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MONTAGE

NEWS AND VIEWS FROM MONASH UNIVERSITY

A head of his times

Monash vice-chancellor designate Professor David Robinson has vowed to continue the innovative and ambitious 'Logan legacy', while emphasising that the university should not be content with just "more of the same".

"Universities have to continually make and remake themselves if they are to survive and prosper," he said.

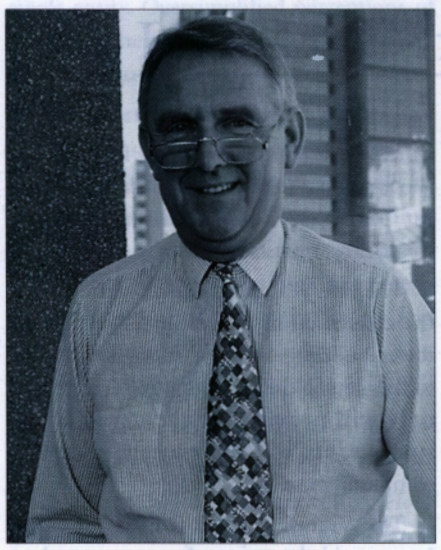
Rejecting the stereotypical ivory tower image of universities, Professor Robinson said tertiary institutions had become "street-wise organisations" that were highly sophisticated in adapting to meet community demands.

"Compare our track record to that of the commercial world. The vast majority of businesses that were operating in 1950 no longer exist. All universities from that time have changed, but they are still here," he said.

"This is not by chance – universities survive because they have for centuries demonstrated the ability to change. And they have to maintain this ability, because they are under increasing pressure to demonstrate their quality, not just claim it."

Professor Robinson is no stranger to evolution and reform in higher education.

Currently in his fifth year as vice-chancellor of the University of South Australia, he has overseen the amalgamation of the South Australia Institute of Technology with three campuses of the South Australia College of Advanced Education, transforming the university into what he believes is "one of the real success stories of the Dawkins reforms".



"Last year, the University of South Australia was the only post-1987 institution placed by the Committee for Quality Assurance in Higher Education in band one for teaching and learning and for community service," he said.

This represented a meteoric improvement on its initial ranking in band five in 1994.

And during an 11-year association with the University of Hull in the UK, where he became senior lecturer then pro vice-chancellor, Professor Robinson found himself having to adapt to an environment shaped by a frugal national government and a shrinking public purse.

"When you get a 17 per cent cut in government funding overnight, it really concentrates the mind," he said.

Monash will be Professor Robinson's fifth institution in an academic career that began with a BA (politics with sociology) from University College, Swansea, in 1964, followed three years later by a PhD in sociology.

He spent nine years working at the Addiction Research Unit in the University of London's prestigious Institute of Psychiatry, before taking up his position at Hull.

He said each of the institutions he had worked in had added to the experience and understanding he would bring to his new role at Monash.

Apart from his exposure to universities keen to embrace change (and those forced to accept it), his time at the small Swansea college showed him the "benefits of an intimate teaching environment".

And his time at the University of London, one of the world's most acclaimed research institutions and where academic staff were employed on one-year renewable contracts, exposed him to the pressures of constant performance appraisal.

Throughout his career Professor Robinson's research has focused on medical

Continued on Montage 2

• Celebrating suburban Australia in art (3) • Tiger Balm: the proven pain reliever (4)
• Using maths to design an HIV vaccine (8) • Savant: Did China's missiles backfire? (16)

A head of his times

From Montage 1

sociology and health policy, and he has written or edited 14 books on subjects relating to health, addictions and care for people with HIV-AIDS.

Professor Robinson has also chaired several World Health Organisation expert committees and held numerous positions as consultant and adviser to national health and research organisations.

"Health issues are eternally fascinating to me. They encompass everything from doctor–patient relationships at the micro level to the macro issues of global markets in legally addictive substances like tobacco."

While his research interests have been curtailed recently due to his administrative commitments, he has lost none of his enthusiasm for exploring broader issues.

His vision for Monash includes practical, everyday matters such as infrastructure and systems to support students and staff, as well as the university's global image.

He praised the leadership of Professor Mal Logan, saying it had taken Monash to the forefront of Australian higher education.

"Over the past 10 years, Monash has become a dynamic and ambitious institution, playing a leading role in research, international activities, open learning and marketing itself to the community," Professor Robinson said.

These strengths, he believed, stemmed from the Logan philosophy that education should be both accessible and comprehensive.

"As much as possible, Monash opens itself to all who can benefit from its expertise and resources. It also makes available its output and intellectual endeavours for the benefit of the general community.

"While the university has made great strides, the status quo is not an option. Monash should aim to be, quite simply, Australia's leading university. Nothing less should satisfy us."

By Gary Spink

NOW & THEN

25 Years Ago

The method of selecting students for university has been a controversial issue for many years. Victoria's three universities last year turned away a record number of about 3000 matriculants.

Studies by the Australian Council for Educational Research have shown that marking of examination papers can vary by plus or minus 15 per cent, depending on the examiner. Facts like these bring the whole selection process into question. What can be done?

The Minister for Education and Science, Mr Bowen, stated in Canberra last week that his Department was surveying university selection and the high failure rate of students entering universities.

15 Years Ago

His Royal Highness the Prince of Wales will receive an honorary Doctor of Laws degree at a Monash Science graduation ceremony on Thursday, April 16.

Prince Charles will deliver the occasional address at the ceremony timed to start at 3 pm in Robert Blackwood Hall.

The Vice-Chancellor, Professor Ray Martin, has said that Prince Charles's acceptance of the award is a signal of honour for Monash.

Organist for the ceremony will be Margaret Scott who will be playing a processional especially composed for the occasion.

5 Years Ago

Cinemas, restaurants, sporting facilities and shops are just some of the features of a master plan unveiled last month for the Caulfield campus.

The five-year plan, which will include the construction of a multimillion dollar tower building on Dandenong Road, next to the Caulfield Plaza Shopping Centre, not only will provide for the needs of the students, but will also encourage broader community use.

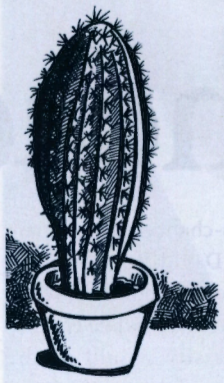
The Vice-Chancellor, Professor Mal Logan, said the masterplan represented an exciting development for both the university and the community. "The plan underlies the importance of Caulfield campus as an integral part of Monash," he said.

This Month Last Year

Monash University is ranked among Australia's top tertiary institutions for the quality of its undergraduate teaching and learning programs.

The Committee for Quality Assurance in Higher Education last month released the findings of its second round of university assessments, placing Monash in the first of three bands.

As a result, Monash will receive an extra $4.85 million in Federal Government funding in recognition of its high standards of teaching and learning.



Spike

There's one born every minute ...

A recent query was made as to whether Monash had a campus in Sydney, and, if not, who would one contact to build one? I guess the University of Sydney is out of the question?

The writing's on the wall

Don't we all pine for good ol' fashioned thought-provoking graffiti? A good example can be found near the Menzies building on Clayton campus: "Caution. Concourse slippery when wet". Our graffiticionado has deleted "concourse" and substituted "Michael Jackson".

MONTAGE
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Old saints come marching in

Melbourne artist Andrew Sibley has brought the saints of old to suburban Australia in his recent exhibition at the Adelaide Festival of the Arts.

'St. Francis – Down Under', 'St. Veronica of the Centre' and 'Pensive Christ in Altona' are three of 12 works (representing 12 apostles) in *Old Saints, New Icons.*

They join 'Sid the Salvo', 'The Lolly Pop Lady' and 'Maria at the Line' in an exhibition which, according to Sibley, "serves as a bridge between the old and new worlds".

'Pensive Christ in Altona', oil on linen, 1995.

The head of painting at Monash University's College of Art and Design, Sibley said his work was a celebration of those who did not always receive the recognition they deserve.

"'Maria at the Line', for example, is an acknowledgement of women who toil in their backyards."

The 198 x 128 cm oil on linen is an evolution of a smaller pencil and ink drawing, 'Madonna of the Rotary Clothes Hoist'.

The entire series derives from lithographs which he exhibited in Melbourne in late 1994.

Sibley said many of the paintings had changed quite radically from the original lithographs. St. Francis ... had changed from a traditional-looking saint framed by a stained glass window to a young 'greenie' nursing a kangaroo.

Art critic Patrick Hutchins said the paintings realised the potential of the lithographs.

