



Health of our streams — critical study in the Illawarra

As part of their coursework in the Geography Department's course, *Environmental Impact of Societies*, students have mapped 60 km of urban channel in the Wollongong and Shellharbour areas to investigate the health of the streams. They have mapped areas of erosion, litter accumulation, streambank vegetation, reed beds, pipes, stormwater drains and channel modifications (eg, concreted sections).

The project arose out of the involvement of the Geography lecturer, Dr Ann Young, in the Pollution Task Force of Healthy Cities Illawarra. Concern was expressed to the Task Force about non-point sources of pollution into urban streams, and Dr Young set the project to investigate the severity of the problem in the region. The concern is linked to the concern shown over pollution in Lake Illawarra — as highlighted by the Project Armada clean-up — as much of the debris in the lake may wash in from tributary streams.

The streams were in residential areas from Helensburgh to Shellharbour.

What were the problems?

Litter was the most widespread. Wherever houses were close to the stream, students found debris tossed over back fences. This included building waste such as bricks and old timber, paper, plastic bags, bottles, soil and garden waste such as grass clippings. These are unsightly, but garden waste and other material that can rot also cause algal scum to build up in creeks when they are not

flushed during high rainfall periods. As the material rots, it adds excessive nutrients to the streams. Some houses drained water directly into the creeks and the discharge from these pipes was often dark and oily.

Litter was commonly found also near roads, footpaths and shopping areas. Plastic shopping bags, styrofoam fastfood containers, soft-drink plastic bottles and even shopping trolleys were the most obvious pollutants. Road runoff was sediment-laden and oily, and discoloured the banks and water. Creek crossings and tracks were often eroded, adding silt to the creeks.

Many of the creek beds were choked by excessive sediment build-up as a result of bank erosion. This erosion occurs naturally in some areas, such as the outside banks of meander bends on the streams. It is made worse when flow from stormwater drains, or off-roads cuts into the sides of creeks, or when flow down the creeks is blocked so that water swirls against the banks. The flow is often blocked by debris trapped on bridge supports, on trees that have fallen into the stream, on large pieces of rubbish such as timber or drums or broken piping. It can be blocked when so much sediment is washed into the creek that sand banks build up in the bed and become overgrown with reeds. Choking of the creek by reeds is worsened if nutrient load is high — for example, when garden debris is dumped nearby.

continues on page 2

Research on University Women

Christine Davidson, an honours psychology student under the supervision of Dr Peter Smith, is conducting research into occupational stress experienced by women employed on this campus. The EEO Unit and the Academic Women's Co-ordinating Committee are supporting this research and we would like to encourage all women to participate.

Within the next week or so, each woman working at the University will receive in the internal mail questionnaires, plus an explanatory letter. This is a commendable project and the results will be of interest to all of us. The time and energy expended on completing the questionnaires will assist in examining the factors and issues associated with women's occupational stress, and perhaps assist us in developing measures to combat it.

Peg MacLeod
EEO and FOI Co-ordinator, ext 3917

General Notices

Initiatives in Marine Science and Technology

Marine science and technology will be a major beneficiary of the government's science and technology initiatives, declares the Minister for Science, Customs and Small Business, and Minister Assisting the Prime Minister on Science and Technology, Mr Barry Jones.

'The measures announced by the Prime Minister to improve co-ordination across all sectors of research will be of special value to marine science and technology, which is the responsibility of a particularly wide range of government portfolios', he said.

'Industries including shipping and shipbuilding, scientific equipment, fisheries, aquaculture, offshore oil and gas, tourism and recreation, consultancy services, climate forecasting and environmental management draw on marine science and technology, and depend on them for expansion.'

Mr Jones said that these opportunities had been documented in a report *Ocean of Wealth?* received by the government from a review committee chaired by the Vice-Chancellor of The University of Wollongong, Professor Ken McKinnon.

Mr Jones commended the committee for its coherent and detailed assessment of the state of marine science and technology in Australia, and its assessment of the opportunities for expansion.

In tabling the Executive Summary and the

government's response to the Report, Mr Jones said that the government accepted the Report's principal recommendation that it should prepare and implement policies to develop further our marine resources and associated industries.

It also believed that industry development should be targeted to areas in which Australia had particular opportunity and where industry was a willing partner.

