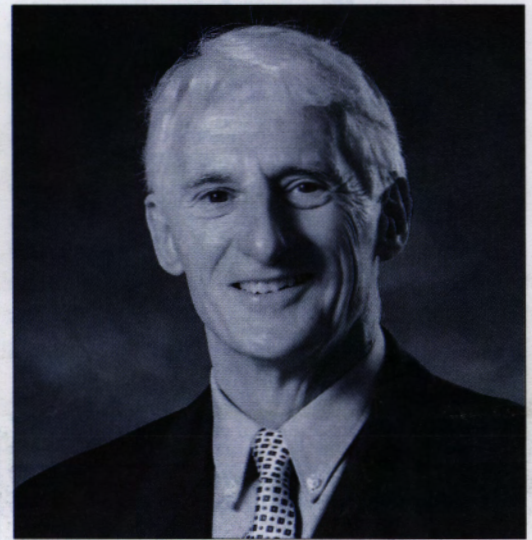


MONTAGE

NEWS AND VIEWS FROM MONASH UNIVERSITY

IVF pioneer retires amid national acclaim



Thirty years after founding the Department of Obstetrics and Gynaecology at Monash University, internationally acclaimed IVF pioneer Professor Carl Wood has retired.

The highlight of Professor Wood's distinguished career was the birth of Australia's first, and the world's third, in-vitro fertilisation (IVF) baby, Candice Reed, in 1980.

Candice was the result of 10 years of trial and error with IVF technology and the world's first practical IVF technique.

Professor Wood, 65, who was recently named Companion in the General Division (AC) in the Australia Day Honours, first gained international acclaim for his innovative work in the fields of obstetric physiology and fetal monitoring, and later in psychosomatic obstetrics and gynaecology.

While revolutionising IVF technology, Professor Wood unwittingly walked into an ethical minefield.

Working with alternative methods of reproduction, he faced a multitude of legal, ethical and religious obstacles, as well as criticism from all kinds of groups.

The loudest criticism came from religious and feminist groups, who saw IVF technology as 'highjacking' the natural reproductive processes.

"Reproduction arouses strong feelings," Professor Wood said. "Although we are involved in procreating, some people view it suspiciously, because they see it as artificial."

Professor Wood's involvement with IVF technology gathered momentum after a fateful meeting with Dr Neil Moore and his PhD student Alan Trounson at a veterinary seminar in NSW in the late 1960s.

Dr Moore was experimenting with IVF in sheep, keeping fertilised eggs alive in a petri dish until the eight-cell stage, and they discussed the possibility of using the same techniques with humans.

In 1972 Professor Wood first tested the IVF process of putting an egg and a sperm together in a laboratory, thereby bypassing the fallopian tube, then placing it back in a human womb.

The woman miscarried in the first trimester, and Professor Wood decided that human IVF was not yet ready for clinical application.

Alan Trounson (now professor and director of the Centre for Early Human Development at Monash Medical Centre) teamed up with Professor Wood at Monash in 1977. The following year an English team produced the first 'test-tube' baby, and two years later Professor Wood's team had its first success with the birth of Candice.

Since then Professor Wood has been associated with many successful IVF pregnancies, and imaginative IVF developments initiated by the doctor are now standard practice around the world. He was named a Commander of the British Empire in 1984.

Continued on Montage 2



Spike

The road to nowhere

Previously unknown senior level appointments have been discovered at Monash University. A very large sign on Clayton campus boasts the location of the Faculty of Transportology, including the vital Department of Lubology, and headed up by the dean of Transportology and his assisting associate dean of Transportology. And who should act in his absence? The deputy dean of Transportology, of course.

Hello darkness my old friend ...

A total power failure on the Clayton campus caused more than just a few work disruptions recently. With a total blackout in the men's toilet, serious logistics needed to ensure that at least one person could hold the door open to allow enough natural light to filter in, so those in the inner sanctum were in the right position and that everything could proceed according to the correct protocol. Many men were left wondering if they were facing the right direction

when either the relay team on the door was momentarily disrupted or they foolishly ventured off to the toilet on their own.

A three ring circus?

The visit of the Quandong acrobats provided more than just the usual attraction of fantastic physical feats for the staff of the Robert Blackwood Hall recently. Along with the acrobats came three interpreters to promote and foster good communication. The only problem was that each interpreter spoke a different Chinese language and no English, so could only speak to some of the acrobats ... and none of the staff!

Lights, camera, action

'Funky Squad', a television parody of 1970s TV police series, was recently filmed on Clayton campus. Much attention was given to authentic costumes and props, including an early seventies Mustang car. But they needn't have bothered in the case of the cast. At one point, the director tried to relocate two 'extras' canoodling on the background lawn, only to find, when they wouldn't respond to continued requests to reposition, that they were Monash students.

IVF pioneer

From Montage 1

Professor Wood has always been interested in issues of life and death and as a young doctor was disturbed by the plight of young women dying after backyard abortions.

He was upset when other doctors began using his techniques as a safe way of inducing abortions, as he was brought up to believe that abortion was wrong.

However, he gradually changed his mind as he became more aware of health issues affecting women, and eventually became influential in the abortion law reform movement.

By the time Victoria had liberalised its abortion laws, Professor Wood was experimenting with micro-surgery to help infertile women whose fallopian tubes had been damaged by infection after backyard abortions.

Professor Wood is the author of more than 320 journal articles, has co-authored 20 books, and contributed chapters in many others. He will continue to work in private practice in Ashburton.

BY GEORGIE ALLEN

NOW & THEN

25 Years Ago

On February 16 1970, the Minister of Health (Hon. V. Dickie, M.L.C.) announced that the government had given its approval to a \$20 million medical centre on the campus. The concept of a university hospital on the campus and integrated with the medical school was first agreed to by the interim council August 11 1958.

To this end 14 acres were set aside in the original master plan in the S-W corner of the campus at Clayton. This plan was reaffirmed by the interim council 9 February 1959.

15 Years Ago

A number of years ago, senior lecturer in Mathematics at Monash, Dr Carl Moppert, noted an encyclopaedic entry which dismissed the use of sun dials as a time instrument because of their notorious inaccuracy.

Dr Moppert has now designed for Monash a sun dial which is completely accurate for all days of the year and will remain so for several hundred years to come.

The sun dial on the north wall of the Union building, will be unveiled by Monash's Chancellor, Sir Richard Eggleston, on 24 March.

5 Years Ago

Monash University has agreed to establish and manage an innovative training and development program for staff at Dandenong Council. The program, organised by the Office of Continuing Education (OCE), aims to provide up to five days of training a year for each of the Council's 170 executive, administrative and clerical staff.