"The texture of the paint is much more splendid than was the ink-on-paper surface of the lithographs and the figures have been rendered much more strongly – gesture has been made more eloquent, the eyes of the figures look beyond us, and the reworking of the touches of context has given a more iconic feel."

Sibley employs many pre-Renaissance devices and perspectives. "I take a lot from the history of art. The great masters are looking over my shoulder," he said.

His work is formal in its balance, and his figures are iconographic, "not engaging the viewer, but allowing the viewer to pass from the physical to the spiritual world".

Sibley believes his works are easily recognisable. As one critic said: "There is an overall consistency and unity in Andrew Sibley's oeuvre; the paintings, drawings, collages, prints and constructions are all related, fragments of the one artistic vision."

'Maria at the Line', oil on linen, 1995.

He has developed a family of images that constantly reappear in his work – the bride and her bouquet, the woman with her baby, the mother with her dead son, the beast or wolf, and the moon.

Sibley said these images were archetypes representing certain elements in the human condition. The moon represents change and creativity, and the wolf appears more as survival figure than predator.

As Sasha Grishin wrote in his book about Sibley, *Art on the Fringe of Being*, "These specific images, which appear virtually throughout the 30 years of his art, point to sources very close to his earliest childhood experiences."

For Sibley, painting is a way to express symbols and ideas deeply embedded in the subconscious. "It's part of one's own self-identification and self-explanation."

"My own background, of the war years and tragedies, impels me to produce certain types of works. It is not detachment but a deep involvement with the human condition."

BY GEORGIE ALLEN

Relieving headaches naturally

A Monash study has revealed that Tiger Balm, a traditional Asian remedy, is as effective in the treatment of tension headaches as paracetamol.

While the physiological basis for treating headaches with Tiger Balm remains unknown, the study recorded "strong and effective relief to the majority of patients who tried the product".

It also found that Tiger Balm provided more rapid relief than paracetamol and that both treatments led to a significant decline in headache pain over a three-hour period.

The study was conducted by Dr Peter Schattner, a senior lecturer in Monash University's Department of Community Medicine and General Practice, and research consultant Dr David Randerson.

It was the first controlled clinical trial into the effectiveness of the topical medication that has been used as a pain reliever, in particular to ease muscle aches, in Asian communities for almost a century.

The main ingredients of Tiger Balm are camphor, menthol, cajaput (a mild stimulant) and clove oil (a local anaesthetic).

A small amount is applied on the temple and repeated after half an hour and an hour.

The 60 patients in the study were given either Tiger Balm, a topical placebo, or paracetamol. They recorded the severity of their headaches in a diary by a standard seven-point scale at five, 15, 30, 60, 120 and 180 minutes after treatment.

While no adverse effects were recorded, several patients did report a warm or tingling sensation when applying Tiger Balm to the forehead.

Patients were also asked to rate the medication against any they had taken in the past. About 75 per cent of those treated with Tiger Balm said they would use it again.

Patients suffering from "common tension-type headaches" rather than from migraine or other non-muscle contraction headaches were included in the study.

The researchers said there was no scientific evidence that would explain how the ingredients in Tiger Balm would, either on their own or in combination, relieve headache pain.

However Dr Schattner said he "imagined" it caused a relaxation of the muscle under the forehead.

It is believed tension headaches affect up to 80 per cent of people. Factors identified as leading to the onset of headaches in the study included coffee, cigarettes, sex, eyestrain, menopause, light and noise.

Dr Schattner said that although he had expected Tiger Balm to be effective, he was surprised that the results of the study found it to work as well as paracetamol.

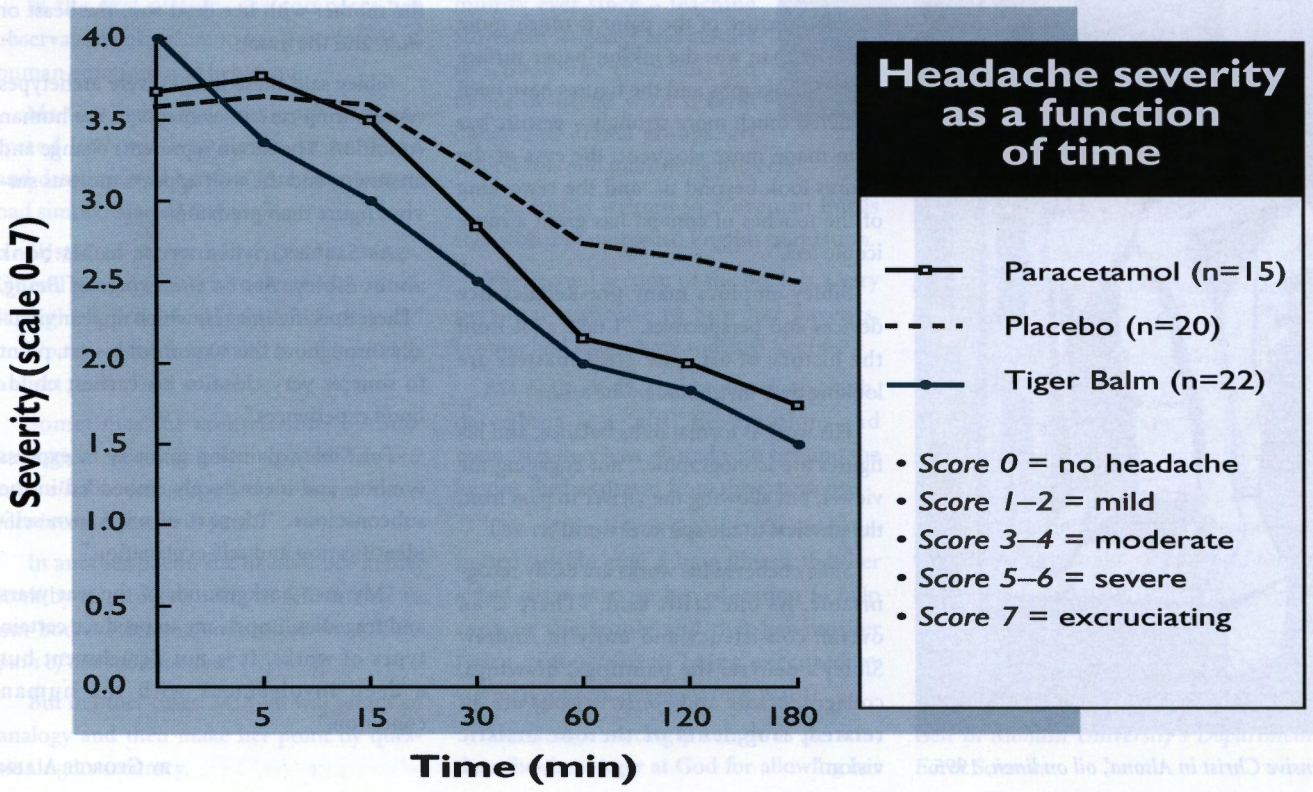
He said that while he was a "fairly traditional doctor", he would recommend Tiger Balm to patients who were reluctant to use medication.

"The balm appears to offer a safe alternative, although further research is needed."

According to Dr Schattner, few studies were done on alternative or complementary medicines as most research was backed by multinational drug companies who did not profit from investigating the benefits of natural products.

The study was published in the Royal Australian College of General Practitioners' journal, *Australian Family Physician.*

BY GEORGIE ALLEN



Home improvement

An education program based on home learning could benefit Aboriginal communities throughout Australia, following a Monash conference last month.

A group of about 30 women from across the country attended Monash University to hear Professor Avima Lombard, from Hebrew University in Jerusalem, explain the Home Instruction Program for Preschool Youngsters (HIPPY).

HIPPY promotes the philosophy that the education process begins in the home and that home instruction can effectively improve learning patterns.

"The program is aimed at helping enrich disadvantaged preschool children's lives as well as increase their mothers' awareness of their own potential as educators," Professor Lombard said.

And while the program only lasts until children attend normal school, she believes that HIPPY instills in participants the need for continuing home input.

Trials in Israel, where the program was first implemented 25 years ago, have found that HIPPY children performed significantly better throughout their schooling than those who did not receive HIPPY home instruction.

Monash Orientation Scheme for Aborigines (MOSA) hosted the visit by Professor Lombard, who is founder and director of HIPPY International.

MOSA director Ms Helen Curzon-Siggers said the potential for this type of program in Aboriginal communities was huge.

"It fits in with what Aboriginal and Torres Strait Islander people believe – that parents and the family are the major educators of their own children," she said.

The group consisted of representatives from every state in Australia. "It is intended that conference delegates will go back to Aboriginal and Torres Strait Islander communities and advise them about HIPPY and how it could affect them," Ms Curzon-Siggers explained.

