementing the work of the established committees in trying to improve curricula, minimise duplication and develop appropriate new courses.

In recent months several meetings have been held to determine the direction and management of the proposed institute and one of the suggestions from these meetings was the production of a Newsletter to inform present and potential collaborators of what is being done at the University, to outline activities of the proposed institute, to circulate information on possible consultancies/research initiatives in environmental matters and generally to create a greater awareness of the work of staff with environmental interests.

This is the first issue of the Newsletter and we would welcome comments and materials for the next issue.

In addition to information on spe-



BHP established a Chair in Environmental Science at the University of Wollongong in 1992. The inaugural appointment was made to Professor John Morrison, previously Professor of Chemistry at the University of the South Pacific. Professor Morrison took up his appointment in September 1992.

cific courses, research activities or consultancies we are trying to develop a directory of environmental expertise at the University.

If you have not already done so please forward appropriate information to Marina McGlenn (Environmental Science).

In addition we would like to know when Wollongong staff have made major impacts on the national or international scene.

For example, Colin Woodroffe (Geography) has recently been invited to be a member of the Scientific Steering Committee for the Land-Ocean Interactions in the Coastal Zone Core Project of the International Geosphere - Biosphere Programme

and John Morrison (Environmental Science) is a member of the International Panel developing the Health of the Oceans component of the Global Ocean Observing System (GOOS) established at the UNCED Meeting in Rio de Janeiro in 1992.

There are obviously others undertaking such work and we would appreciate hearing from them.

Send the information to Marina McGlenn or John Morrison (Environmental Science).

The University of Wollongong has a lot to offer in addressing environmental issues at the global, national and local levels, but we have to let the outside world know. Help us to spread the word.

Tasmanides Research Program

Dr Paul Carr, Dr Brian Chenhall, Dr Christopher Fergusson (Program Coordinator), Associate Professor Brian Jones, Dr John Pemberton, Associate Professor Tony Wright

The Tasmanides Research Program is concerned with the geological evolution (tectonic, stratigraphic, metamorphic, structural and magmatic) of the Tasmanides of Eastern Australia.

The Tasmanides consist of the deformed Palaeozoic (570 to 245 million years old) and early Mesozoic (around 245 million years old) rocks that form the mobile belt of Eastern Australia.

The main aims of the program have been:

- To study aspects of the geological development of the Indonesian arc system and to use it as a modern analogue for the evolution of the Paleozoic and Mesozoic arc systems of the Tasmanides.

- To establish the geological development of several Palaeozoic to Mesozoic assemblages in the Tasmanides with emphasis on their origin and evolution.

- To determine the evolution of magmas and their relationships to

mineralisation and other economic deposits.

It is clear that the aims of the program and the expertise of program members fall in the fields of tectonics, stratigraphy, structural geology, igneous and metamorphic petrology, sedimentology and palaeontology.

In terms of a narrow view of the environment these fields and aims lie outside what would be considered as research related to environmental issues.

On the other hand bedrock geology has a major influence on the environment and in this context it therefore seems appropriate for the Tasmanides Research Program to be considered for inclusion in the "Environment" Institute.

Much of the research equipment heavily supported by the Tasmanides Research Program, such as the analytical equipment (XRF and XRD), are of course of much more immediate application to en-

vironmental research.

The program has expertise in the following:

- (1) Regional and tectonic development of the Tasmanides.
- (2) Volcanism and its effects on sedimentation and mineralisation.
- (3) Sedimentology of deep-marine, shallow-marine and subaerial successions.
- (4) Rb/Sr and Nd/Sm isotopic systems (developed through strong ties with the Centre for Isotope Studies, CSIRO, North Ryde) and radiometric dating in general
- (5) Structure of weakly to strongly deformed successions in sedimentary basins and in orogenic belts.
- (6) Palaeontology of Lower Palaeozoic successions, especially of the Devonian period.
- (7) Metamorphic petrology of contact and regionally metamorphosed units.

Did you know?

- ANPWS estimates that there are 10-20 million feral cats in Australia.
- DITAC has become DITARD (Department of Industry, Technology & Regional Development).
- The WA Department of Agriculture holds a stock of 200 tonnes of mixed organochlorine pesticides which have been withdrawn from service.
- The consumption of comfrey extracts may contribute to liver disease.
- The US DOE is considering proposals to bury at least 25,000 tonnes of highly radioactive waste at Yucca Mountain, 150km north of Las Vegas.
- The annual world potato crop is worth more in dollar terms than all the gold carried to Europe from the Americas during the 400 years of colonial rule.

Bioremediation of polymeric wastes: polyethylene and rubber

The Faculty of Engineering together with Environmental Science hosted a public seminar on Bioremediation of Polymeric Wastes.