This Month Last Year

The 'sniffing' robot has the potential to break the technological barrier that has so far stopped robots from taking over the most boring and dangerous jobs.

With smell as a powerful navigational aid, this new high-tech workforce could take on roles as diverse as a security guard, nursing assistant, house cleaner and search and rescue officer.

MONTAGE

NEWS AND VIEWS FROM MONASH UNIVERSITY

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Not just a comic look at life

"...these publications pour an unending torrent of filth and bestiality into the minds of children."

Albert E. Kahn, 1954

It seems every generation of young Australians has been under threat from some menacing element in our popular culture.

In the 1990s it is violence on film and television. In the 1960s and 70s it was rock 'n' roll. And in the 1950s the popular threat, apparently, came from comic books.

In a 1954 issue of the Australian literary journal *Meanjin*, Mr Albert Kahn said the name 'comic' book was misleading: "Scarcely of a humorous nature, the overwhelming majority of comic books are macabre compendiums of mayhem and murder; perverted sex and sadism, weird and ghastly adventures, crime, brutality and blood-curdling horror..."

And far from being out of touch with the popular thought of his day, Mr Kahn's

view mirrored the thinking behind strict censorship laws which saw many comics banned or 'doctored' to protect the innocence of young readers.

The issue of comic book censorship is highlighted in the *ACE: Australian Comic Book Exhibition*, a joint project between Monash University's National Centre for Australian Studies (NCAS) and the Ephemera Society of Australia. Two versions of the exhibition are now touring Australia, and will be seen at more than 30 venues over the next two years.

According to the exhibition's curator, Ms Annette Shiell of NCAS, rigorous censorship almost destroyed the Australian comic book industry in the late 1950s.

"There was a huge backlash in America about violence and slang in comics and that filtered down to Australia," Ms Shiell said.

The anti-comic book movement reached its peak in the mid-1950s when Australian comic book artist Len Lawson was jailed for rape. The Queensland Literature Review Board banned his work in that state and other state governments introduced laws to control the publication of all kinds of literature.

The comic book exhibition shows an example of how knives were blacked out of hands in fight scenes in *The Scorpion*, a 1950s comic by Monty Wedd. In those days, frustrated readers had to be satisfied with the sight of assailants waving weaponless fists at each other.

Ms Shiell spent much of last year wading through some of Australia's largest private comic book collections to obtain themes and material for *ACE*. Her research covered the comic book industry's roller-coaster



history from its birth with the release of *Fatty Finn's Weekly* in 1934, to the present day.

Ms Shiell said comic books were a somewhat forgotten element of Australian culture and provided an "absolutely fascinating" commentary on society.

"By reading a cross-section of comics you can see who we were at war with at any given time," she explained. "The 'baddies' have changed over time - from the Germans, to the Japanese, to the Koreans."

Comics have also chronicled changes in science and technology, medical breakthroughs and moral values.

"Even today, many contemporary comic artists are making social comments through comics," she explained. "For instance, they are highlighting the plight of farmers, the environment, and the changing role of women in society."

The days of women being portrayed in comics with nipped-in waists and prominent chests are gradually being phased out, although some publishers still push artists to retain the 'busty' heroine physique.

"A lot of artists are now making a conscious effort to display women in more leadership roles and to make them more competent and realistic," Ms Shiell said.

The *ACE: Australian Comic Book Exhibition* is currently showing at the Ballarat Gold Museum in Victoria and Tasmanian Museum and Art Gallery in Hobart.

The exhibition is jointly funded by the Federal Government's touring exhibitions program 'Visions of Australia' and the Victorian Health Promotion Foundation.

BY SUE HOBBS



ACE curator Ms Annette Shiell with Australian comic book heroes Silver Starr and Pristine.

Planting the Anzac tradition

Allied forces of a different kind recently converged on Turkey's ravaged Gallipoli peninsula.

Instead of carrying weapons, the young 'army' brought shovels – and thousands of trees.

Like their predecessors in 1915, they were enthusiastic and optimistic. They also faced many unexpected hardships due to the remote and bitterly cold conditions.

The 'allies' comprised hundreds of students from Turkey's Istanbul Technical University and Istanbul University, and about 40 representatives from foreign universities.

Students were invited from Australia, New Zealand, Great Britain and Germany, countries whose interests 80 years ago focused heavily on taking control of the war-torn coastline. But the students' thoughts were not of war, rather of cooperating to reforest vast tracts of the Gallipoli peninsula.

Partly denuded during fighting in World War I, the peninsula suffered extensive damage in a forest fire last July, burning more than 4000 hectares of prime forest.

Four Monash students – Anton Bartlett, Fiona Braham, Melinda Stacey and David Stahel – were among 10 Australians who flew to Istanbul to join the reforestation program.

They described their time in Turkey as a real "eye-opener", and said the rudimentary camping conditions brought out the 'Anzac spirit' among the Australian and New Zealand students.

It was snowing when the foreign students arrived in the Turkish capital to an

otherwise warm reception from officials, Turkish students bearing floral tributes, and a documentary film crew.

When they arrived at the Gallipoli camp a week later, the temperature had dived to minus seven degrees.

Mr Bartlett, an experienced camper, had little trouble adapting to the conditions, but agreed that many students found camp life hard-going.

"You could see people struggling all around you, and you could imagine the Anzacs going through the same things," he said.

Mr Bartlett described the two weeks at Gallipoli as the most incredible experience of his life.

He recalled his amazement when, during the first few days of planting trees in the desolate landscape, the students were showered with thousands of poppies thrown from low-flying Turkish aeroplanes.

He also explored the peninsula extensively on foot, and said it was not uncommon to walk across the recently burned ground and see human bones, bullets and shrapnel from World War I lying around.

At one stage, a Turkish student unearthed two human skulls as she dug holes for the tree planting. And one Australian found the base of a drink bottle bearing a 'Sydney, Australia' imprint.

"It was an incredible place – you could quite easily close your eyes and imagine soldiers running up the beaches," Mr Bartlett said.



Monash student Melinda Stacey with one of the hundreds of trees she planted during her trip to Gallipoli.

Ms Braham said it was her sense of humour and the Anzac spirit which prevailed among the foreign students that kept her going, despite becoming seriously ill.

"The amazing thing is that I have never laughed as much in all my life," she said. "We learned very quickly that our tolerance boundaries were much broader than we had ever imagined!"

According to the students, the cultural and language differences between the Turkish students and their foreign helpers posed some problems, although many became friends during the fortnight.

Ms Stacey said she found the whole experience "mind-blowing".