The success of HIPPY International has been far-reaching. Programs have been implemented in New Zealand, Turkey, Germany, South Africa, the US, Mexico and Chile.

Ms Helen Curzon-Siggers and Professor Avima Lombard met to discuss the advantages of the HIPPY program.

It was Professor Lombard's graduate experience with the US Headstart program in the late sixties which led her to believe that parents had a large part to play in their child's educational success – or lack thereof.

"Before the sixties, preschools in the US were the domain of those who valued them and wanted them – educated people in general," she explained.

The HIPPY program could change the whole value and priority of education in Aboriginal and Torres Strait Islander communities.

"In Headstart we were getting everybody's kids, and it was here I discovered there was a great difference in the way these children functioned, leading me to believe that they had different home environments."

After the successful trialling of HIPPY in Israel in 1969 and eventual adoption of the program by the Israeli Government, a study was conducted to measure the level of school achievement of HIPPY children compared to control counterparts and older siblings.

The results showed that HIPPY children were more likely to remain in school and have improved scholastic performance.

However, Professor Lombard says the program is also aimed at parents: "The power of a parent as an educator is so much greater than that of any teacher."

After taking part in HIPPY, parents were more interested in their child's education, spent more time in educational activities with their child and were more self-confident.

They also participated in more activities outside the home, sought education programs for their own advancement, were more likely to seek employment and were more active in community affairs.

According to Ms Curzon-Siggers, the HIPPY program could change the whole value and priority of education in Aboriginal and Torres Strait Islander communities.

BY JULIET RYAN

Loyalty brings its own rewards

Continuity programs such as 'buy one get one free' and 'fly-buy' schemes do not necessarily give retailers a competitive advantage, according to a Monash academic.

But Dr Alan Treadgold, executive director of Monash's Australian Centre for Retail Studies, said many retailers could not survive without offering a range of continuity or 'loyalty' programs.

In the first-ever study of customer loyalty programs in the Asia Pacific region, Dr Treadgold was surprised by the "sheer intensity" of promotional activities that had developed since the early nineties.

"There is a huge interest in loyalty programs, which have often become part of the standard service. Retailers don't always get a competitive advantage from such schemes but need them to stay in the ball park."

He said that sales numbers and customer traffic were the principal measures of the schemes' effectiveness. "Importantly, very little reference is made to bottom-line profit as a criterion for judging effectiveness."

Dr Treadgold believes the weak retail environment caused by the recent recession forced companies to add a whole program of loyalty schemes to their marketing strategies.

Dr Treadgold and co-researcher Mr Peter Phillips-Rees also found that many loyalty programs were initiated and funded by suppliers rather than retailers. Large companies such as Unilever, Coke and Nestlé ran schemes to promote existing products or introduce new ones.

Loyalty programs include offering free gifts after a certain amount of money is spent, offering a free product for every one purchased, competitions and games, community-based programs (for example, a local supermarket sponsoring a local football club), frequent flyer schemes and coupons (more popular in Asia than Australia).

The study was funded by The Continuity Group (the largest provider of loyalty programs in the world) and the Australian Centre for Retail Studies.

It follows closely behind similar studies funded by The Continuity Group in Europe and the US.

The study found that while Australia was following the same path as European and American retailers by introducing sophisticated schemes such as 'fly-buy' cards, many Asian retailers were more likely to run simpler schemes such as 'buy one, get one free'.

Dr Treadgold said the main benefit of the more sophisticated customer loyalty schemes was the development of massive databases of customers' shopping habits.

"These schemes give retailers a huge amount of information about their customers. They are an enormously powerful marketing tool. Such intangible gains are usually much more important than any extra sales gained."

The food retail industries in Australia and Asia were also quite different. In Australia three companies – Woolworths, Coles-Myer and Franklins – controlled more than 60 per cent of the industry, while in Asian markets there was a much greater diversity of retailers.

Dr Treadgold said the more mature market in Australia meant retailers were more interested in keeping customers and encouraging them to spend more money in existing stores, while Asian retailers were still expanding their food outlets.

One hundred food retailers from Australia, New Zealand, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand were surveyed, and interviews were held with senior managers from 70 companies throughout the region.

Dr Treadgold said Australia was fast developing a reputation for high quality research into the retail sector, and many Asian companies were now coming to Australia for management development programs.

"The study helps position Australia as the centre of retailing in the region and reinforces the point that leading-edge thinking for the industry is being done here."

Mr Phillips-Rees will present the findings of the centre's customer loyalty study at a major international retailing conference in Austria in June.

BY GEORGIE ALLEN

Foreign affairs need closer media scrutiny: academic

Media coverage of Australia's role in the Asia-Pacific, and in particular of the recent security agreement with Indonesia, has been inadequate, according to an international relations expert.

Professor Bruce Grant, a former foreign correspondent and Australian Government adviser and diplomat, said the electronic media had not yet risen to meet the "Asian challenge".

And while the print media had dedicated more resources to foreign affairs recently, the coverage lacked the depth needed to keep Australians fully informed about the political and economic issues shaping diplomatic developments within the region.

Professor Grant teaches foreign and Australian diplomats in the Monash Graduate School of Government course in Canberra.

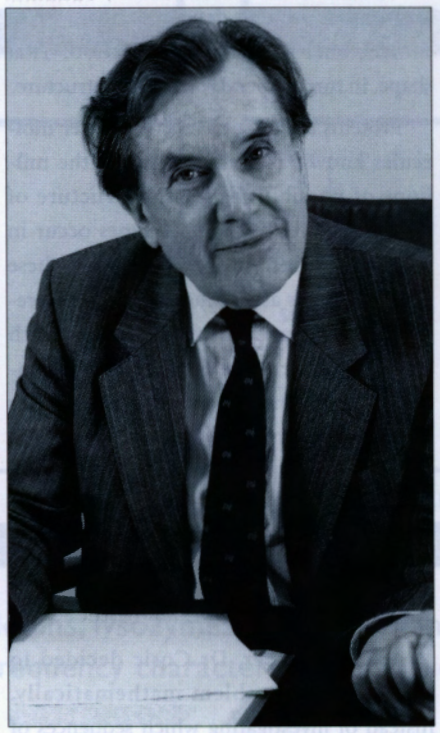
He said the recent security agreement between Australia and Indonesia (signed under the previous Labor Government) provided an example of the media's cursory treatment of foreign affairs issues.

"Generally, the press ran a simple-minded view that Australia had pulled off some sort of foreign relations coup, without analysing why Indonesia agreed to sign the new defence pact and what the country stood to gain," he said.

Given some uncertainty surrounding the role and function of the security agreement, Professor Grant said a more thorough examination by the news media of the issues "on the Indonesian side" was needed.

He said questions still remained about the Indonesian military's support for the defence pact, in light of its history of independence from government and its traditional stance of non-alignment.

"An important story has not been explored. It appears that the Indonesian President, Mr Suharto, took the initiative to



sign the security agreement, working through only two ministers."

Despite having doubts about the defence pact's long-term effectiveness, Professor Grant believes the signing of the agreement indicates that the Indonesian military is losing its traditional power base and that Mr Suharto is emerging as a "strong leader".

Professor Grant, one of Australia's most prominent post-World War II commentators on Asian-Pacific affairs and co-author of *Australia's Foreign Relations* (with former Foreign Affairs minister Gareth Evans), said that while the security arrangement had less force than a treaty, it was still significant for Australia's future with Indonesia.

Because of Indonesia's strategic position, straddling the Indian and Pacific oceans, Australia has for some time sought to forge closer security links to cushion the region from aggression or security threats.

He said that while the security deal set out an arrangement between the two countries to consult each other in the event of "adverse challenges", it did little more than state publicly what had in fact been happening for a few years.

However, Professor Grant said its importance hinged on the new level of trust it established between the two countries.

"If you look at the history of relations between Australia and Indonesia, there have been warm and cool moments," he said.

"On the whole it has been friendly, but not intimate and close. This agreement goes a step further because, as a security arrangement, it formalises a fairly high level of intimacy or confidentiality."

In terms of defence policy, Professor Grant said the security agreement meant that Indonesia was now encircled by allies.

"Indonesia has changed its policy dramatically over the past 30 years, from being aggressive about the neighbourhood to being conciliatory, and is now surrounded by allies," he said.

"With Vietnam joining ASEAN and Australia's similar treaty with Papua New Guinea, the circle of friendly neighbours is now complete."

Commenting on an emerging climate of criticism among Australians that the 'Asian push' had been overdone, Professor Grant said it was vital to recognise the importance of Australia's future role within the region.