The Seminar was presented by Professor Arpad E Torma, Principal Engineer at Idaho National Engineering Laboratory.

Professor Torma reported on potential processes for remediation of discarded polymeric packaging and rubber car tyres.

Current research by the laboratories has involved the investigation of biodegradation of polyethylene by fungi and biodesulphurisation of rubber by pure and mixed cultures of bacteria.

The micro-organisms used seem an effective way to enhance and accelerate recycling/reuse and volume reduction of the polymeric wastes. These studies have implications for the potential development of a processing and management strategies for polyethylene and rubber.

In light of increasing volumes of polymeric wastes, the shortage of landfill space and the fact that many polymeric wastes have high resistivity to chemical and biological degradation, these initial results are of considerable environmental interest.

Seminar

Professor Arpad E Torma

Australian Flora and Fauna Research Program

Co-ordinators: Associate Professors R J Whelan and A J Hulbert

The Australian Flora and Fauna Research Program comprises a group of academic staff, research staff and research students in the Departments of Biological Sciences and Geography, engaged in research into various aspects of the Australian Biota – environmental physiology, evolution, ecology, biogeography, and management.

Major externally-funded research projects currently in progress include a study of the evolutionary consequences of mode and larval dispersal in marine animals, pollination ecology and fruit set in native plants, evolution of warm-bloodedness in mammals.

Developments in 1993 include:

(i) the appointment of two new staff members in Bio-

logical Sciences – Dr Kristine French (Plant Biology) and Dr Bill Buttemer (Animal Physiology) – who will become members of the Research Program;

(ii) Awarding to the Program of two APRA (Industry) scholarships – one with Wollongong Council, to examine the ecology of stream systems in developing urban areas; and one with BHP, to examine the growth of native plants in soils comprising iron- and steel-making waste products. These two Industry awards signal the explicit development of applied research in two areas - aquatic ecology and restoration ecology - based on fundamental research strengths in ecology and evolutionary biology.

Solar UV-B measurements at ground level

S R Wilson, Dept. of Chemistry, B W Forgan, Bureau of Meteorology, Melbourne

The change in UV-B intensity (as measured by plant damage) over the last 11 years in southern mid-latitudes has been estimated to be about 10%.

Unfortunately, there is a dearth of UV-B measurements and these measurements do not have sufficient accuracy to either monitor the trend or assist in verifying models to study the impact of increased UV-B.

In order to measure such trends it has been recognised that it is necessary to make accurate spectrally resolved measurements, and a number of different spectrometers are now being used in the field.

However, although these allow good determination of the wavelength of measurements, problems still exist in determining the exposure or irradiance: - calibration in the field has been problematic.

The normal procedure for calibrating such instruments requires a lamp of known intensity (standard lamp).

Such standards age, leading to significant changes in output, especially in the UV region, posing serious problems for trend measurement.

A different technique for calibration, involving variants of the Langley technique used to calibrate of

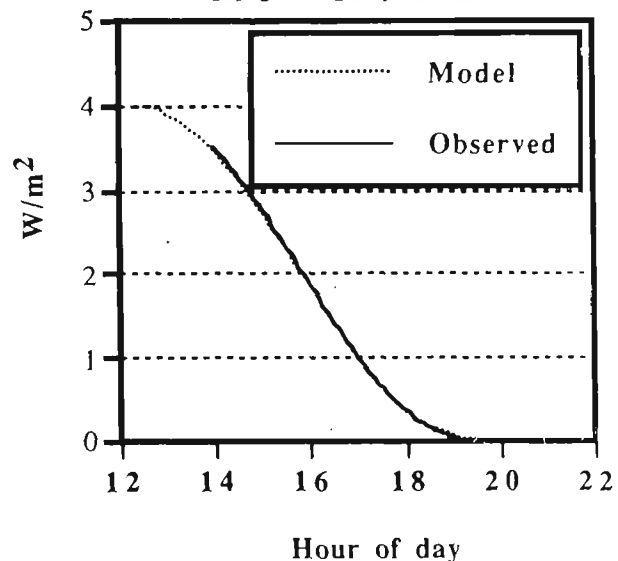
sunphotometers in the field has been developed by us.

This involves cross calibration of the spectral radiometer with a well characterised sunphotometer, using the sun as the calibration source.

Results from using this technique with a spectrometer designed for automatic monitoring of spectrally resolved WB are shown below.

The data is compared to a model of UVB levels developed by one of us (BWF).

17/12/92 global irradiance
298 - 320 nm



Hour of day

The good agreement is surprising and possibly fortuitous. The influence on UVB irradiance by a number of factors is still poorly understood.

Also, the instrument itself has major limitations. The calibration procedure used on this data varies the calibration by a factor greater than two during the day.