"We were actually planting trees right above where the Anzacs arrived at Gallipoli ... the views were just phenomenal."

She said each student strove to plant between 50 and 100 trees every day in the dry, rocky ground.

"And the day the Australians planted trees at Lone Pine there wasn't a dry eye in the group, everyone was so moved by the experience," she said.

BY SUE HOBBS

Writing the wrongs of his-story

A book co-authored by a Monash academic has been recognised for its contribution to combating sexism in the recording of history. Juliet Ryan reports.

History has often ignored the achievements of women, focusing instead on the success of their sons.

When Louisa Lawson introduced her son Henry to Sydney's literary circles, she was already a recognised poet and short story writer. It was through his mother that Henry became known, but it is Henry who is remembered as a great poet.

This is a familiar scenario in the way history has been recorded. However, in an attempt to put the focus back on women's contribution throughout history, Professor Marian Quartly, dean of the Arts faculty, has co-written *Creating a Nation* with three other leading female historians.

Creating a Nation is described as a "dramatic new history that challenges the conventional view of Australia's past as a creation of white men of British decent".

The presentation of the 1994 Human Rights Award in the non-fiction category recognised the book's accomplishment in countering sexism in history – something its authors clearly set out to achieve.

Professor Quartly explains that the book redefines what history is about. "History isn't only about what happens in newspapers and in colonial office reports," she said. "History is also about what happens in kitchens and bedrooms."

While Professor Quartly agrees that women haven't been totally ignored in history – "we have a history of the gaining of women's suffrage" – she said that in general, Australian history had been written as if women barely existed.

"Until very recently, historians have written about public history – politics, trade unions – in areas where women were not very active," Professor Quartly explained. "Or, if they have written about women, they have written about

them strictly in their roles as wives and mothers."

"Women's efforts to get into the public sphere and their contributions to what you might call 'nation building' really haven't been recorded as a normal part of history."

Professor Quartly's book is about social rather than public history, and "embraces the history of everyday life".

"*Creating a Nation* pushes history from below rather than from above. It's not about leaders but about ordinary people. This is where women had a very important role in nation building."

According to Professor Quartly, gender roles developed by men in England to keep women out of the public arena were transferred to Australia during early colonisation.

The society that subsequently developed in Australia was shaped by assumptions that women were inferior to men.

White women were not the only victims of such assumptions. Other races were also discriminated against but their experiences during early colonisation were quite different, and often a lot worse, than white women's.

"It was double discrimination," Professor Quartly said. "First of all, there were assumptions that Aborigines were not really human at all.

"Then there were assumptions that Aboriginal women were inferior to Aboriginal men – which was not the way it was understood in Aboriginal society at all. Aboriginal women certainly had different roles to the men, but they weren't considered inferior by any means."

Professor Quartly's research for the book involved re-reading already analysed documents from the founding period of Australia.

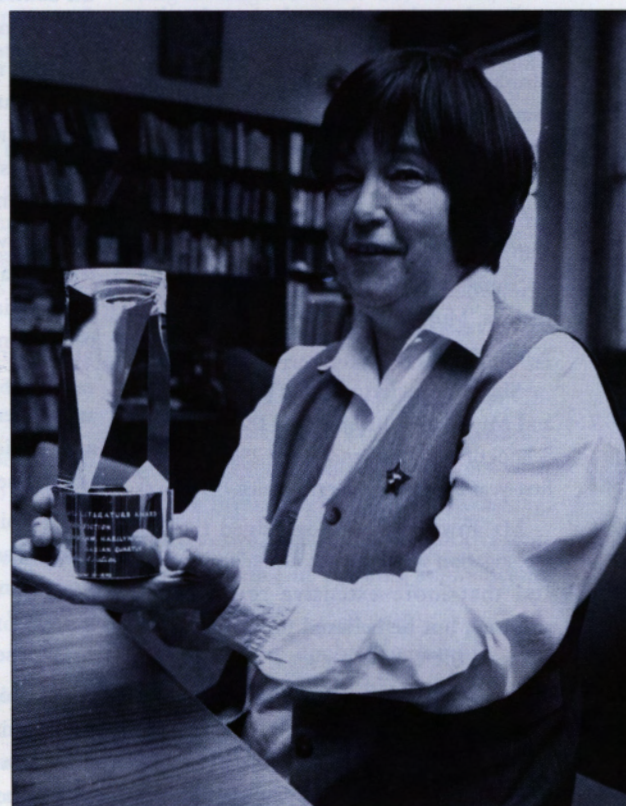
"These documents have been around since the beginning of Australian colonisation, but people have read them without noticing that women were there," she said.

"Asking different questions when reading these documents gives different answers and sheds some new light on history."

Professor Quartly also looked at diaries, records of births, deaths and marriages, and criminal and court records to better understand what happened in the private as well as public sphere.

"You can put together everyday life from these kinds of records. Then you have to argue that everyday life is important in the development of the whole national life," she said.

"This award tells me, and everyone else, that history is still relevant now. We were also trying to change the way people look at things and give them a wider understanding of early history."



New study rekindles bachelor debate

The term 'bachelor' has come under close scrutiny in academic circles after an historic court case in Canada and surprising results from a Monash study. Gary Spink reports.



Wherefore art thou, bachelor? asked *Montage* in a 1992 article investigating the etymology of 'bachelors' degree and questioning whether the title was appropriate in this era of political correctness.

Female undergraduates don't undertake a 'spinsters' degree, and, according to one Monash academic, if the bachelor title is found to be sexist it may contravene the university's equal opportunity policies.

A recent Monash study has found that 90 per cent of students support a name change, with nearly 50 per cent saying 'bachelor' was a discriminatory term. Most students said a title such as 'Monash University Degree of Arts' would be acceptable.

Management lecturers Mr Peter Townsend and Mr Eric De Bruijn from the Gippsland School of Business handed out 250 surveys to first-year business undergraduates.

Mr Townsend acknowledged that his investigation was based on a small pilot study and that more extensive research was required, but he believed the issue offered Monash the chance to set a new national standard.

Canadian universities have recently been forced to confront the issue after a female student made legal history by successfully

arguing in court that the word 'bachelor' should be removed from her degree.

Mr Townsend described the result as a "mini-Mabo decision".

"The legal ruling has been made and now the authorities have to work out the best way of implementing it," he said.

"Just raising the issue angers a lot of people, but we have never been able to define what the name of our degree actually means. We'd be shot down in flames if we were so complacent with our research."

Mr Townsend said that whether or not the term's male-orientated origins constituted a gender bias today was a matter of personal perception.