"We are being told that Australians are tired of the push into Asia and that there is backlash. But the reality is that we've only just started. We're at the dawn of a new age in Asian-Pacific history, which Australians must come to terms with as a natural and logical consequence of being part of a neighbourhood."

BY BRENDA HARKNESS

Professor Grant is the author of a number of books. His latest novel, The Budd Family *(Hyland House), examines the impact of World War II on an ordinary family, and explores the theme of Australia's place in the world.*

Alias proteins hold the key to future drug design

A unique approach to drug design at Monash University has led to the development of two compounds – a potential vaccine against HIV infection and a drug that could inhibit the growth of solid tumours.

While years of further research are needed, the HIV compound shows enough promise for Monash and the French Government research body CNRS to have patented it.

The two compounds have resulted from a model of protein function designed by Monash electrical engineer Dr Irena Cosic. If the model proves useful, molecular biologists will have a revolutionary new way in which to approach drug design.

It all stems from the application of the analytical techniques of electrical engineering to one of the great mysteries of biochemistry.

Proteins govern action in organisms. Biochemical reactions are all controlled by biological catalysts or regulators, and most of these are proteins. It has long been known that proteins depend on their three-dimensional shape for their action. That shape, in turn, depends on protein structure.

Proteins are long chains of simpler molecules known as amino acids. Of the millions of possibilities for the structure of amino acids, only about 20 types occur in natural proteins. To form a protein, these 20 amino acids are strung together in a precise sequence, and it is this sequence which ultimately determines the three-dimensional shape into which the protein will fold, as well as its activity.

But exactly how protein shape and function emerge from the sequencing of amino acids has been the subject of laborious research, which, until now, has produced no great leap forward.

As an engineer, Dr Cosic decided to approach the problem mathematically. Instead of investigating which sequences of amino acids folded in which way, she decided she would represent every amino acid in the sequence with a number. But the number had to be something biologically relevant.

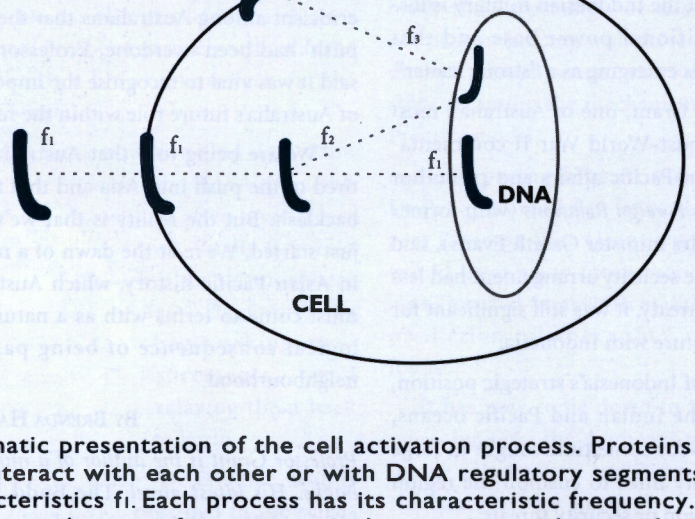
In forming the shape of a protein, individual amino acids interact with each other and the surrounding environment, attracting, repelling and even bonding with other molecules. So Dr Cosic felt it would be useful to represent amino acids with a measure of their ability to interact. To determine this measure, she used an estimate of the energy of the most loosely bound electrons of each of the 20 forms of amino acid. These electrons are at the heart of chemical interaction.

Having represented a protein sequence by a string of numbers, she could then draw a graph of the number sequence of amino acids along a protein. Not surprisingly, what emerged looked like a spikey squiggle. But to an electrical engineer like Dr Cosic, accustomed to the complexities of physical measurements in telecommunications and medicine, such squiggles looked like signals and an invitation to investigate further.

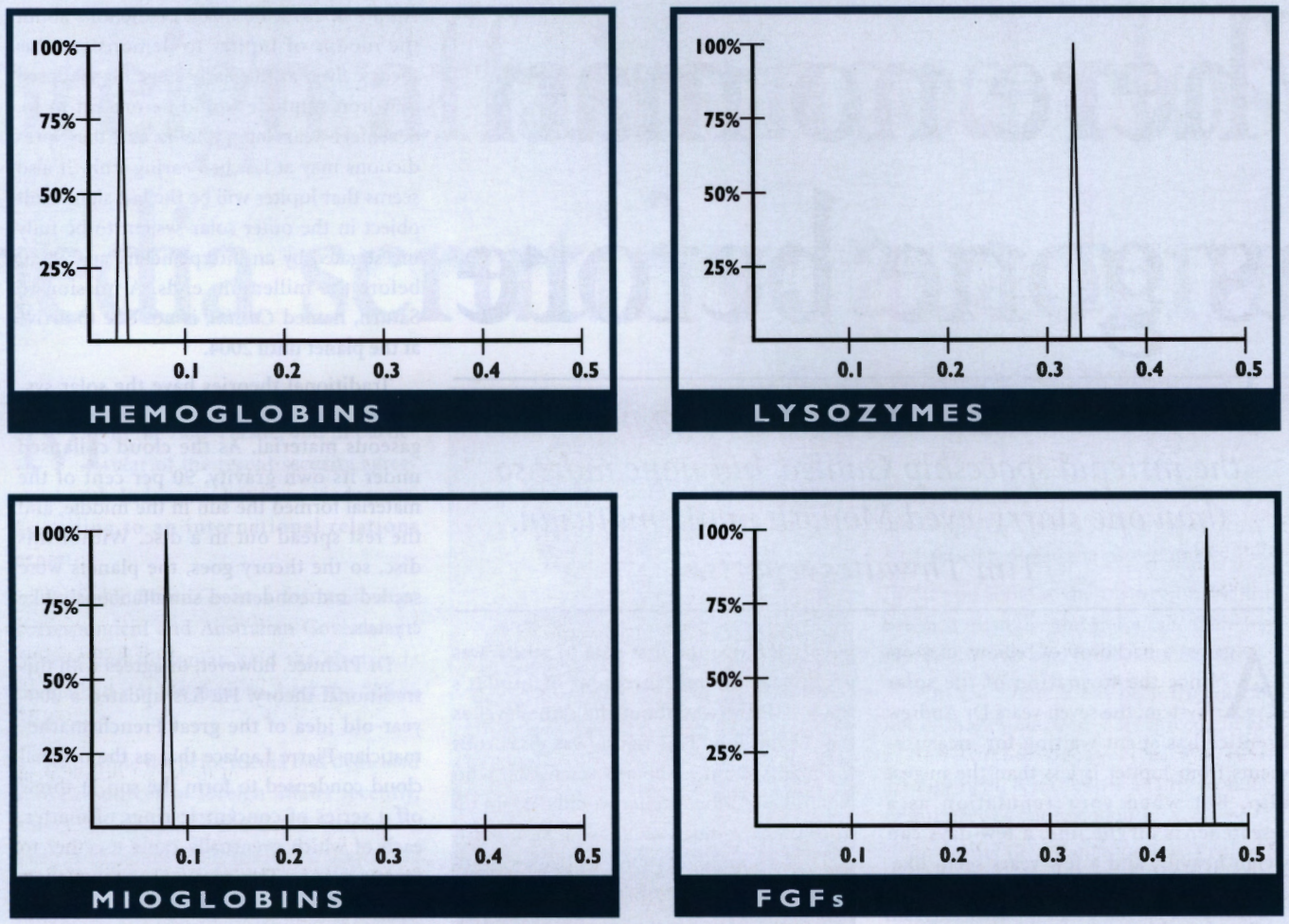
When electrical engineers analyse complex signals – such as the trace of a heartbeat or radio waves from outer space – they break them down into a series of regular wavelike curves which, when added together, recreate the original signal. Each component wave has a frequency measured in hertz, the number of times the wave form is repeated each second.

Dr Cosic was able to take whole protein sequences and graph the contribution of each component wave form against its frequency. She then compared the results for groups of proteins which performed a similar function and for proteins which performed different functions.

What emerged was astounding. Among their component waves, proteins which performed the same function – a group of growth factors, for example – all possessed one waveform in common, a single characteristic frequency which they shared. In contrast, proteins which were unrelated in



Schematic presentation of the cell activation process. Proteins recognise and interact with each other or with DNA regulatory segments at characteristics f_1. Each process has its characteristic frequency. However, the same frequency can characterise, within one biological function, many interactions. In addition, one protein can be involved in two different functions/interactions, as a target or activator, and thus it can express more than one characteristic frequency.