Mr Jones said that extension of the tax concession for industrial research and development announced by Senator Button would be a general incentive for marine industries to pursue the research and development needed for them to expand.

In announcing the government's response to the McKinnon Report, Mr Jones described additional specific measures that the government will be taking to assist marine science and technology, including:

- an extra \$2.5 million for the Australian Institute of Marine Science over the next five financial years, in addition to the special allocation announced earlier this year of \$1.1 million to purchase extra equipment for projects with strong long-term industrial and State government commitment;
- \$1 million in each of 1989-90 and 1990-91 for the Bureau of Mineral Resources to provide equipment for marine petroleum-related research on the rig, *Seismic*;
- asking the Australian Research Council to identify elements of marine science and technology for funding emphasis in higher education, especially with regard to physical sciences and technology; and
- a national tidal gauge network and oceanographic research related to climate change under the special

conclude at foot of col 1, on right

The Health of Our Streams – a critical study...

from page 1

Grazing of horses in unfenced paddocks beside the creeks leads to erosion, too, as the horses make tracks as they go to drink. Manure will add both nutrients and undesirable bacteria to the water.

Streamside vegetation is overwhelmingly exotic – kikuyu grass, morning glory vines, lantana thickets, and some coral trees and willow trees. This vegetation does bind the soil in the banks to some extent, but the tree roots make the soil spongy and erodible, and the fallen trees and branches block the channels. The other plants grow so thickly that they completely obscure the channel and make an impenetrable barrier along the banks.

What can Councils do?

Add trash traps to stormwater drains and maintain them.

Provide well-formed footways and by using barriers and planted areas discourage people from crossing at eroded places.

Avoid altering parts of streams by concreting channels unless the flowout can be controlled to stop erosion.

Place stormwater exits so that the flow out of them doesn't cause erosion.

In appropriate places, clear reed beds and weed from the channels. This has to be done carefully so that it does not worsen erosion, and it should be combined with

measures to stabilise upstream banks so the problem doesn't recur quickly.

What can be done by individuals?

Stop throwing garden waste and rubbish on to stream banks. It doesn't just disappear. Even if it is washed downstream, the problem is simply moved to someone else's area or into a lagoon or beach.

Fence horse paddocks and make sure that manure is collected. Keep a well-grassed strip between the paddock and the creek.

Be tidy and don't litter. What you drop on the street will blow or wash into the creek.

Don't wash lots of detergent – or, worse still, engine grime – down the gutter when you clean the car. It will end up in a creek, and because it floats the oil may travel a long way. Wash your car where the water will go on to grass or a garden so the plants can use up the nutrients in the detergent.

If you back on to a stream, approach Council for small native plants and plant them along the bank to make the banks more stable and attractive. The plants are usually free. All you need to put in is the labour. Maybe you could do this with a few neighbours.

It would not be difficult or expensive to improve our streams. All that is needed is a small amount of effort by a large number of people.

Ed Hyde (this time) says farewell

For 13 years manager of the University Printery, Ed Hyde retired officially in December last year. There were a lunch party, presents and speeches, and, perhaps even, here and there the odd tear might have been shed. But since then Ed Hyde has been on campus as usual, standing in until a successor for his taxing job could be found.

A successor has now been appointed, and so Ed Hyde last week made his second farewell – although there is the impression abroad that the magnetic pull will prove too strong and that regular return visits should not be even casually ruled out.

Ed (Edwin George) Hyde is not, strictly speaking, a printer at all. He is an accountant, who began his working life in the State Auditor General's Department in 1950 and stayed there until 1974.

His association with the University began in 1976 when he was appointed Central Services Officer (cleaning, security, transport, switchboard, mail, central records, printery and, later, purchasing).

The Printery had been set up in 1972 by Harry Alla (then Office Manager), with full-time staff of one operator, one Multilith Model 1250 duplicator (still in service) and one electrostatic platemaker. In the first 12-months of operation 839,000 copies were produced. There were no collating and no other finishing services.

Today the staff consists of nine full-time and one part-time employees, with occasional help. By 1988, production levels had grown to 13.9 million copies. There is now a comprehensive range of typesetting, graphics and production finishing services.