"Many students taking bachelors degrees are neither male nor female bachelors. Many are married and their bachelor days are far behind them," he said.

He pointed out that the term 'sister' was dropped as more men joined the nursing profession, and believed that within this context 'bachelor' may at least contravene the spirit of the 1984 sex discrimination act.

He also believed that the title made it difficult for international students to understand Australian qualifications because the description did not easily translate to other cultures.

"Equity needs to be seen to be done, and we have a chance to be first in Australia," Mr Townsend said.

Some quick research by *Montage* confirmed that the origin of the word 'bachelor' was uncertain.

According to the latest giant, multi-volume Oxford dictionary, the word may have derived from the Latin *baccalarius* for a tenant or worker on a property, known as a *baccalaris*. Over time it was altered to *baccalaureus* as if connected to *bacca lauri*, or laurel berry, which was supposed to have been a pun or word-play for resting on one's laurels.

Some academics, including reader in the Linguistics department Dr Keith Allan, suggested that the term 'bachelor' may originate from the French words *bas chevalier*, which referred to a young or low-ranking knight.

Dr Allan said 'bachelor' was originally applied to socially inferior males as well as females: "For some reason, the word shifted to apply only to males, and it stayed that way until women started going to university in the past century."

Mr Townsend said the French now used *baccalaureat* as the name of their school leaving certificate and a *bachelier* was someone who passed the certificate, not a university graduate.

"It was also believed that Oxford and Cambridge graduates were contained in their rooms until graduating, and hence were bachelors," he said.

Reconciliation gets a healthy boost

Associate Professor Elaine Duffy began her nursing career with a dream of working in a third world nation, and, 25 years later, is nursing in Aboriginal communities in northern Australia.

The deputy head of Monash University's Caroline Chisholm School of Nursing is uncomfortable comparing health standards of Australia's indigenous people with those of the world's poorest nations, but concedes they are similar.

But while public debate over funding and administration of Aboriginal health continues, Ms Duffy firmly maintains that the problem requires more than financial solutions.

She believes cultural sensitivity and understanding are essential tools for any health professional working with Aborigines (or for that matter, any other minority group in Australia's multicultural society).

"You can't simply transport a Western-style health program into an Aboriginal community and expect it to make things better," Ms Duffy said.

"It was a big step forward in my nursing career when Aboriginal people helped me understand that I needed to understand them."

Health workers know successful treatment often depends on the trust and cooperation of the patient, but cultural ignorance can set up barriers of fear and insecurity.

Ms Duffy took steps to include cultural studies into the Bachelor of Nursing course on the Peninsula campus last year by introducing the unit 'Global nursing issues: crosscultural perspectives'.

And she put theory into practice by organising a trip to central Australia between semesters for third-year nursing students to give them first-hand experience of the health problems and culture of Aborigines.

Visits to nursing homes for Aboriginal elders and centres run by Aboriginal health organisations filled the five-day itinerary alongside discussions of history, customs, kinship systems and cultural etiquette

organised by the Institute for Aboriginal Development (IAD) in Alice Springs.

It was the sort of training Ms Duffy would have valued during her early nursing days in the Northern Territory.

"I remember Aboriginal workers deserting a health centre and some non-Aboriginal Australians blaming it on laziness. The truth was that someone had died in the building and Aborigines had to leave until it had been 'cleansed' of the spirit by traditional practices," Ms Duffy said.

"Culturally aware health workers would know to arrange the cleansing quickly and make temporary arrangements for care of Aboriginal patients outside the building in the meantime."

The nursing students on the trip became aware of many other potential conflicts in health care, such as kinship relationships which prevent some Aboriginal relatives from even looking at each other, customs forbidding saying the name of dead people, and the role of traditional Aboriginal 'healers'.

Two women from the Alice Springs IAD, Lorna Wilson and Kitty Miller, had previously worked with Monash education students and were happy to expand the link. The institute's philosophy is "we are looking towards the future and only together can we find solutions".

Ms Duffy said the seven nursing students had described the trip as an "unforgettable experience" which would benefit them personally and professionally.

"We see the trip as a bonus these students can add to their CVs. It has already helped one of them, Susan Turner, get a nursing position at the Alice Springs Hospital," she said.

Ms Duffy will present a paper on the program at a conference on multicultural health in China later this year.

BY GARY SPINK



Associate Professor Elaine Duffy: "Aboriginal people helped me understand that I needed to understand them."

Monash enters international race for fuel cell technology

The opening of a \$2 million laboratory complex last month placed the Gippsland campus of Monash University at the forefront of an international race to develop fuel cell technology for generating electricity in the 21st century.

The 1000 square metre complex, opened by the Governor-General, Mr Bill Hayden, has been designed so that the research and development company Ceramic Fuel Cells Limited (CFCL) can make and test prototypes of the technology.

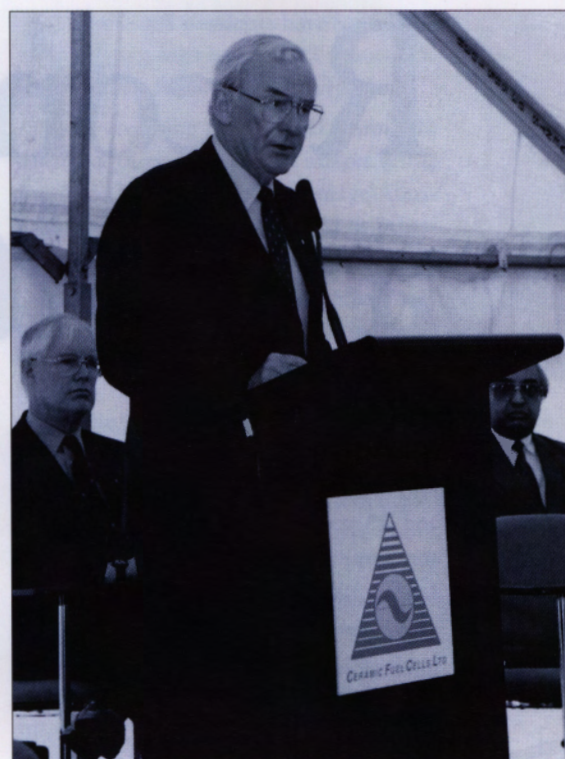
Fuel cells are an efficient, low-polluting and flexible way of producing electricity. They have been used, for instance, as a clean way of producing power on board spaceships. But at present fuel cells are too expensive to manufacture and not durable enough to compete with the conventional means of generating electricity.