Each group of proteins, hemoglobins, lysozymes, mioglobins and FGFs, has a prominent peak representing the frequency characteristic for a biological function.

function shared no such frequency. What is more, the characteristic frequencies were different for groups of proteins performing different functions.

Even more astonishing was that when Dr Cosic analysed the target molecules which interacted with proteins – receptors to which a group of proteins bind, for instance – she found that the characteristic frequency of the protein group matched that of its target.

"They recognise each other on the basis of frequency. It's very obvious to an electrical engineer. It's like tuning in a radio station."

Dr Cosic then began to wonder how these characteristic frequencies could be produced. As her original numbers were measurements of electron energies, she explored the possibility that electromagnetic waves of the right frequency levels could be produced by electron movement along proteins.

When she calculated such movement theoretically, she found the energy frequencies were typical of visible light. So she investigated groups of light-sensitive proteins, comparing the values she calculated for their characteristic frequencies with the frequency of the light to which they were sensitive. Sure enough, the values matched.

But the ultimate test of any scientific hypothesis is prediction. Dr Cosic reasoned that if her theory was correct, and the action of groups of functionally similar proteins were somehow related to their characteristic frequency, it should be possible to mimic that action by designing a sequence of amino acids with the same characteristic frequency.

And this is just what Dr Cosic has done. The first group of proteins she chose were on the outside coating of the human immunodeficiency virus (HIV). Having calculated the characteristic frequency of these proteins, she designed a totally unrelated amino acid sequence to match that frequency. The sequence was constructed and tested at the Universite de Lyon in France. It was found that the newly designed amino acid sequence could trigger the immune system to recognise HIV. As such, the sequence might be useful as the basis of a vaccine.

Dr Cosic then did much the same with fibroblast growth factor (FGF), a protein which stimulates the growth of solid tumours. Her design – again a totally unrelated sequence – was found to have a similar three-dimensional shape to FGF and binds loosely to the same receptor. But it does not stimulate cell growth and could possibly prevent the real FGF from doing so. It seems she has unearthed a promising line of research for future drug design.

Dr Cosic came to Australia from her native Serbia in 1989. The major government funding bodies – the Australian Research Council and the National Health and Medical Research Council – are already supporting her work in a significant way. In future, it seems commercial companies could be interested as well.

BY TIM THWAITES

Where no man has gone before

Many scientists are anxiously awaiting news from the intrepid spaceship Galileo, but none more so than one starry-eyed Monash mathematician. Tim Thwaites reports.

Against a backdrop of billions of years since the formation of the solar system, the seven years Dr Andrew Prentice has spent waiting for measurements from Jupiter is less than the merest blip. But when your reputation as a researcher is on the line, a few days can weigh heavily, and a few years seem like eons.

Based on his controversial theory of the formation of the solar system, Dr Prentice, a Monash reader in applied mathematics, has published a series of precise predictions about the composition of Jupiter and its moons.

He has forecast, for instance, that the closest of Jupiter's 16 moons, Io, would be found to have a core of liquid iron sulphide and would be covered by a crust of boiling sulphur. He has also predicted that Jupiter would contain about as much carbon as the sun and only a little more oxygen (in the form of water).

He is now awaiting data from *Galileo*, the NASA spacecraft which, after seven years travel, finally flew into Jupiter's atmosphere last December to begin taking measurements and relaying them back to Earth.

Dr Prentice, who is regarded in the scientific community as something of a maverick, has already had a partial victory. Among the first data to return was proof that the measurement of Jupiter's water content was about the same level as that of the sun. This figure was disastrous for mainstream planetary scientists, who had predicted that Jupiter would contain up to 10 times as much water as the sun. But it appears Dr Prentice's prediction that it contained only about 1.3 times as much is fairly accurate on these early figures.

As space probes have successively unveiled the secrets of Mercury, Venus, Mars, Saturn, Uranus and Jupiter, Dr Prentice has made sets of predictions on the basis of a theory which he first detailed in 1978. These forecasts have been bold, and surprisingly accurate, but have not been in keeping with those of more traditional astrophysicists, who have had difficulty accepting the mechanism behind the Prentice model.

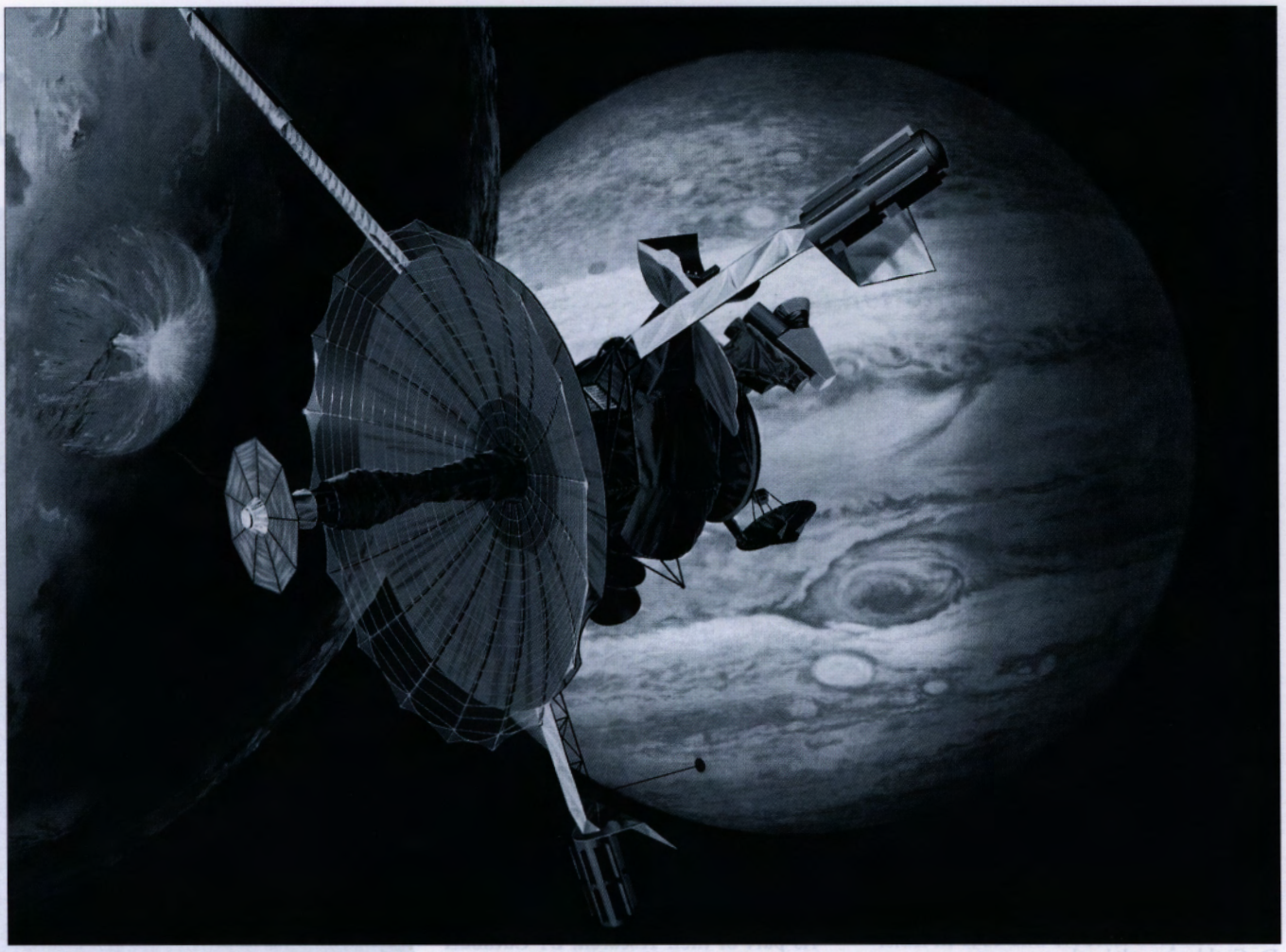
Perhaps the biggest vindication of Dr Prentice's model so far has been the correct forecast that Uranus and Neptune would have many more moons than had been detected from earth and the accurate prediction of where they would be found.

It has now come down to the big one – Jupiter – the dominant planet in our solar system and 318 times the mass of the Earth. For Dr Prentice, Jupiter is the first and last test of his theory. In one of his earliest papers, published in *Nature* in 1979, he made predictions about the moons of Jupiter to demonstrate his theory. Even at this early stage he proposed that iron sulphide would be present in Io. Seventeen years later, it looks as if these predictions may at last be bearing fruit. It also seems that Jupiter will be the last significant object in the outer solar system to be fully investigated by an interplanetary spacecraft before the millenium ends. A mission to Saturn, named *Cassini*, is not due to arrive at the planet until 2004.