Ed Hyde writes: 'I have found the 13 years of my association with Printery the most satisfying in my many years of working. To have participated in the development of the services, particularly since the operation has been centralised in its present building, has been a wonderful experience. That experience has been enhanced by the support and friendship of the people who have worked with me.

'I am fortunate, first, that my association with the University goes back to the days when there was close relationship between all staff in the then much smaller institution and, secondly, that my work over the years has brought me into close contact with people in every area of the University – from the cleaners in the early hours of the morning through to the patrolmen in the late hours of the night.'

Ed has been succeeded by Glenn Brissett, who has had 18 years experience in the printing industry. He has run his own print businesses and has worked for such organisations as A.C.P. Polychrome, Edwards Dunlop and B.J. Ball.

funding for Greenhouse Effect research, announced recently by the Prime Minister.

The heads of the government's marine science and technology agencies will be asked to work with the Department of Industry, Technology and Commerce to examine areas of potential industry development, to bring marine R&D more closely into line with industry requirements and to play a key role in international co-operation in marine science and technology.



Ed Hyde

Coaching Skills Workshop for Sportswomen

The New South Wales Women's Advisory Council, in conjunction with the NSW Department of Sport, Recreation and Racing, and the Australian Sports Commission, is sponsoring a coaching skills two-day workshop for sportswomen: 'Gateways to Participation', to be held on October 6 and 7 at The University of Wollongong

These coaching workshops will provide the springboard that many sportswomen need in order to make the transition from competitive participation to becoming registered coaches in their chosen sports.

The Minister responsible for Women's Interests, Mrs Virginia Chadwick, announced that the Women's Advisory Council would provide a grant of \$30,000 to the Illawarra Academy of Sport to run the workshop for local sportswomen keen to gain coaching accreditation in their chosen sport. The workshop will focus on six major sports played in the region: softball, netball, basketball, hockey, touch football and athletics.

School/Industry Link Educational Excursions

The Oasis Resort on Lake Illawarra, which is owned by Harvey Fripp, has established School/Industry link Educational excursions. This is a program for Year 11-12 students to attract them to study, work and live on the Leisure Coast.

Planning and Marketing at the University has been liaising with the Oasis Resort to include visits to the University in these tours. The first group of 40 Year 12 students from Erindale College, ACT, were on campus on Monday June 19. These students are in the advanced core doing physics, chemistry and mathematics. They will also visit BHP Slab and Plate and a coal mine.

Management and IRIS to look at Small Business Decline and Turnaround

The Department of Management and IRIS, in a joint venture, have been successful in securing a \$40,000 contract with the NSW Department of Business and Consumer Affairs to investigate the causes of small-business decline and strategies for successful turnaround.

Professor Lowe and John McKenna will be responsible for the study and will be assisted by Dr A.B. Sim and Gary Tibbits.

The need for the study arises from a concern that while smaller firms have considerable potential in wealth creation and employment, they frequently fail or decline for a variety of circumstances – some of which are preventable. The causes of decline, and the actions successful firms make in turning around their organisation, are the focus of the study. The researchers will also be looking at forward indicators which can help predict failure, so that government can understand the impact some of its policies may have on this key sector of the economy.

Environmental Scientist Receives Award

Robyn Sim, best female science graduate of the year, was presented with the Gina Savage Prize at a meeting of the Wollongong Branch of the Australian Federation of University Women held in the Kemira Room on Wednesday June 7.

Professor Peter Bolton, Dean of Science, in a short announcement, indicated that this was the first year that the prize had been awarded to a student in Environmental Science.

The cash prize is awarded annually by the AFUW in memory of Mrs Gina Savage, a former local science teacher. This year's winner, Robyn completed an Honours thesis in the Department of Geography in the field of Remote Sensing. She is now using and developing those skills in her employment at the Water Board in Sydney.

Guest Speaker for Science and Planetarium Society

Each year several professional societies and institutes operating in the Wollongong area combine to present a meeting of special significance. This year the Illawarra Science and Planetarium Society has invited Dr Michael Gore, the Chairman of the National Science and Technology Centre at Canberra, to be guest speaker.

Topic: *Science for Everyone*
Chairman for the evening: Mr A. Davidson, Illawarra Science and Planetarium Society.

Venue: The University of Wollongong, Pentagon 2, Northfields Avenue, Wollongong.