CFCL is competing with massive research efforts in Europe, Japan and the US to surmount these barriers and turn fuel cells into a commercial proposition. The importance of the enterprise and its potential significance to Australia may be gauged by CFCL's backers, which include BHP, the CSIRO and the electricity authorities in all the mainland states. Both the federal and the Victorian governments have also invested in CFCL through the Energy Research and Development Corporation (ERDC) and the Strategic Industry Research Foundation respectively.

Together these organisations plan to invest \$30 million to develop the technology by mid-1997. "Fuel cells are one of the prime candidates for future electricity generation," said ERDC's managing director, Dr Bruce Godfrey. "The centre gives Australia one of its few options to get into mainstream production of electricity generation equipment."

Fuel cells convert the energy of a chemical reaction directly into electricity without relying on heat as an intermediary. This makes them about twice as efficient as thermal generators that burn fuel to heat water.

CFCL has been linked with Monash University since the company's inception in 1992. Its head office and main laboratories are in the Monash Science and Technology Park in Blackburn Road across the road from the Clayton campus.



Monash physicist Dr Trevor Finlayson is working on a joint project with the company, testing materials to be used in fuel cells. And CFCL wishes to expand that collaboration by encouraging interaction with the Engineering School on the Gippsland campus, according to the company's managing director, Dr John Parrott.

"We are pleased with the Monash site and facilities. The new laboratory is near the heartland of Victoria's electricity generation and will help to build a link with electricity generation authorities," he said.

The principle behind fuel cells has been known since the 1830s. Two electric terminals are separated by a material known as an electrolyte, which conducts electric charge in a chemical form. One of the terminals is placed in fuel, such as hydrogen, natural gas or coal gas, while the other is held in a source of oxygen, usually air.

When this system is heated to about 1000° Celcius, charged oxygen moves through the electrolyte to react with the fuel at the fuel terminal. This draws in more oxygen behind it to continue the reaction. But charge moving one way through the electrolyte causes electrons to move the other way to counterbalance it. The electrons, in fact, move through a wire connecting the terminals. And electrons moving through a wire constitutes an electric current.

Governor-General, Mr Bill Hayden, opened the Ceramic Fuel Cells Complex on Monash's Gippsland campus last month.

While this all sounds very complicated when compared with producing electricity by boiling water to turn steam turbines, there are several advantages to producing electricity in fuel cells. For instance, fuel cells convert the energy of a chemical reaction directly into electricity without relying on heat as an intermediary. This makes them about twice as efficient as thermal generators that burn fuel to heat water.

Better still, fuel cells can produce the same amount of electricity, while emitting far fewer pollutants, than thermal power stations – less than one-tenth the level of gases responsible for acid rain and smog, and about half the level of greenhouse gases.

And fuel cells, like batteries, can be connected together in arrays, known as stacks. This means that there is no particular cost saving in building big centralised units as opposed to small decentralised ones. And that could signal an end to big power stations and transmission lines.

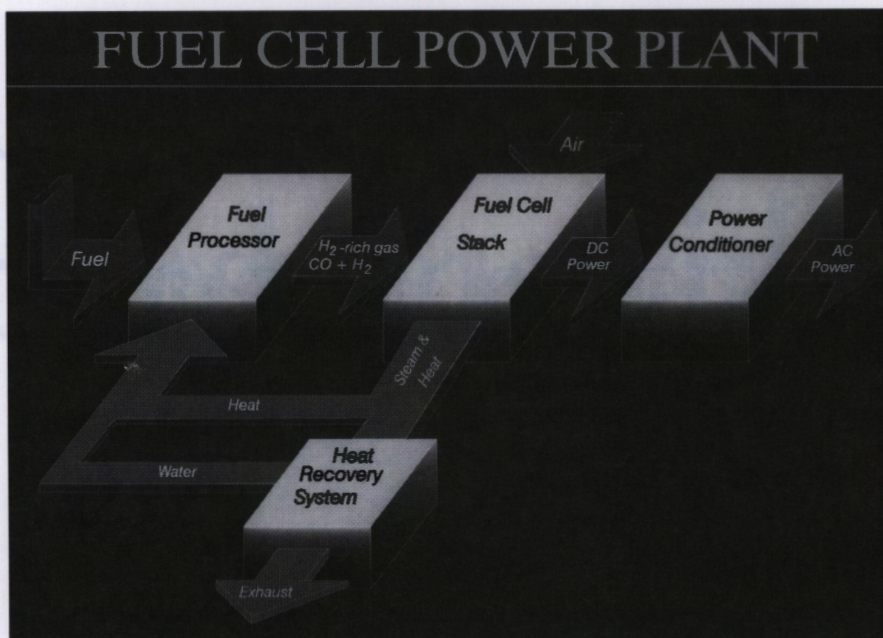
Companies in Europe, the US and Japan are pouring billions of dollars into fuel cell research.

Instead, it should be easier to install a fuel cell to power just one building or a couple of blocks of houses. Fuel cells are therefore an attractive option for remote communities and for developing countries which do not yet have extensive power transmission grids.

With all these advantages, it is not surprising that companies in Europe, the US and Japan are pouring billions of dollars into fuel cell research. But both Dr Parrott and Dr Godfrey are confident that CFCL's effort is as advanced as any.

That is because Australia has several advantages, the most important being access to materials. At least six different types of fuel cells are under development worldwide. The most promising for long-term power generation is known as the solid oxide fuel cell. It is a ceramic fuel cell, which depends on the compound zirconia (ZrO_2) as the electrolyte.

Australia exports 70 per cent of the world's zircon from which zirconia is produced, and, more importantly, materials



scientists at the CSIRO have devised a process which has made it possible to work with zirconia.

Normally zirconia is a very brittle material that shatters easily. But the CSIRO researchers found that by adding elements such as yttrium or calcium, they could create partially stabilised zirconia (PSZ), a very tough heat-resistant material which has been dubbed "ceramic steel".

Solid oxide fuel cells are now using PSZ as the electrolyte and, to improve the performance of PSZ in this role, CFCL is employing about 20 researchers from the CSIRO Division of Materials Science and Technology.

The group is led by Dr Sukhvinder Badwal and Dr Karl Fogar, two of "the best zirconia and catalysis scientists in the world," according to Dr Parrott.

CFCL is also located close to important markets for the technology, once it is developed. Not only will fuel cells help solve the problem of supplying electricity to Australia's remote outback, they will also be in great demand in the world's fastest growing region – Asia.

"We have been visited by a host of delegations already," Dr Parrott said, "including China, Korea, Japan, Malaysia, Indonesia and Singapore."