Despite the interest in this field, the technical difficulties mean that significant work is still required to achieve quality measurements.

Bulk Solids Research Group active in dust emission control

Professor Peter Arnold, Arnold McLean, Peter Wypych, Oliver Kennedy, Paul Cooper, Zihong Gu, Renhu Pan from the Department of Mechanical Engineering (Professor Nick Standish of the Department of Material Engineering was also a member up to his recent retirement)

The Bulk Solids Research Group maintain a strong activity in the characterisation, emission, collection, conveying (particularly via pneumatic means), storage and handling of industrial dusts and fumes.

This involvement includes study of numerous different dusts including coal, fly ash, slag, blast furnace, clinker, cement, lime, zinc fume and countless other industrial products.

By far the greatest involvement has been with fly ash as highlighted by a long term (then) NERD-funded project which dealt with the long distance pneumatic conveying of fly ash at power stations.

This activity also includes final year and postgraduate student thesis supervision covering topics including (to name a few):

- The Design and Optimisation of Dust Collection Systems at Berrima (Cement) Works
- Dust and the Human Respiratory System
- Computer Package for Design of Dust Extraction Systems
- Investigation of the Nature of Various Dust Generation Mechanisms
- Modelling of the Thermal Performance of Buildings and Dust Generation Processes and
- Industrial Processing and Optimal Dust Collection System Design.

In addition various members of the research group have authored numerous industrial problem-solving reports on the conveying and storage recommendations for various dusts.

In fact, the research group is one of the two University groups in Australia (the other is at the Department of Mechanical Engineering, The University of Newcastle) expert in the characterisation and

measurement of the flow properties of dusts.

This authority results from the existence of an internationally recognised laboratory within the Department of Mechanical Engineering.

The results of the ongoing research activities of the Group will be presented (in association with ITC Ltd) in forthcoming short courses.

For instance the short course on Dust and Fume Extraction, to be held on 8 and 9 July 1993, is aimed at designers, practitioners and vendors who would like to be trained and also obtain hands-on experience in designing, selecting, improving and trouble-shooting industrial dust and fume extraction systems.

The major topics to be covered include:

- basic concepts, terminology & problems,
- dust characterisation,
- fan performance & characteristics
- hood & enclosure design,
- capture & minimum transport

velocities

- dust design techniques,
- plant design to minimise dust generation
- sizing and selecting dust collectors
- industrial case studies demonstrating many of the above topics.

During the course delegates will be encouraged to inspect the laboratories of the Department.

For further information contact Dr Peter Wypych or Professor Peter Arnold on (042) 21 3062 or fax (042) 2 13101.

In comparison subsequent parallel courses (to be held 6-8 October 1993) will concentrate on the Design and Operation of Pneumatic Conveying Systems and Storage and Feeding of Bulk Solids.

Further details about these latter courses and other environmental associated research activities of the Bulk Solids Handling and Physical Processing Research Group will be announced in a future newsletter.

Dr Arnold McLean, Coordinator (042) 21 3053 or fax (042) 21 3101.

Quaternary

The Quaternary Period in which we live is the most recent period in the geological time scale and spans roughly the last two million years.

In particular, the last 400,000 years has been a period of remarkable environmental change in the Australian region.

With the use of thermo-luminescence dates (TL), radiocarbon dates, pollen and charcoal fragments, the middens of stick-nest rats, cores from coral atolls and satellite imagery, the Quaternary Research Program is piecing together evi-

dence of important changes in our past environments, as well as monitoring present changes.

Fundamental to our understanding of the present, as well as our ability to predict future changes in the region, is a clear understanding of what the magnitude of past natural variations have been.

If Australia is going to heat up, rainfall increase and our sea levels to rise as the possible result of "Greenhouse", then there are natural analogues to these conditions in the recent Quaternary record.

Centre for Natural Resources Law

The Law Faculty's commitment to the development of a specialisation in Natural Resources Law has been strengthened by the recent appointments of Professor Martin Tsamenyi and Mr Andrew Kelly, along with the development of a proposal for a Centre of Natural Resources Law and Policy, currently being considered by the University.

Professor Tsamenyi established his reputation as an international lawyer, but with the growing concern about environmental issues at the international level, and the need to translate international conventions dealing with the environment into domestic law, he has turned his attention to the operation of environmental and natural resources law at this level.

Mr Kelly is a qualified planner, as well as a lawyer, and worked for a number of years in local councils.

His primary research interest lies in the field of management of natural resources by local councils.

Professor Tsamenyi and Mr Kelly will complement the interests of Professor David Farrier who is currently carrying out research on the conservation of biodiversity.