Date: Wednesday July 12.

Program: 5.30 pm, light refreshments; 6.15 pm address; 7 pm – 7.45 pm discussion.

Dr Gore studied electrical engineering at Leeds University in Yorkshire and obtained his doctorate in Applied Physics at the same university. After spending a year at the Electrical Engineering Department of Brown University in Providence, Rhode Island, USA, in 1962 he took the position of Lecturer in Physics at the Australian National University. He was for a time scientific adviser to the original ABC series *Towards 2000*. In 1982 Dr Gore was made Canberran of the year in recognition of his work in establishing Questacon. In 1983 he was awarded a Churchill Fellowship which enabled him to visit overseas science centres in North America and Western Europe. In 1986 he was made a member of the Order for Australia for 'his services to education' and in 1987 he was presented with a special award by the *Beyond 2000* television team for his role in promoting Public Science Education.

He resigned from the Australian National University in 1987 to take up the position of Foundation Director of Questacon – the National Science and Technology Centre.

Admission is free. Non-members are welcome.

Farewell Dinner – Professor John Blake

As most people on campus will by now be aware, Professor John Blake, Professor of Mathematics, and for some years Dean of the Faculty of Mathematical Sciences, is resigning on July 20. A dinner in his honour has been organised for those friends and colleagues who would like to have an opportunity to say farewell.

Date: Friday July 14.

Time: 7 pm for 7.30 pm.

Venue: Common Room (Building No 11), The University of Wollongong.

Cost: \$25 (single) or \$50 (double) covers: pre-dinner drinks and savouries and three-course meal, with orange juice and wine available throughout the meal. Full bar service will be available for those wishing to purchase other drinks.

Tickets: Available from Helen Whiter (Room 15.131, ext 3843) or Paul McGuire (Room 15.127, ext 3814) until July 7. Donations for a gift may also be left with the above mentioned.

Friends of the University

Wanted – space ...

An accessible storage space is required by the Graduate Group of the Friends of the University for secondhand books.

A successful bookfair was held on Open Day 1988, and it is hoped to continue this function on an annual or biennial basis. If you have a suitable space (a garage would be perfect) please contact Muriel Murada on 27 0073.

AND REMEMBER, don't discard your superfluous literature!



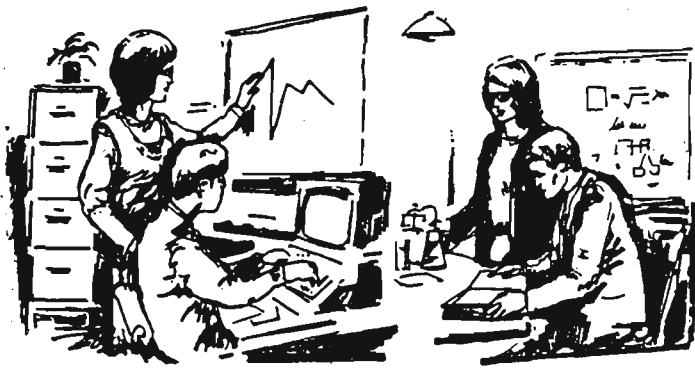
Safety on Campus

Safety on Campus

Site Inspection

July 4 – Building 18, Science (Physics) – Jeff Owers, Aivars Depers, Bob Galvin.

You are asked to contact the inspection team members if you have safety issues you want to raise regarding your building. Inspections start at 9.30 am.



Staff Roundup

Study Time – Session 2

All study-time applicants who have not had study time approved for Session 2 should have received an application form for Session 2 approval.

In order to ensure that your application is processed without delay, please ensure all details are provided and the application is signed by the Head of Department/Unit.

Applications not received by the fourth week of the start of Session 2 (August 14), will if approved, operate from the date of receipt of application, not the beginning of session.

So – please make sure applications are returned before this date!

If there are any alterations to your studies please advise me so that your study time can be adjusted accordingly.

If you have any queries please contact Shirley Jorgensen on ext 3946.

Release of Session 1, 1989, Examination Results

Examination results for Session 1, 1989, subjects will be posted to each student's registered term address on Friday July 14. Results for Annual subjects may be issued by the relevant Department/School. Students should ensure that the University has their correct address before July 11.