But there are still several problems to overcome. CFCL is focusing on one specific design of fuel cell which uses a zirconia-based electrolyte. Several cells formed from flat plates are stacked one on top of the other in a sandwich formation. For the system to work, however, each cell must be sealed and

separate from the others. If fuel and oxygen sources mix in any way, they react immediately to produce heat. This means much less electricity can be produced.

So one area of research is concerned with finding interconnecting material with exactly the right set of properties to separate the cells. Another focuses on seeking the best sealant to ensure no leaks occur between cells, allowing the gases to mix.

Another problem is that the flat plates of electrolyte, terminals and interconnecting material tend to degrade under the high temperatures at which the cell operates, which limits the life of the fuel cell. Researchers are therefore working to create or find materials which are either more resistant, or which will operate at lower temperatures.

Dr Parrott said CFCL had already achieved excellent performances, in terms of efficiency and longevity, in single cells and stacks producing only small amounts of power. But researchers now want to start building stacks which will generate kilowatts. These are the cells that will be made and tested in the Gippsland laboratories.

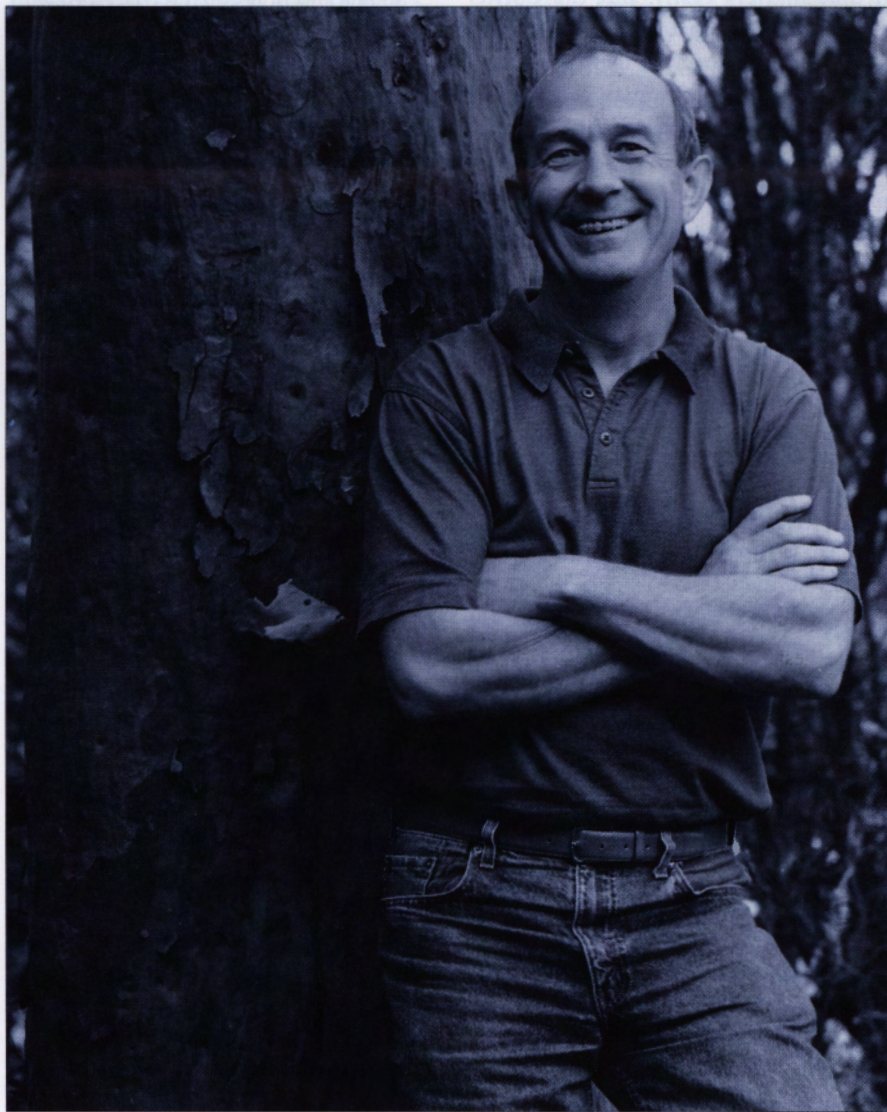
"It's going to take time, and more investment," said Dr Godfrey. "The technology is not fully proven, but we are in better shape than most and there are a lot of positive things about this project. It builds on Australia's expertise in high technology ceramics, and could provide the technical base to support a major industry cluster."

BY TIM THWAITES

Glass logs: looking towards the 21st century

Monash researchers are working on innovative technology that could revolutionise the forest industry. Tim Thwaites reports.

Photo: Shannon Mattinson



Dr John Davis: Glass log technology could have significant benefits for the environment.

Monash physicists have been loading logs into a CAT-scanner at the Royal Melbourne Hospital.

They are using the hospital scanner to construct three-dimensional images of the wood. As with humans, the images illustrate where the wood is diseased or otherwise abnormal.

Researchers will use this technology to develop a scanner which could add \$200 million a year to Australia's forest products industry. It is also possible that the technology itself could earn substantial export revenue.

The scanner will provide internal pictures of logs and determine where knots, fungal decay, cracks and gum veins are located beneath the surface. This would allow sawmillers to grade and value logs more accurately and pick out those suited to particular products, such as veneers, furniture and building materials. Sawmillers could then plan appropriate cuts, breaking up each log to make the most efficient use of the wood. At present, this is all done with the human eye, with the obvious variable results.

According to Dr John Davis, senior lecturer in Monash University's Physics department and leader of the Monash research team, there were also environmental benefits to the technology. He said the research, dubbed the 'glass log project', would allow the industry to recover a significant volume of sawn timber from logs that are currently mistakenly graded for wood chipping. And, because Australia would be better able to meet its own requirements for high quality hardwoods, it would reduce the demand for timber imports from tropical rainforests.

In fact, the potential rewards of the technology are so attractive that in late 1993 the Federal Government's Industrial Research and Development Board awarded Dr Davis and colleagues from Monash and CSIRO a Generic Industry Research and Development grant of more than \$750,000 over two years.

Under the terms of the grant, the timber industry is obliged to match the government money with an equivalent amount in cash or equipment and services. It is doing so through an umbrella company, Timco Technologies, in which many of Australia's large forestry companies have invested.

After a year's work, the researchers have not only demonstrated that the technology is feasible but also started to develop

software that can automatically pick out features in the wood, such as knots and fungal decay.

This year, the research team plans to design a pilot plant, which can be used to test their ideas in the forest, at an estimated cost of between \$3 million and \$5 million.