At the end of June he will give a keynote address at a major confer-

ence organised by the National Parks and Wildlife Service on biodiversity conservation.

He has links with the South Pacific Regional Environment Program, which is currently working on the development of management strategies for the South Pacific island nations.

It is also about to commence a major initiative in relation to the conservation of biodiversity in these countries.

Ms Natalie Stoianoff, another member of the Faculty, has current research interests relating to genetic engineering and the implications this has for law.

This is becoming a key issue for natural resource lawyers.

The proposed Centre for Natural Resources Law and Policy will carry out research, consultancy work and teaching in this developing area of the law.

In July it will run a short course on mining law in collaboration with the Key Centre for Mines.

This is but one aspect of its intention to develop close links with other parts of the University.

Natural resources law and policy is conceived broadly, to include not only environmental law but also commercial aspects of natural

resources law.

The latter covers such things as taxation policy and the development of appropriate corporate structures for developing natural resources.

The Faculty has already commenced teaching its Natural Resources Law and Policy Postgraduate Programme.

The course is organised in such a way as to allow part-time students to complete it by attending intensive week-long teaching sessions, combined with extensive directed reading and the completion of assessment exercises.

Full-time students are currently participating in a subject organised by Professor Jim Falk of the Department of Science and Technology Studies dealing with policy relating to natural resources.

They are also completing Resource Decision Making, which looks at the various inputs into the decision making process relating to the development of particular resources.

This subject is taught mainly through visiting speakers, including representatives from the legal profession, the resource industry and the Resource Assessment Commission.

Environmental Change Program

For example, the last interglacial (c125,000 years ago) is known to have had higher sea levels and is believed to have been considerably warmer than at present, the same is true of the early to mid-Holocene (10,000-5,000 years ago).

Is our climate very close to a critical threshold which once exceeded will bring about a dramatic change in environmental conditions on the planet? Alternatively, does evidence from the past tell us that our system can tolerate considerable change, in, for example, temperature, before other

environmental variables such as precipitation and sea level will alter dramatically? These, geologically, most recent times present the best possible scientific data for changed conditions on a warmer planet.

However, Australia is an enormously diverse continent and it is particularly important to understand the different effects of environmental change across our broad span of tropical, hot arid and cool temperate environments.

Furthermore, it needs to be clearly established which changes

are attributable to human interference and which are natural.

Research from the Program is rapidly piecing together a picture of natural environmental change and the occurrence of natural catastrophic process in Australia far more dramatic than has previously been contemplated.

Members of the Program include Associate Professors Gerald Nanson, Ted Bryant, Brian Jones; Drs Colin Woodroffe, Lesley Head, Colin Murray Wallace, Brian Chenhall; and Mr David Price, Ms Toni O'Neill and Mr John Mathick.

Environmental education activities in the Faculty of Education

Teaching

Two elective subjects are offered to students in the BEd(Primary) program.

These subjects are intended to develop students skills in investigating, planning and teaching about local, national and global environmental issues.

Students in the Graduate Diploma of Education studying secondary science teaching methods develop similar skills, but apply them to more mature audiences.

Research and Development

Staff who teach in these elective subjects are also involved in research associated with the use of interactive multimedia to teach about environmental issues.

Three recent multimedia devel-

opment projects currently near completion are the BHP Environmental Package, the Cancer Council Package, and a package designed for senior secondary biology students on the ecology of coastal lake environments entitled Investigating Lake Illuka.

The Lake Illuka Project is due for release in April and Dr. Barry Harper is the project director. Several post-graduate students are planning to follow up this project by investigating the educational impact of some of the unique instructional strategies employed in the program.

Papers and workshops have been presented at state, national and international conferences, and related publications have appeared in various journals and conference pro-

ceedings.

In addition several staff and post-graduate research students in the Faculty are currently involved in research on the effects of outdoor education programs in developing particular attitudes and behaviour characteristics in adolescents.

Other Activities

Russell Linke is a member of the School Science Committee of the Australian Academy of Science, and of its Steering Committee for the senior secondary School Environmental Science materials development project. He was also inaugural Vice-president of the Australian Association for Environmental Education in 1980-82 and President in 1982-84.

BEnvSc Honours projects

In 1993 the first cadre of students to complete the 4 Year Honours BEnvSc Degree will graduate.

One innovation in the program is the requirement that the honours project be completed with a non-university organisation to expose the students to real-world environmental science issues and to give potential employers an opportunity to observe the quality of the graduates.

The 1993 honours projects are listed below. In 1994 some 30 students are expected to complete honours projects.