Examination results will also be displayed in the Pentagon on Friday July 14 from noon onward.

Students who have not paid outstanding charges to the University such as library fines, overdue student loans and other charges by Wednesday July 5 will have their examination results withheld. Where outstanding charges are paid after July 5 results will not be available until after Monday July 17.

Graduation ceremonies will be held later this year – on October 12 and/or October 13. All students who meet the requirements for a degree or diploma at the end of Session 1 will be eligible to graduate at these ceremonies provided they submitted an Application for an Academic Award before June 9.

Students who will satisfy the requirements for a degree or diploma at the end of Session 2 must submit an Application for an Academic Award by November 30 this year if they wish to participate in the May 1990 ceremonies.

No information concerning examination results will be given by telephone.

K.E. Baumber
University Secretary

Attendance at External Courses

There is provision made in the Central Training Budget to subsidise members of staff who wish to attend relevant development courses at outside institutions.

In order to qualify the applicant should send a copy of the registration form (including cost of registration) and an approval from the Head of Department to Personnel.

Applications will be considered and, if approved, registration fees and a travel allowance will be paid.

Please ensure that sufficient time is given in order to process the application.

Further inquiries can be made to Shirley Jorgensen, ext 3946.

Staff Development Courses

Research Grant Applications – Academic Staff

July 5: Half-day morning.

Maximise your chances for lodging a successful research grant application. RSVP June 21.

Personal Effectiveness Training

July 20, 27 and August 3 and 10; four half-days.

Emphasises development of self-awareness, self-confidence decision making and communication skills. RSVP June 30.

Like to win a computer?

The University of Wollongong requires all students enrolling in an undergraduate course for the first time in 1989 to be computer literate in order to graduate. Students may satisfy the Keyboard and Wordprocessing Skills component of the Computer Literacy requirement by...

1. satisfactory completion of the following courses:

CSCI 113	Computing Science IA
EDTL 101	Teaching and Learning Studies I: Basic Principles
EDTL 102	Teaching and Learning Studies II: Teacher Centred Strategies
ELEC 132	Computers I
ELEC 152	Laboratory IA
ELEC 133	Introduction to Digital Computation
ELEC 191	Computer Engineering I
AICA —	Any 1st year course with an ACIA prefix
MECH 122	Introduction to Design

or

2. passing a computer literacy test. Students may enrol in a two-hour course and literacy test by contacting Jo-anne in Computer Services Reception, ext 3850. The cost of the course is \$35.

Two President XT-088 computers are to be given as prizes; one to a student taking a subject which provides exemption (that is category (1) above) and another to a student who has successfully completed the Computer Literacy Test (category (2) above).

The two prizes are to be given for the best entries of either

(i) an essay on the effects of technology on our society by the decade 2000–2010;

or (ii) a science-fiction story taking place in the decade 2000–2010.

All entries are to be word-processed and laser-printed and should be about 2000 words. Entries are to be submitted to University Computer Services by 3.30 pm Tuesday December 12.

Research Funds

The sources of research funds given below are available to members of academic staff. Further information including application forms may be obtained from Kim Roser (ext 3201). Intending applicants are reminded that all research applications must be forwarded through the Office of Research and Postgraduate Studies.

NH&MRC Development Program Grants for Public Health Interventions

Applications are invited from groups with suitable experience (minimum of six years) and resources in public health research. Programs which are multi-cultural or involving a number of institutions will be considered.

Applications close with the University on July 14.

Arthritis Foundation of Australia

The Arthritis Foundation of Australia has invited applications for Grants-in-Aid and Scholarships tenable in Australia and for Fellowships tenable overseas. Further information is available from the Office of Research.

Applications close with the University on July 14.

The Pacific Asian Higher Education Leadership Institute (PAHELI) – University of Hawaii

PAHELI has been established to bring together university and college presidents and senior and developing academic administrators from Asia, the Pacific and the United States to participate in a unique leadership training institute that emphasises professional development, academic management skills and cross-cultural awareness.

Applications close with the Institute on July 30.

ARC 1991 Call for Submissions

The Australian Research Council (ARC) invites brief submissions nominating fields for research priority status in preparation for a review for the 1991 funding round.