Dr Davis and colleagues Professor Peter Wells and Dr Imants Svalbe have long been involved in the application of computerised tomography (CT) scanning to industry, and had already designed and built a working prototype of a scanner to detect rotting and cracking in electrical power poles.

CT-scanning makes use of the ability of the computer to perform millions of calculations per second to construct three-dimensional images from X-ray data. An X-ray tube, similar to a picture tube in a television, is placed on one side of an object, in this case a log. The X-ray beam can be projected in a fan shape which passes through the width of the log, taking a cross-section. The X-rays are then picked up by a line of detectors on the other side.

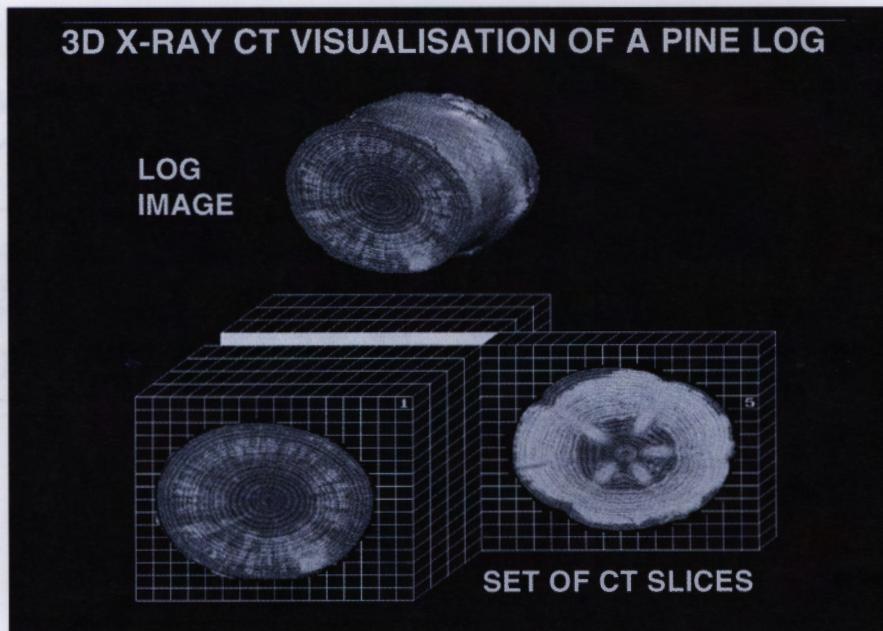
A log is passed through a glass log scanning ring at about one centimetre per second.

The path of each ray will be different, depending on the density of material through which it passes, with some being absorbed, some reflected and some scattered.

What arrives at the detector array depends on the distribution of the density of the wood in the log. The computer can quickly integrate that information into a density picture of a log.

A computer is then required to create a two or three-dimensional density picture. If the X-ray tube and detector array are moved to scan the same cross-section from two different angles, the computer can combine the two sets of data into a two-dimensional density picture of the cross-section. A three-dimensional image is achieved by moving the tube and detectors along the length of the log.

To obtain the maximum amount of information, a log is passed through a glass log scanning ring at about one centimetre per second. (Much faster rates are possible



if less internal information is required.) At the same time, the X-ray tube and array of detectors rotate around the scanning ring; the X-ray beam actually scans the log in a spiral as it moves.

The computer then integrates a massive amount of data into a three-dimensional density image of the wood inside the log. The numbers of calculations involved is so staggering that the team must use the latest massively parallel computers, which perform several series of independent calculations simultaneously.

What emerges is a clear picture of the internal structure of the wood, complete with knots and growth rings and grain. And because the picture has been created from information which is stored, that data can be manipulated again to provide different views, perspectives and sections of the log.

The glass log researchers are only just beginning to comprehend the impact this technology could have on the organisation of the timber industry. Dr Davis believes that the best outcome would be the construction of a scanning or merchandising centre through which each log would pass after harvesting.

"Here, individual logs could be graded, valued and decisions made as to what to do with them. When they arrive at the processing mill, they will have the internal information attached, together with an optimal strategy for breakdown to desired outcomes."

If this were to happen, it could trigger many other changes in the organisation of the industry. For instance, if sawmillers knew exactly what they were getting in

individual logs, they may decide to specialise in particular products, and would only need to buy the most suitable logs.

The more information that is available on each log, the more accurate the value placed on it. In particular, valuable logs could be kept aside for auction at the merchandising centre.

Architects, engineers, home-owners and other customers could also benefit, specifying exactly which timber they wanted and securing it before milling.

Although scanning systems are also being investigated in the US, Canada, New Zealand and Scandinavia, Dr Davis believes that the Monash-CSIRO team has a more sophisticated approach than its rivals.

"We were the first to demonstrate that wood features such as knots can be detected automatically in green hardwood and softwood logs," he said.

"And we are the only research team working in this field that has the necessary image processing experience and expertise in the design and construction of industrial CT-scanning systems. In Timco Technologies, we have several industry partners with massive investments in timber processing, as well as two engineering firms with extensive experience in building sophisticated industrial plants.

"There is no doubt that scanning logs for inner quality will have a significant impact on the efficient allocation and utilisation of the forest resource well into the 21st century."

Designing at the cutting edge

When a Monash academic visited his hairdresser, more than just hair ended up on the salon floor.
Gary Spink reports.

Chris Selwood will never forget his first haircut at Armadale salon Katan Smithers.

A casual comment made by one of the salon owners about planned renovations sparked an innovative project and led to the establishment of links between Ceramic Design at Monash University and the commercial world.

The salon owners wanted a floor that would give Katan Smithers a unique look, and Mr Selwood, a senior lecturer in the Department of Ceramic

Design, had just spent two years developing new design materials for building interiors and exteriors.

Grants from the Australian Research Council and Monash research and development funds allowed him to launch the Monash Ceramic Design Group – a loose, but dedicated, collective of department staff, students and graduates.

The group believed that by finding new uses for common types of glass, concrete and ceramics, they could combine their

discoveries with original designs for building interiors and exteriors.

"We took materials from industry, which are chemically glass but not used for design work, and spent 18 months developing techniques to add colour and melt the substance in moulds."

For the Katan Smithers floor, Mr Selwood designed concrete tiles with blue-green glass wave forms and stars, which he describes as "a sea theme, with a whirlpool effect for movement".

Postgraduate student John Charalambous was employed to make the tiles after Mr Selwood's research assistant Deryn Mansel had built moulds for the glass shapes.

The project grew with the team creating coloured glass tables for the salon, and Caulfield honours graduate Simon Campbell helping design a sign for the salon in line with the stars and waves theme.

"Ultimately, the way we work best is to design the whole space or significant pieces in the space," Mr Selwood said.