NAME	ORGANISATION	PROJECT
Ms Eleanor Hannah	Wollongong City Council	Whytes Gully. Waste Disposal Site Suitability
Mr Trent Lawrence	Environment Protection Authority	Rates of Sediment Accumulation in Lake Burrill and the Relationship between Sediment Type and Catchment Sources.
Ms Alison McGibbon	Wollongong City Council	Definition Survey & Identification of Contaminated Sites within the City of Wollongong
Mr Greg Kininmonth	BHP	Nutrient Inputs to Port Kembla Inner Harbour from Allen's Creek
Mr Chris Hammersley	Sutherland Shire Council	Wetlands: Measuring Parameters of ESD at a Local Level
Ms Catherine Miller	Department of Conservation and Land Management	An Evaluation of Sediment Control Measures used During the Construction of Urban Subdivisions in the Illawarra
Mr Craig Sellwood	Water Board	Study of Intertidal Rocky Foreshore Communities in Relation to Discharged Sewage Effluent
Ms Sallianne Felton	National Parks & Wildlife Service	Biodiversity Survey: Rare and Endangered Plant Species in Royal National Park
Mr Vince Carolan	ANSTO	Environmental Quality of Lake Illawarra as Measured by Trace Element Uptake in Marine Bivalves
Mr Chris Hauserman	BHP	A Waste Stream Management System: Corrosion Inhibitors in the Slab Caster Cooling System

The Technological Change and Environmental Strategies Group (TCES)

The Technological Change and Environmental Strategies Group (TCES) is a non-profit environmental research and consulting organisation based at the University of Wollongong.

Headed by Professor Jim Falk (STS) the group comprises academics with environmental research interests who are also interested in working on consultancy and other externally funded projects in the area of environmental planning, policy and regulation issues.

TCES focuses on the interaction between technological change and the many environmental problems facing society.

It assists government, industry and non-government agencies in relation to meeting the challenge of ecologically sustainable development.

It works to resolve conflicts between social, technical and economic priorities and help governments and industry meet national and international environmental targets in the context of other economic and political goals.

TCES is committed to finding practical solutions to environmental challenges. As an inter-disciplinary research unit it aims to develop innovative analytical approaches and practical strategies which are both theoretically informed and tuned to current conditions.

TCES personnel

TCES personnel are drawn from a number of disciplines from both the University of Wollongong and several other institutions.

Their expertise spans environmental and regional economics, environmental psychology, science and technology policy, social research, physics and engineering, environmental policy and energy management.

The group has formed alliances with several external organisations which are playing strong roles in environmental policy and research in Australia and overseas.

Research effort

Drawing on its existing base of skills, TCES has already undertaken a variety of commissioned research activities.

In conjunction with the Illawarra Technology Corporation (ITC), it has just completed a three-month research project on behalf of the NSW Environment Protection Authority (EPA) designed to determine the environmental issues that are of importance to the people of the Illawarra region.

This involved both quantitative survey work and focus group discussions with various interest groups.

The report was presented to the Illawarra Environment Protection Consultation Forum in March and will be published shortly. The findings are being employed at both a local and corporate level by the EPA.

Jim Falk has been engaged by Maurice May as Chief Scientific Adviser in their work on behalf of Australian Servicemen seeking compensation from the Commonwealth for health problems which they believe to have been incurred during the atomic bomb tests at Maralinga during the 1950s.

This follows Professor Falk and Associate Professor Bill Zealey's previous role in 1988 in providing technical advice and expert testimony in the first (and successful) Maralinga veterans' compensation case (Johnston vs. the Commonwealth of Australia).

In the current case (Dingwall vs. the Commonwealth) Jim Falk, Greg Hampton, Bill Zealey, and Kevin Parker are all playing strong roles in this work.

During 1992 TCES was contracted by the Department of Arts, Sport, Environment and Territories (DASET), Urban Environment Section, to prepare a report exploring the interaction between equity issues and the urban environment.

In the report, entitled Social Equity and the Urban Environment (Jim Falk, Greg Hampton, Anne Hodgkinson, Arthur Rorris and Kevin Parker) TCES drew together some of the many

issues involved in how a poor urban environment has an adverse effect on poorer socio-economically disadvantaged groups.

The report is in the process of being published and distributed for wider discussion.

Jim Falk has also been invited to lead a two-day national workshop on the content of the report.

It will be organised by the Commonwealth Environmental Protection Agency and is designed to discuss and workshop the results of the report amongst leading community groups and government agencies from around the country.

During 1991 TCES was commissioned by Department of Arts, Sports, Environment and Territories, Climate Change Liaison Branch, to prepare a report on the potential effect of greenhouse gas legislation on the Australian coal industry.

Another TCES project in 1991 was sponsored by the MacArthur Foundation (USA) and involved exploring how cities could contribute to reducing greenhouse gas emissions.

In conjunction with US groups, TCES devised a collaborative strategy for developing prototype environmentally sensitive cities.