Previously noted in Campus News

Internal Closing Date

NH&MRC Public Health Intervention Grants	July 14
Australia-China Exchange	July 14
Law Foundation Travelling Fellowships	July 15
Arthritis Foundation Grants	July 17
NASA Correlative Measurement Program	July 17
NACAIDS Scholarships	July 17
Matsumae Fellowship	August 17
AINSE Fellowships	August 17
National Multiple Sclerosis Scholarships	August 17
Harkness Fellowships	August 31
AFUW (Qld) Fellowships	September 16
Australia-Japan Foundation Visits	September 17
Japan Society Exchange Program	September 19
Academy of Science China Exchange Program	November 17
Health and Community Services Research Grants	Any time

NASA Correlative Measurement Program

National Aeronautics and Space Administration (NASA) seeks research proposals for correlation measurements in support of the Upper Atmosphere Research Satellite (UARS) missions.

Applications close with the University on July 17.

Scholarships, Fellowships and Prizes

Australian National Council on AIDS Scholarship

Applications are invited from graduates enrolling towards a Masters or PhD to undertake research in the social sciences in areas relating to HIV infection and its prevention. The scholarship has a stipend of \$12,734 and is for one year but may be renewable for three years.

Applications close with the University on July 17.

The Academies' Australia-China Exchange in the Humanities and Social Sciences

Applications for exchange fellowships are invited from scholars interested in visiting China under the joint exchange agreement presently operating between the Australian Academies of the Humanities and the Social Sciences and the Chinese Academy of Social Sciences in Beijing.

Applications close with the University on July 14.

Law Foundation of NSW Travelling Fellowships

The fellowships are to enable people directly involved in or concerned with the administration of the law and legal system to undertake overseas study tours.

Applications close with the University on July 17.

C.J. Martin Fellowships

The NH&MRC have invited applications for C.J. Martin postdoctoral fellowships to enable fellows to work overseas on specific research projects within the biomedical sciences. Fellowships are usually awarded for a period of three years.

Applications close with the University on July 17.

Australian Applied Health Sciences Fellowships

The NH&MRC have invited applications for Australian Applied Health Sciences fellowships. The purpose of the fellowships is to provide training in scientific research methods, including those of the social and behavioural sciences, which can be applied to any area of clinical or community medicine.

Applications close with the University on July 17.

Australian Postdoctoral Fellowships

The NH&MRC have invited applications for Australian postdoctoral fellowships. The purpose of the fellowships is to provide a vehicle for training in basic research within the biomedical sciences in Australia. Fellowships are usually awarded for a period of three years.

Applications close with the University on July 17.

Concerts, Exhibitions and Entertainment

Visit by Geminiani Chamber Orchestra

The Geminiani Chamber Orchestra, resident at the Victorian College of the Arts, will visit The University of Wollongong on Thursday July 6.

Under the direction of Marco von Pagee, the orchestra will present a concert in the Music Auditorium at 8 pm. The program, which illustrates the versatility of these musicians who are drawn from the VCA and Melbourne University, includes Mozart's Serenade in Eb, K.375; Pelleas et Melisande by Sibelius; the powerful Shostakovich 8th Quartet arranged for string orchestra; and Stravinsky's jaunty Octet for wind instruments.

The Geminiani Chamber Orchestra was established in 1984 and has already achieved a reputation as one of the finest youth orchestras in the country. It has participated in the Spoleto Festival, broadcast nationally for ABC-FM, and was invited to take part in the International Festival of Youth Orchestras in Brisbane in 1988.

In 1990, Geminiani will tour to Hong Kong and China. This year's schedule includes the present tour to NSW and Canberra as well as further broadcasting. In addition, the orchestra presents a subscription series every year.

The conductor, Marco von Pagee, teaches violin and viola at the VCA where he is currently acting head of Strings. Following studies at the Royal Conservatorium in The Hague, he was appointed principal violist with the Netherlands Radio Chamber Orchestra. More recently he was principal viola with the Elizabethan Melbourne Orchestra and is a foundation member of the Rantos Collegium.

Seats are available at (a modest) \$10, with \$6 concession. Inquiries to David Vance, Music Development Office (ext 3303).

Hyperactive School of Creative Arts

Long Gallery, The University of Wollongong, Northfields Avenue.