Traditional theories have the solar system condensed from a spinning cloud of gaseous material. As the cloud collapsed under its own gravity, 90 per cent of the material formed the sun in the middle, and the rest spread out in a disc. Within this disc, so the theory goes, the planets were seeded and condensed simultaneously like crystals.

Dr Prentice, however, disagrees with this traditional theory. He has updated a 200-year-old idea of the great French mathematician Pierre Laplace that as the original cloud condensed to form the sun, it threw off a series of concentric rings of matter, each of which eventually came together to form a planet. This meant that the planets would form in a time sequence, Neptune being first and Mercury last. The theory neatly explained the different sizes, orbits and composition of the planets, but could not account for why the sun, with most of the mass of the solar system, spun so slowly.

So the Laplace theory was discarded until Dr Prentice pointed out that it could still work if particles in the contracting



cloud were subject to 'supersonic turbulence', a convection force which moved them at speeds greater than the speed of sound. And this is the sticking point of his modern Laplacian theory – many mainstream physicists will not accept that such a force could exist.

Dr Prentice has set out to prove his model works by using it to make predictions, playing the role of 'little Aussie battler' and laying his theories on the line.

He does have some support, however. Over the years, he has forged a relationship with researchers at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. They are taking his work seriously enough for the first version of his Jupiter predictions to be released as a JPL publication in November. An updated version of these predictions was published by the journal, *Physics Letters A* in April.

Much has been discovered about Jupiter over the past two decades. *Pioneer 10* and *11* in the early 1970s and *Voyager 1* and *2* in 1979 all flew past the planet on their trips out through the solar system. And in July 1994 astronomers gained a vast amount of knowledge about the composition of Jupiter when the 19 fragments of Comet Shoemaker-Levy 9 ploughed into the planet, sending huge clouds of planetary material into space.

With information from these voyages, Dr Prentice concluded that the most difficult and telling problems would lie in predicting the makeup of Io, the innermost moon. Lying relatively close to such a giant planet, Io is subject to tremendous forces. About 5 per cent bigger than the Moon, Io whips around Jupiter every 42.5 hours in a highly elliptical orbit.

The gravitational force on Io changes so rapidly that the moon actually alters shape, vibrating as it orbits. Dr Prentice believed that as this action generated so much heat, the inner 25 per cent of Io's mass would be a liquid iron sulphide core with traces of nickel, copper and cobalt. Wrapped around this core, almost all of the rest of the moon would be made up of solid silicates of iron, magnesium and calcium. He believed that originally the dense iron sulphide would have spread uniformly throughout Io in solid form, but the great bulk of it would by now have melted and settled to the centre. A small amount of the iron sulphide at the surface had reacted with water, he believed, leaving a sulphur crust about 900 metres thick.

This picture of Io provided Dr Prentice with what he needed to predict an important value which summarised Io's physical structure, the moment of inertia coefficient (a measure of how the density of material within Io varied with distance from its centre). He put the moment of inertia coefficient at 0.390 plus or minus 0.002.

Galileo's measurement of that figure has already been determined by researchers at JPL, but will be kept under wraps until it is revealed – to both Dr Prentice and the general public – in a paper to be published in the journal *Science* in early May. But this is only the start. More information will flow in over the next two years, as *Galileo* wanders among the moons of the Jupiter system.

But during the seemingly endless wait to learn of his fate, Dr Prentice has not been idle. He has just fired off another paper containing detailed predictions for the moons Ganymede and Callisto. After all, this is a once in a lifetime opportunity for the Monash mathematician, and he's not going to waste a single moment.

New Age, old problem

A yearning for spirituality in the West has led to a new type of exploitation of Aboriginal culture. Juliet Ryan reports.

The exploitation of Aboriginal culture since European colonisation is being perpetuated by New Age philosophies and practices, according to a Monash academic.

Dr Denise Cuthbert from Monash University's English department and Ms Michele Grossman from Victoria University of Technology are exploring the ways in which Aboriginal culture and spirituality are being used as a commodity by people with little or no expertise in the area.

"Western imperialism has historically seen the world as a marketplace, with people taking 'souvenirs' from wherever they like, with very little regard for the context from which those things come," Dr Cuthbert explained.

She is particularly concerned with the growing number of New Age practitioners indiscriminately claiming knowledge of Aboriginal spirituality, medicine and art for their own profit.

"Marlo Morgan's recent bestseller *Mutant Messages Down Under* is a flagrant example of the kind of thing we are concerned with," Dr Cuthbert said.

Morgan, an American New Age practitioner in personal growth and holistic healing, claimed to have travelled through outback Australia with an Aboriginal tribe.

In the book, Morgan describes certain rituals and privileged information, such as 'men's business', which would have been impossible for her to access under Aboriginal customary law.

Local Aboriginal communities have since disputed the validity of Morgan's claims. As well, her book doesn't name the tribe, referring to members only as the 'Real People'.

"Here is a person, not only non-indigenous but non-Australian, who claims to have privileged knowledge of Aboriginal culture, which has earned her huge amounts of money, none of which has gone back into indigenous communities," Dr Cuthbert said.

This kind of blatant disregard for the sanctity of Aboriginal culture, as well as the search for spirituality by many Westerners, is the essence of Dr Cuthbert's research.

"There seems to be a great spiritual yearning in the West," she explained. "People are becoming disenchanted with the sterility of Western culture and are turning to 'traditional cultures' to find some kind of fulfilment."

Dr Cuthbert believes that the New Age movement is taking advantage of this search for 'meaning' and of people's ignorance about indigenous cultures.

As part of their research, Dr Cuthbert and Ms Grossman travelled to the 10th annual Maleny Woodford Folk Festival in North Queensland last year. They spent much of their time interviewing both indigenous and non-indigenous people about their views on New Age representations of Aboriginal culture.

Dr Cuthbert and Ms Grossman will conduct further interviews during the project and will also analyse several publications to trace how New Age networks source, develop and circulate their representations of Aboriginality.

"One thing that struck us during the research was the appalling level of ignorance among non-indigenous Australians about indigenous culture," she said. "The charlatanism of many New Age practitioners feeds off this ignorance.

"We have no concerns when it is Aboriginal communities or groups who run workshops or seminars on Aboriginal spirituality or bush tucker or sell crafts to the wider community," Dr Cuthbert explained.

But she is concerned about New Age practitioners' representation of indigenous culture, which she said provided a stereotypical romantic image that is very narrow and confining.

Dr Denise Cuthbert.

"In New Age discourse, there seems to be this kind of romantic image of indigenous cultures which sees them at one with the earth, carrying its secrets and mysteries and possessing healing powers," Dr Cuthbert said.

"The one thing the New Age never does is peddle the images of the fourth-world health conditions of contemporary Aboriginals in Australian society. Nor do they acknowledge the culture of indigenous people leading non-traditional lives."

The research, which is funded by the Australian Institute for Aboriginal and Torres Strait Islander Studies and the ARC Small Grants Scheme, will focus on cultural appropriation and cultural appropriateness.

Dr Cuthbert is adamant there is a middle ground: "Culture sharing has the potential to be positive for both indigenous and non-indigenous people, but what we have seen so far is ignorance, greed and vulnerability."

Broken windows... shattered illusions

A Monash legal expert has called for law reform in Victoria to protect employees reporting workplace corruption. Brenda Harkness reports.

Karl Konrad, the former police officer who exposed the 'broken windows' affair, is a classic victim of a legal system that fails to protect 'whistleblowers', according to a Monash law expert.

Associate Professor Andrew Goldsmith said the Konrad case highlighted the need for special legislation to shield employees who reported workplace corruption from being victimised and ostracised.

At the same time, Konrad's allegations of systematic corruption within the Victorian police force, and his subsequent treatment by the police after going public, cast serious doubts over the force's operating culture and its lack of accountability, Dr Goldsmith said.

"The Konrad case highlights the need for legal remedies to ensure that people can make public interest disclosures (known as whistleblowing) against suspected wrongdoing and illegal activity in both the public and private sectors," Dr Goldsmith said.

"In Victoria, where there is no protection for whistleblowers, Constable Konrad paid the price for deciding to speak out on issues that were clearly within the public interest."

Dr Goldsmith said legislation similar to that recently introduced in Queensland was vital to reassure people of their right to take moral stands on issues of public interest, without the risk of being left "legally vulnerable".

In Konrad's case, ostracism and victimisation by his police colleagues for lifting the lid on the alleged small-scale corruption racket forced him from his job.