TCES researchers have an on-going commitment to study of the urban environment. This work was carried out by Jim Falk, Stewart Russell, Frank Neri and Kevin Parker.

Individually TCES researchers have a wealth of experience in the environmental policy area, some members having been involved in research and policy activity in environmental, scientific and energy issues stretching over the last 20 years.

The group would be pleased to discuss collaborative projects with other environmental researchers on campus and is open to taking either a leading or supplementary organisational or research role as appropriate.

For more information about TCES contact Prof. Jim Falk ext. 369, or Kevin Parker ext. 4184.

Environmental health activities

Environmental health is one of the five priority areas in the national Health Advancement Program.

Australia's environmental health core of expertise was allowed to run down in the post-war period when many health problems seemed amenable to a "technological fix".

The emergence of environmental issues such as air and water pollution, contaminated sites, ozone depletion, greenhouse effect and contentious social issues such as siting of freeways and runways as major health problems for the next century has led to a reappraisal of needs in the health and environment workforce.

It is evident that there is a major need for education of multi-disciplinary practitioners who are familiar with technical, biological, legal and social issues surrounding environmental health and planning and for retraining of the existing workforce in those areas.

The knowledge base is thin and the scope for basic and applied research in all relevant disciplines is considerable.

The Faculty of Health and Behavioural Sciences in collaboration with the University's multi-disciplinary environment group is well placed to assume a leading role in this rapidly expanding field.

Since 1990 a team comprising Christine Ewan and Dennis Calvert, from Public Health and Nutrition, and Ted Bryant and Ann Young, from Geography, have been involved in a series of projects for the Commonwealth Government.

During 1990-1 a report on health implications of long term climate change was produced for NHMRC and gave rise to a commission from DASET to produce a textbook on the topic.

The text, entitled "Health in the Green-

house: the medical and environmental health effects of climate change" will be released by AGPS Press in mid 1993.

This work gave rise to a further commission from DASET and the NHMRC to produce an estimation of the health costs, to 2030 of enhanced ultraviolet radiation due to climatic change.

The report has been submitted to NHMRC and represents a team effort by the Departments of Public Health and Nutrition, and Geography, with Don Lewis from Economics and Paul Fraser, CSIRO Division of Atmospheric Research.

The group has also contributed to the NHMRC report on health and ecologically sustainable development and has most recently been working with the NHMRC and the National Better Health program to produce a national framework for environment and health impact assessment.

This latter area is a high priority both nationally and internationally and enquiries have been received in relation to modifying the framework for international use through the World Health Organisation and the Commonwealth Secretariat.

The establishment of a World Health Organisation Collaborating Centre in Environment and Health Impact Assessment is currently under consideration.

Locally, Christine Ewan, Dennis Calvert and Director of the Public Health Unit of the IAHS, David Jeffs, are collaborating with the NSW Department of Health and the Universities of Newcastle and Sydney in studies of asthma and air pollution as well as participating in the NSW lead abatement strategy.

Christine and Dennis, in collaboration with David Wilson, a behavioural epidemiologist from the South Australian Health Commission, have received a two-year NHMRC (PHRDC) grant to study the social impacts of lead contamination in communities such as Pt Pirie, Broken Hill and Pt Kembla.

Christine is also a member of the Environmental Health Standing Committee of the NHMRC and is participating in a steering committee for a national study of social and economic impact assessment of lead abatement strategies being conducted by a RMIT-led consortium.

To consolidate the University's academic base in environmental health, a conjoint appointment has been negotiated between the Faculty of Health and Behavioural Sciences and the NSW Department of Health and recruitment of an environmental epidemiologist to head the environmental health unit within the Public Health Unit is proceeding.

A second academic appointment with expertise in environmental health risk assessment is also under consideration.

Two Honorary Fellows in Environmental Health have been appointed to the Faculty:

- Professor Gary Smith, Principal Environmental Scientist, Sutherland Shire Council (formerly Director, Carcinogenesis Research Unit, UNSW)
- Associate Professor Keith Bentley, Environmental Health, Commonwealth Department of Health, Housing, Local Government and Community Services.

At the moment invitations to participate in education and research activities related to environment and health impact assessment exceed the capacity of staff to respond.

International conference on environmental management, geo-water and engineering aspects

A conference was held in February this year which was organised by the Water Engineering and Geomechanics Research Program.

The organising committee was chaired by the program coordinator, Professor Robin Chowdhury.

The conference convenor was Dr M Sivakumar.

This was a unique event, the first of its kind anywhere in the world.

As an interdisciplinary conference it brought together academics, researchers and professionals from various disciplines within the broad Geo-Water-Environmental Engineering framework.