Open to public Monday to Friday 10-12.30 and 1.30-4 pm; Sundays 1.30-4 pm.

Sales area: Small paintings/prints/ceramics/art cards/frames/SCARP magazine.

Sunday July 23 to August 13:

Preview Friday July 21, 7.30 pm to 9.15 pm. To be opened by Tony Bond, Curator of Modern Art, Art Gallery of NSW, 8 pm.

Hi-Tech Art – TAFE Staff Exhibition.

Friday August 18 to September 10:

Official Opening Friday August 25 at 7 pm by Laurens Tan, to be followed by Gala Performance of 'The Tempest' at 8 pm.

Past and Present – Graduates and 1st and 2nd Year Creative Arts Students.

Sunday September 17 to October 8:

Preview Friday September 15, 7.30 pm to 9.15 pm.

Gregor Cullen: Original prints; Ann Ferguson: Original prints; Leonie Molloy: Original prints; Idris Murphy: Paintings/The Ecumbene Lithographs/The heretic, DCA Submission; James Taylor: The Little Paralleli Piped/Retrospective Typographics/and Exhibition of Books, Works and Typography, MCA Submission; Simon Tognetti: Ceramics.

Friday October 13 to November 12:

Preview Thursday October 12, 7.30 pm to 9.15 pm. To be opened by the Vice-Chancellor, Professor Ken McKinnon, at 8 pm.

John Eveleigh: 'Heroic Materialism and the Natural Order. Paintings and drawings: Aspects of Australian mining, manufacture, transport and port facilities, and NSW landscapes and seascapes, DCA Submission. Karl Preuhs: Ceramics. Karl Preuhs celebrates 30 years as a ceramicist in Australia. Edith Kouto: Smaller paintings sales area feature.

Sunday November 19 to November 29.

Preview Friday November 17, 7.30 pm to 9.30 pm.

BCA Graduating Exhibition. Ceramics/drawings/fibre art/jewellery/paintings/original prints/sculpture/woodcraft and installation.

Kathrin McMiles – 'Watsa Matter Terra Mater' Installation theatre space November 18, 19 and 20.

Wednesday December 6 to December 17:

Preview Tuesday December 5, 7.30 pm to 9.15 pm. To be opened by Dr Peter Shepherd at 8 pm.

Barry Gazzard: Paintings, DCA Submission; Walter Smith: Sculptures and Drawings, MCA Submission; Joy Warren: Ceramics, PhD Submission; and Michael Morgan: Large drawings, MCA Submission.

Exhibition inquiries to John Eveleigh, Gallery Co-ordinator. General inquiries to Jenny Fullerton, Gallery Receptionist. Telephone (042) 27 0996, internal extension 3996.

Neil Hamilton Fairley Fellowships

The NH&MRC have invited applications for Neil Hamilton Fairley (overseas) fellowships. The purpose of the fellowships is to provide training in scientific research methods, including those of the social and behavioural sciences, which can be applied to any area of clinical or community medicine.

Applications close with the University on July 17.

Harkness Fellowships

Applications are invited for the Harkness Fellowships tenable for between 12 and 21 months study and travel in the United States. Candidacy is open to men and women

in any profession or field of study who are over the age of 21 and Australian citizens.

Applications close with the University on August 31.

National Drugs in Sport Conference – 1989 Treating the Causes and Symptoms

Friday and Saturday July 14 and 15.

Sponsored by the Department of Human Movement and Sports Science, the Conference will be held at The University of Wollongong, PO Box 1144, Wollongong, NSW 2500. Phone (042) 27 0956 or (042) 27 0881, Fax (042) 27 1675.

Seminars

Biomedical Evening Series

Each seminar will be preceded by dinner at the Union Bistro at 6.30 pm. All those interested are welcome to meet the speaker at the Bistro. Please contact the Convenor so that appropriate table bookings can be made. The seminar begins at 8 pm in the Biology Meeting Room, building 35.

Convenor: Dr E.J. Steele (042) 27 0434

Date: Wednesday July 5

A seminar sponsored by Millipore.

Speaker: Dr Sydney James, Department of Botany, University of Western Australia.

Topic: *Evolutionary genetics and mobile elements.*

Date: Wednesday August 23

Speaker: Dr Len Storlien, Garvan Institute of Medical Research, St Vincents Hospital, Paddington.