Ironically, he also later faced disciplinary action for going public with his accusations.

The 'broken windows' affair, which allegedly involved 'kick-back' payments to police for alerting window shutter companies to vandalised windows, is the subject of an ongoing internal police investigation involving up to 800 officers.

Dr Goldsmith said that after the Fitzgerald Inquiry into corruption within the Queensland police force, legislation was introduced to protect whistleblowers. South Australia subsequently followed suit, initiating similar legal processes.

Dr Goldsmith, who has worked as a special adviser to the Colombian Government in reforming its police force, said major reviews and investigations were often sparked by whistleblowers.

While not directly responsible for the Queensland police corruption probe, the actions of a whistleblower were the precursor to investigations that culminated in the Fitzgerald Inquiry.

He said whistleblowers were often forced to take their complaints outside the workplace after efforts to have problems addressed internally failed.

Often, as in the events leading up to the Fitzgerald Inquiry, the whistleblower would turn to the media to galvanise support.

Dr Goldsmith suggested that in Victoria protection for whistleblowers could be achieved through either criminal or civil legal remedies.

A criminal remedy could involve criminalising discrimination against those who spoke out against proven corruption or wrongdoing.

The civil option would allow the whistleblower to sue for defamation or loss of income, brought about by employees being sacked or forced out of their employment by vendettas or personal attack.

Dr Goldsmith said the workplace culture that existed within large companies, and particularly within the police force, put pressure on employees to conform. At the same time, large organisations tended to down-play or cover up allegations of corruption or illegal activity to save their reputations.

Under these conditions, according to Dr Goldsmith, blowing the whistle was one of the few ways to bring to light serious problems such as corruption.

Within the police force, in particular, there was a need for extra oversight mechanisms. This was because of the 'brotherhood' – the structure and culture of the organisation – which operated within the police force.

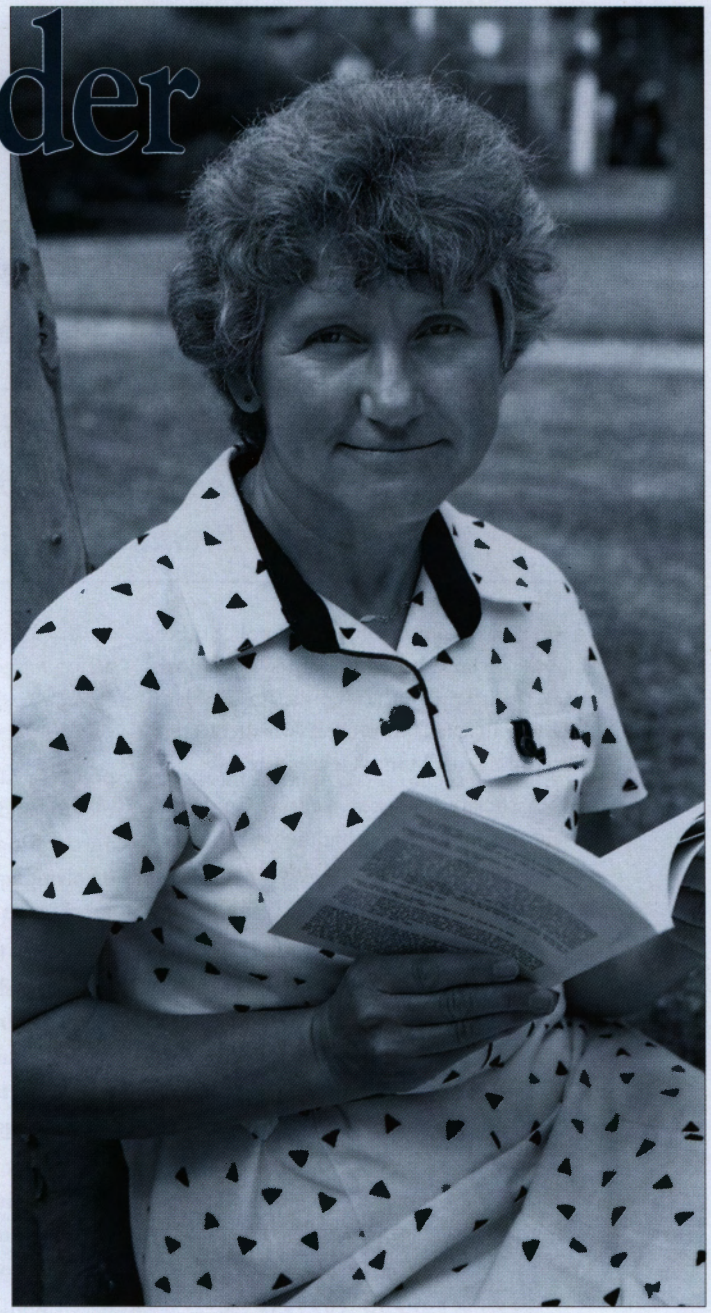
"Police operate within wide parameters. They are entrusted with exercising discretion and have the power to use force in carrying out their duties," he said.

"When you have organisations with this sort of power and operating structure, you need additional forms of accountability."

Traditionally police forces, in dealing with corruption, applied the 'rotten apple' theory, but Dr Goldsmith believes that since the Fitzgerald Inquiry, they have been forced to accept that corruption can be part of a culture permeating entire organisations.

"But the lesson that seems to have escaped Victorian senior police is that 'culture' also embodies management styles and values. It is not something that touches only police constables," he said.

The pathfinder



Draga Gelt isn't the type to seek the limelight, but in the last few months she has been awarded an OAM for services to Melbourne's Slovenian community and received recognition for her first book of poetry.

Like her book, the gentle woman, who works as a draftswoman and scientific illustrator in Monash's Earth Sciences department, displays a positive outlook on life, shaped by a childhood in post-World War 2 Slovenia.

Suffering from poverty, political persecution and conflicting responses to religion would lead many people to depression, but Ms Gelt refused to believe that this was the best life had to offer.

"I have always used optimism as a survival technique," she said.

Last December, *The Age* included her book, *Vse Poti (All Paths)*, in a list of "memorable literary works" nominated by leading Australian writers, poets, academics and industry experts.

The collection of poems is divided into two sections, although it could well be two separate books, as Ms Gelt maintains there is no intentional link between them.

In the first section, she compares her observations of nature to her perceptions of human emotions and behaviour.

Ms Gelt, who had previously concentrated her creative talents on painting and drawing, said her first foray into poetry had simply "started flowing".

"I started to symbolise certain things. Often I would just write down two words – it might be 'rock' and 'hardship' or 'rock' and 'pain' – and from that I would develop a short poem," she said.

Sometimes the comparisons become analogies: morning dew becomes *"like our tears shed in solitude when the warmth of a face becomes frozen in pain"*.

In another poem, she likens a bee killing itself by releasing its sting in self-defence to our bodies releasing endorphins *"to kill the pain of our subconscious"*.

But in other cases, Ms Gelt will set up an analogy and then make her point by questioning its accuracy.

She asks if footprints in the snow are like our lives – making a brief imprint before nature dictates that the snow melts or that more falls.

"No," she replies to her own question. *"We have touched a heart; in a heart, a footprint is eternal."*

Ms Gelt came to Australia in 1968, when she was just 20.

She had grown up with her family of seven sisters and one brother in the Slovenian village of Dobrova at a time when many aspects of life were controlled by the ruling communist party.

She trained as a teacher, but her refusal to become a party member made it difficult for her to find work. She travelled to Germany, and then later migrated to Melbourne on the advice of a Slovenian/Australian penfriend.

She has been active in Melbourne's Slovenian community ever since – teaching Slovenian language and culture in schools and churches, and being involved with several dance and drama groups, art exhibitions and publishing projects.

Vse Poti is written in Slovenian but is sold with a photocopied English translation.

The second section of the book is a very personal response to how her parents, brother and sisters have touched her life.

Ms Gelt dedicates a poem to each, describing as a "gift" the emotions and memories they have shared with her and the lessons she has drawn from the experience.

The reader learns that her father committed suicide after a long illness, that her eldest sister gave up her education to help support the family and that her mother twice came close to being executed by German soldiers during World War II.

Ms Gelt, a strongly religious person, describes her anger at God for allowing her parents' suffering. And she vents a particular fury at the priest who refused to give her father a full church funeral.

But even a poem about such a painful experience ends with her typical search for the positive.