Most international conferences, and especially those concerned with scientific and technical advances, are focussed on narrow specialist areas.

It was very gratifying to have an excellent response to the call for papers and extremely positive responses from national and international delegates.

The research areas and disciplines represented at the conference included geomechanics, hydrology, water resource engineering, mining engineering, geology, hydrogeology, risk analysis, waste management, flooding, water quality, earthquake engineering and environmental law.

Chinese environmental engineers and chemists trained at Wollongong

A two-year IDP grant of \$150,000 was awarded in 1992 to staff from the Departments of Chemistry and Civil and Mining Engineering for an Australia-China Institutional Links Program between Shenyang University and the University of Wollongong.

The major purpose of this program, entitled 'Environmental Engineering and Chemistry', is to provide training for Shenyang University academic staff in modern aspects of environmental management including pollutant analysis and engineering control.

Shenyang has been identified as one of the most polluted cities in China, with major metal smelters, electroplating works, chemical and pharmaceutical plants (including the largest pharmaceutical factory in China), tanneries and dye factories.

The very high tonnage of the coal burnt for heat and energy, especially in the cold winter also contributes to serious air pollution and rated as the second worst polluted city in the world in terms of air pollution.

Shenyang also suffers serious pollution of its water supplies from untreated sewage and water quality over 90 per cent of the city is below acceptable



From left: Back H Zhoo, Zhou De Zhi, Professor Gordon Wallace, Associate Professor John Ellis, Li Peng, Front: Dr M Sivakumar, Chang Hue Wang, Chengwei Jin, Jing Guan and Professor Leon Kane-Maguire

drinking water standards.

The program was initiated by Professor Leon Kane-Maguire and Dr M Sivakumar, with a visit to Shenyang in 1991.

Subsequently staff from the Department of Chemistry (Professor Kane-Maguire, Project Director and Professor Gordon Wallace) and Mr Trevor Lewis from BACAS have visited Shenyang.

They presented a four-day training course/workshop on modern environmental analytical techniques to some 30 staff at Shenyang University.

In April 1992 the first group of three Chinese staff (Mr Li Peng, Mr Yu Yue and Mr Chengwei Jin) arrived in Wollongong to begin research projects in the Departments of Chemistry and Civil and Mining Engineering.

These projects included :-

(i) Methods for the removal of toxic metallic and organic pollutants from water supplies (supervised by Professor Wallace and Associate Professor John Ellis in Chemistry), and

(ii) The management of Water Re-

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VC's Awards for outstanding service for general staff

Nominees for this award are:

Claire Cooney (History and Politics): nominated for her consistent outstanding work performance and efficiency within the department.

Marie Lewis (Academic & Student Services): nominated for her continual high quality of helpful, courteous and efficient service.

Bob Slater and Fred Zylstra (Buildings and Grounds): nominated for the contribution to the University's recent building projects and their continual high standards on work quality, cost and efficiency.

Sue Visser (Security): nominated for her high level of service provided to employees and visitors to the University by her helpfulness and her contribution to the University's image and reputation in her role as gatekeeper.

Marie Fryer (Electrical and Computer Engineering): nominated for her outstanding initiatives in the Department including an administrative review and the establishment of a new undergraduate subject.

Lorraine Denny (Library): nominated for her initiatives in developing, establishing and implementing a variety of

training programs of great assistance to library staff.

John Korth (Chemistry): nominated for his outstanding contribution to the University by way of research, consultancy and the development of safety procedures.

Elizabeth Hilton (Planning and Marketing): nominated for her outstanding contribution to the University's profile and reputation as well as her efforts to promote the University to schools and potential students and their parents.

Wendy Raikes (Law): nominated for her exception work performance and administrative skills which have contributed to both the Faculty and University's efficiency.

Doris Reichert (Personnel Services): nominated for her continual high level of service, as well as her professionalism and ability to exceed the needs of her Salaries clients.

Congratulations to each of the nominees for their excellent service to the University.

Unfortunately only a maximum six awards can be given in any one year.

The recipients of awards will be officially honoured on University Day, 10 May.

HOPE THEATRE

Bookings phone 21 4214
Western Entrance, Northfields Avenue.

26-29 May, **The Chapel Perilous**, Janice Haynes. 30 May: **Illawarra Choral Society Performance**, 5-9pm. 5-7 June: **Regional Poets Co-op Conference**, 9am-10.30pm, Ron Pretty.

LONG GALLERY

6-23 May: Exhibition of works by **Diana Wood Conroy**, **Dimity Figner** and tapestries by **Tass Mavrogordato**.
28 May-20 June: 'Them and Us'. Environmental exhibition, "Aquarelle" watercolours by Jelle van den Berg and visual poetry exhibition.
28 May - 2 June: *Crossing Cultures* An exhibition of works by International Students. (Also exhibiting at the Illawarra Technology Centre from 11-25 June)

ART OF LUNCH

Music auditorium 12.30pm.