Topic: *Dietary fats and disease.*

Date: Wednesday September 13

A seminar sponsored by Amersham.

Speaker: Associate Professor Ron Trent, Clincial Immunology Research Centre, University of Sydney.

Topic: *Regulation of haemoglobin F in eukar yotes.*

Date: Wednesday October 4

A seminar sponsored by Pharmacia.

Speaker: Dr M.D. Hatch, CSIRO Division of Plant Industry, Canberra.

Topic: *Cell Permeability - Gap Junctions and C4 Photosynthesis.*

Date: Wednesday October 11

A seminar sponsored by Flow Laboratories.

Speaker: Dr John McAvoy, Department of Histology and Embryology, University of Sydney.

Topic: *Control mechanisms of eye lens development.*

Date: Wednesday October 18

A seminar sponsored by Selinus Laboratories.

Speaker: Associate Professor Tony Cunningham, Department of Virology, Westmead Hospital.

Topic: *HIV infection of monocytes and development of antiviral agents for AIDS.*

Department of Information Systems and The Australian Computer Society

Date and time: Tuesday June 27, 6 pm.

Venue: Vistor Centre, BHP, North Gate, Spring Hill Road.

Speaker: Mr Craig McConnichie, Arthur Anderson Associates.

Topic: *Artificial Intelligence, The Commercial Reality.*

For further information contact Dr Bruce Lo on 27 0750, Department of Information Systems.

Department of Management

Seminar to be held in Building 19 Room 1003, 12.30 to 1.30 pm

Date: June 22

Speaker: Dr T. Williams.

Topic: *New Technology and Work Design in the Australian Public Service.*

New Literatures Research Centre

All seminars will be held on Fridays at 2.30 pm in the English Department (Building 19) of the University of Wollongong, Room 1095.

The seminar series occurs annually and accepts papers by visiting and local writers, academics, and post-graduate students. For further information or offers of papers, please contact Paul Sharrad (042) 27 0705 or Shane Donnelly (02) 525 0186.

Date: June 30

Speaker: Elizabeth Young, English, University of Wollongong.

Topic: *Janet Frame's 'The Carpathians'.*

Everyone is welcome to attend. Refreshments provided.

ITC BULK MATERIALS HANDLING A DIVISION OF THE ILLWARRA TECHNOLOGY CENTRE SHORT COURSE ON DESIGN & OPERATION OF PNEUMATIC CONVEYING SYSTEMS

3, 4 & 5 July 1989

Today pneumatic conveying is used both for short haul and long distance applications involving a wide variety of commodities. This short course will review the current state of the art in relation to hardware development and design techniques and also provide a forum for researchers, equipment suppliers and practitioners to exchange ideas and experiences.

Course fee: \$495

Registration and further information:

Professor P. Arnold or Mr P. Wypych
Department of Mechanical Engineering
The University of Wollongong
PO Box 1144, Wollongong NSW 2500
Telephone (042) 27 0062 or (042) 27 0488
Fax. (042) 27 0101

Advertisements

FOR SALE

4-year-old architect-built contemporary cedar pole frame over bushland. Two bedrooms, large balcony on uncleared escarpment bush. \$165,000. Phone 83 7284.

FOR SALE

Bike 16 inch BMX. Good condition \$75. Phone Robin Handley on ext 3726 or at home 27 0726.

FOR SALE

Ford Falcon XD Station Wagon, 4.1 automatic, 6 seater family car, excellent condition, one owner, log books available, low kilometers, cosmic gold colour. \$9,500. Phone Faye, 3030.

CHILD'S BICYCLE

Wanted to borrow for six weeks from July 14 (or possibly to buy), bicycle suitable for 11-year-old girl. Phone ext 3779 or 27 0779.

LEAVING THE COUNTRY GARAGE SALE

Large and small furniture and appliances. Contact Judy, daytime and evening phone is 67 3657.

FOR SALE

'Super Single' Waterbed (4'6" wide) in beautiful lacquered pine finish. Includes four-drawer base, head-board and bedside table. All equipment and wood in excellent condition. Worth \$700 new but selling for only \$250. Also queen size pure wool underblanket for \$100. Phone Paul on 27 0402.