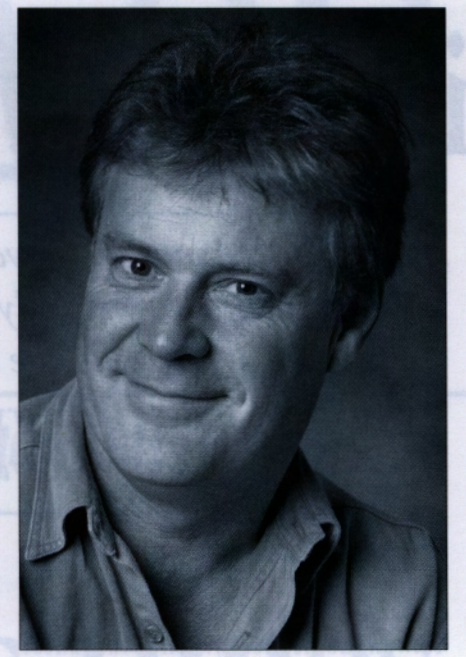
"... with this funeral my faith was buried too, my faith and belief in forgiving – faith in God. How long has it been the path to find Him again."

"In life, we meet certain people who make an imprint on us. But even after bad times, we can make our own decisions about what we take from the experience," Ms Gelt said.

BY GARY SPINK

Vse Poti *is available for $15 by contacting Ms Gelt in Monash University's Department of Earth Sciences.*

Asia – the view from afar



Australians may be questioning their future in Asia, but claims of a backlash oversimplify the issues underpinning Australia's attitude towards its neighbours, according to a Monash academic.

Dr Robin Gerster, who has studied Australian perceptions of Asia for the past decade, said current criticism of the so-called 'Asian push' could indicate Australia's increasing maturity in assessing its regional role, rather than reflecting a growing climate of racial anxiety.

"While there has been historically, and will continue to be, a degree of backlash towards Asia among some groups, it is perhaps too strong and broad a term to apply to the mood of most Australians," Dr Gerster said.

The redefining of Australia's relationship with Asia in the wake of the recent federal election could signal a new era of sophistication, in which Australians recognise the differences and feel more comfortable speaking their minds about them, he said.

"Maybe Australia now feels freer to criticise Asia because it feels more a part of it, in the same way a person criticises a member of their family".

Dr Gerster, who this month took up a two-year post as an associate professor of Australian studies at Japan's University of Tokyo, said there was no one Australian response to Asia: "Over the years, Australians have seen Asia through many different eyes."

And a key part of the problem of trying to categorise and interpret Australia's views on its neighbours was that Asia was not a single entity. Oversimplified perceptions of the region, he said, failed to take its size and diversity into account.

Dr Gerster's studies of Australian perceptions of Asia in literature show that attitudes have moved from paternalism, hostility and antagonism during war-time, to celebration, romance and intrigue in the 'post-hippy' seventies and early eighties, to business and political opportunism and cultural superiority in the nineties.

"Ten to 15 years ago, Australian travellers saw places such as India as a great liberating experience," he said.

But in his 1995 travel anthology *Hotel Asia*, he claims perceptions of "unconscionable abuses of common human rights" evident in some Asian cities has "dampened the spirit of Asian adventure among some Australian travellers".

At the same time, he believes a paradox has emerged in which some recent Australian travellers to Asia have begun demonstrating paternalistic attitudes similar to those common at the turn of the century.

"There are some travellers who look to Asia and say, 'we're better off in Australia' and believe their country is more 'civilised'. In this way, attitudes have almost turned full circle."

On the political front, he said, some critics argue that Australia has been "imperialistic", seeing Asia as being within its "sphere of influence", an attitude that could have been a source of tension between Dr Mahathir and former prime minister Paul Keating.

And despite past "anxieties" about Asia, he said Australian business had always "sensed Asia was a golden opportunity begging to be taken, an economic monolith waiting to be scaled ...".

According to Dr Gerster, travel stories have always provided an insight into different attitudes to cultures, by capturing travellers' personal impressions, frustrations and anxieties. While travel could broaden people's outlook, it could also "narrow the mind" as visitors compulsively measured their experiences against the familiarities of home.

When he takes up his post in Japan, Dr Gerster not only expects to "get lost" in decoding the country's language and culture, he will also be forced to "rediscover" the home he leaves behind.

BY BRENDA HARKNESS

Did China's missiles backfire?

From Montage 16

Chinese Communists. Taiwan's population resoundedly rejected such policy options.

These two candidates also ran particularly dirty campaigns against Lee, accusing him of being a Communist who had sold out his mates, of being Japanese and of being a warmonger. Taiwan's voters clearly rejected such provocative appeasement and chose stability and experience. Nations of the Asia-Pacific region have a variety of interests in the Taiwan Strait. One such interest is stability in such potential East Asian hotspots as the Korean peninsula and the South China Sea, as well as the Taiwan Strait.

The free flow of economic trade and investment and economic development is another interest. A third interest is the knowledge that military threat and intimidation have no place in the region. Finally, democratic nations in the region seek the promotion of human rights and democracy. Taiwan's voters have spoken decisively in favour of these interests. Not surprising, many Asia-Pacific nations have welcomed the election results.

Did China's missiles backfire?

Director of Monash's Taiwan Research Unit Professor Bruce Jacobs was recently in Taiwan observing the presidential elections. He believes the results, in the wake of Chinese military intimidation, are good news for democracy in the region.

Taiwan's recent presidential election campaign has importance for the Asia–Pacific region as well as for Taiwan domestically. The Taiwanese people's emphatic rejection of China's crude attempts at military intimidation has given heart to Southeast Asian nations concerned about similar Chinese bullying in the South China Sea.

China's hard line toward Taiwan commenced in mid-1995 following ROC President Lee Teng-hui's 'private visit' to the United States. Previously, China had emphasised trade, Taiwanese investment in China as well as cultural and academic exchanges. Both sides participated in a series of discussions aimed at solving a series of practical problems.

In the wake of Lee's visit, the hardliners in China claimed the moderate policies – symbolised by Chinese President Jiang Zemin's 'eight points' of January 1995 – had failed. China broke off talks, called Lee a variety of offensive names, including 'harlot', and turned to military pressure.

The policy of military pressure, however, has failed conclusively. Before the latest Chinese military exercises, all polls indicated Lee would obtain about 40 per cent of the vote.

In the end, he obtained 54 per cent and can rightly claim to have the support of Taiwan's people when conducting discussions with China and internationally.

Yet it remains unclear whether the failure of China's hardline policy will strengthen the moderates in China. China currently is in the midst of the succession struggle, and any successful candidate will require military support. In the circumstance where the powerful Chinese military can exercise a veto over who succeeds Deng Xiaoping, any potential leader cannot allow himself (no women need apply) to appear soft on Taiwan, America, Japan or the South China Sea. The emotions of patriotism and nationalism will prevail over rationality and logic.

This scenario does not inspire optimism for the region. Unfortunately, if China's military intimidation succeeds, they continue to use it. Thus, it is important for Lee, who now speaks from a position of strength, to express willingness to speak to China, but it is also important that no concessions be made which the Chinese believe result from their military intimidation.

Lee can offer to re-open discussions (which the Chinese closed) and express willingness to conduct trade as well as academic and cultural exchanges. He should firmly reject making unilateral concessions.

The Chinese demand for the 'three communications', including direct shipping and flights, might be one area for concession since Hong Kong, the main conduit between China and Taiwan, will become Chinese on 1 July 1997 anyway.

In return, Taiwan can seek more Chinese acceptance of Taiwan's participation in international forums and assurances that military intimidation will not be used again.

Domestically, the presidential election symbolises the great extent to which Taiwan has democratised. Only a few years ago, many in the ruling elite considered the idea of a direct presidential election too bold and radical. Owing to its political sensitivity, the topic was shelved for several years. When it reemerged, virtually no-one opposed the necessary constitutional reform.

Democracy empowers majorities. After Chiang Kai-shek's Nationalist government and army fled the mainland and came to Taiwan in 1949 following their defeat by the Communists, they imposed a colonial-style rule over the majority Taiwanese. The mainlander elite, about 15 per cent of the population, dominated politics and government enterprises. In the course of liberalisation in the 1970s and democratisation in the late 1980s and 1990s, Taiwanese have increasingly gained political power commensurate with their majority position. In the recent presidential election, two candidates representing the last gasp of the old mainlander elite sought restoration of its special political privileges. This group has now been decisively defeated.

In past elections, including the recent legislative campaigns of December 1995, domestic issues like economic policy, political reform and social justice dominated Taiwan's political rhetoric. In the presidential elections however, the Chinese missile launchings and military exercises made the 'China issue' the dominant topic.

Historically, the old mainlander elite had used the prospect of Communist rule to impose dictatorship. Ironically, the two candidates representing the old mainlander elite basically urged appeasement with the

Continued on Montage 15