6 May: Pianist Colin Spiers, visting from Newcastle Conservatorium.
11 May: Artists Talk. Presentation by Liz Jenied.
13 May: Poets' Choice. Ron Pretty and Joanne Burns read from their favourite literature.
18 May: Artists Talks. Film *A Man is Not a Woman*. Introduced by Sue Rowley.
20 May: Duo Alessio Bacci (flute) and Massimo Caselli (piano) collaborate in works by Messiaen and Schultz.
25 May: Artists Talks. Presented by Lesley Goldacre.
27 May: Scottish concert pianist Roy Howat in a return recital.

What's On

GENERAL

The Department of Biological Sciences is holding a series of seminars titled '**The Cell and Molecular Evening Seminar Series**'. The next seminar is on 10 May. The Calbiochem Seminar on Cell Signalling will be given by Dr Michael Crouch, from the John Curtin School of Medical research, ACT. The seminar is titled 'How G Proteins tell cells where to go'. The seminar will be held in Building 35, Room 105 from 8pm with drinks to follow. Enquiries: Julie-Ann Green, ext. 3427.

Illawarra Committee for Overseas Students events for this year are: 8 May, Canberra (Adults \$12, Children \$10); 9 May, Blue Mountains; 31 July and 7 August, Snowy Mountains; 18 September, Blue Mountains; 26 and 27 September, Canberra; 16 October, Sydney Aquarium and harbour cruise; 4 December, Australia's Wonderland. Tickets and details are available from ICOS office, 3rd Floor, Union Retail Centre on Tuesday, Wednesday and Friday from 9.30am to 2pm or phone 21 3158.

19 May: The Recreation and Aquatic Centre in conjunction with the Royal Blind Society will hold a two-hour **Aerobathon** from 4.40pm-6.40pm in the Sports Hall. A donation will be required. (No multi-visit cards accepted for this class).

Considering further study or just some

recreational reading? Visit the **University Graduates bookshop and gallery book sale** at Campus East, Fairy Meadow. The stock of used books covers: Science & Engineering, Social Sciences, Arts & Music, Education, Fiction & Non-Fiction, Young Readers' Stories & Classics. Open every fourth Saturday and Sunday from 1-5pm, the bookshop is located at Cowper Street, Fairy Meadow (opposite the Science Centre). Your donations of any material are invited. These may be left any weekend afternoon at the Science Centre (Please mark "Booksale"), or The Library or Students Enquiry Desk during the week.

Animal Experimentation Ethics Committee meeting dates, with agenda deadlines in brackets, are: 24 May (14 May); 9 August (30 July); 22 November (12 November).

Human Experimentation Ethics Committee meeting dates with agenda deadlines in brackets are: 25 May (11 May); 13 July (29 June); 24 August (10 August); 5 October (21 September); 16 November (2 November); 21 December (7 December).

Submission of papers for the **Undergraduate Studies Committee** must be given to Trevor James by 5pm, on the following dates: 11 May, 29 June, 1 September and 26 October.

The University Centre in Sydney has a display on **Communications and Social Science** from the University of Wollongong. The next display scheduled to open on 14 June is Education and Health. Ideas for displays are always welcome. If academic staff would like to suggest ideas and contribute material they should contact David Fuller, Planning and Marketing

Chinese engineers and chemists trained at Wollongong

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sources and Municipal and Industrial liquid wastes (supervised by Dr. MSivakumar in the Department of Civil and Mining Engineering).

These projects progressed very well, with at least four publications expected from the work, and these three staff are now returning to China.

A second group of three Chinese staff (Mr Dezhi Zhou, Ms Jing Guan and Ms Chang Hua Wang) will carry on related projects in the two departments until their return in July 1993.

To complete the overall program a group of four staff from the Department of Civil and Mining Engineering - Dr Sivakumar, Professor Raghu Singh, Associate Professor Robin Chowdhury and Associate Professor Michael Boyd - will visit Shenyang in June to present a workshop on environmental pollution control and risk.

The overall program has in the short term enhanced the research output of Wollongong University in Environmental Engineering and Chemistry, and could lead to more effective environmental control in Shenyang and other heavily polluted Chinese cities.

Campus News is published weekly on Wednesdays. Send material, preferably by Microsoft Mail or on disk, to Gillian Curtis (042) 21 3110 by noon on Monday of the week before that of publication

Stop Press

The Winter's Tale

6-8 May

Performance Space, School of Creative Arts. 21 4214 for bookings.

8pm Performances
2pm Saturday 8 May