Turning point

The Katan Smithers job was seen as a turning point for the group because it was its first opportunity to put theory into practice.

"We're developing the materials and the processes for forming, shaping and firing the materials, and it's time to go the next step by designing the product and getting it into the marketplace," Mr Selwood said.

"We have had interest from architects and designers and they've been enthusiastic, even if they're unsure how to apply our expertise.

"But the first thing they want to know is how much it will cost, and our biggest problem may be finding out how to market something that is so labour intensive."

One solution could be to attach the group to a large building or architectural firm to do its "special design work", or by gaining internal contracts for new university buildings.

One of the aims of the project is for design students to become practising artisans while completing their studies.

"During their course, students are developing a familiarity with materials, but we're extending their creative training and showing them how they might apply themselves when they leave," Mr Selwood said.

Photo: Shannon Martinson



Mr John Charalambous (left) and Mr Chris Selwood.

Coming from the Hart

Renowned as one of Australia's foremost poets, Monash University's Associate Professor Kevin Hart has just released his newest anthology, *New and Selected Poems*.

American academic Harold Bloome, who includes Dr Hart among his selection of top all-time writers, wrote of the anthology: "Hart's development presages the emergence of one of the major living poets in the English language."

New and Selected Poems is a collection of poetry written by Dr Hart over his lifetime, and selected and revised during the past two years.

He said that putting the volume together was a strange process, "like looking back at one's whole past ... and putting oneself in order".

Dr Hart said that although his poems come to him in moments of inspiration, or "extreme tension", he needed to work himself into this frame of mind.

"You have to learn an intellectual and emotional discipline, suspend everything and put the rest of your life in brackets ... it's something you need to develop."

Dr Hart said sometimes poems 'come' too early, or at the same time as another poem, and have to be put aside to work on later.

For example, although he wrote some of the poems in *New and Selected Poems* in his twenties, they were perfected for this volume.

"I guess you could say they took me 20 years to write. At the time I thought they were fine, but looking at them now, I could see the difference changing a couple of words would make."

Dr Hart has been writing poetry since his English teacher made him memorise a Shelley poem at the age of 13.

Although teachers now rarely ask students to memorise poems, Professor Hart said it had taught him how magical language and words could be.

"I've been writing ever since," he said.

Lecturing in the university's English department and Centre for Comparative Literature and Cultural Studies, Dr Hart teaches the reading and analysis rather than the writing of poetry.

His lectures are extremely popular and he encourages students to read poetry in relation to history and cultural theory.

Dr Hart has won numerous awards and has published volumes of criticism and philosophy, as well as five volumes of poetry.

Critic Charles Simic believes this publication cements Dr Hart's reputation as an "absolutely original and indispensable poet".

"What has already been obvious to his devoted readers for many years should now, with the publication of *New and Selected Poems*, become public knowledge. Kevin Hart is one of the finest poets writing in English today. I admire his erudition and his imagination, the way history, art, myth, literature and many other things come together in his poetry. This book will be a feast for those who want poetry to be both metaphysics and song."

Sunlight in a Room*

*The silence attending words,
The body firm as a plum
And the spirit now weightless
And willing as a needle,
And gathering around me
This summer morning, sunlight
Basking on the wooden floor
With an animal pleasure:
This first, thoughtless joy, the taste
Of chill water, as the sun
Places bread upon a sill,
A hand upon my lover.*

New and Selected Poems

Published by Angus and Robertson

RRP \$16.95

* Reprinted with permission of the publisher.

Australian Race Relations

By Andrew Markus

Published by Allen and Unwin

RRP \$19.95

Australian Race Relations provides the historical context necessary for an understanding of contemporary issues in a society coming to terms with native title and multiculturalism.

Andrew Markus is a lecturer in Monash University's Department of History.

Industrial Relations in Australia: Development, law and operation

By Carol Fox, Marilyn Pittard and William Howard

Published by Longman Australia

RRP \$39.95

Industrial Relations in Australia details a mass of complex changes to the nature of

working life in Australia. It looks at the role of management as well as trade unions and closely examines the origins and techniques of enterprise bargaining.

Carol Fox is a lecturer in the Department of Management in Monash University's Faculty of Business and Economics, and Marilyn Pittard is associate professor in Monash's Faculty of Law.

The Contract State: Public management and the Kennett government

Edited by Deidre O'Neil and John Alford

Published by the Centre for Applied Social Research, Deakin University

RRP \$19.95

In this book, the authors take a close look at what is happening to the public sector under the Kennett government.

It makes interesting reading for anyone concerned about the future of government institutions and how they are managed.

Deidre O'Neil is a lecturer in public management in the Department of Management and the Graduate School of Management at Monash University.

Educational Administration: An Australian perspective

Edited by Colin Evers and Judith Chapman

Published by Allen and Unwin

RRP \$34.95

This book offers a comprehensive survey of theory, context and practice in educational administration.

Colin Evers is an associate professor in the Faculty of Education at Monash University.

Monash farewells a real Scamp

Phil Scamp knows the importance of noses. And eyes, ears and hair – oh yes, hair is especially important.

"You can really go berserk with people's hairstyles," Phil explained with a grin. "And beards are usually pretty easy – they are like the cheat's way out."

As Monash University's unofficial caricaturist and cartoonist for the past four years, Phil often finds himself passing someone in a corridor or on a walkway and realising that he knows their facial features intimately.

This can be rather unnerving, considering most of his caricatures are drawn from photographs supplied to him by the Public

Affairs Office and he does not necessarily meet his subjects in person.

"I don't enjoy accentuating someone's big nose and making it look bigger; you just have to hope they've got a sense of humour when they see it," he said.

Phil has become well-known for his freelance cartoons and caricatures in publications such as *Montage* and *Business Victoria*.

For the past four-and-a-half years, his official role has been a cartographer and draftsman in the Department of Geography and Environmental Science.

However, any freelance artwork Phil does for Monash this year will be arriving from the farthest corners of the globe, as he recently announced his decision to leave the university to travel and work overseas.

He flies to the United Kingdom in mid-March and will spend a few months there before heading to the United States, where he has enrolled as a youth camp leader.

During the first half of last year, *Montage* featured the comic strip 'Paw vs. Claw', which chronicled the continuing and often bloody battle between Phil's creation 'Claw' and its nemesis 'Paw'. The latter, a cagey feline out to destroy 'Claw' at all costs, was devised by Phil's friend and fellow cartoonist Danny Penny, then a masters student in the same department.

Phil admits he prefers drawing cartoons to the often



agonising task of transferring someone's features into caricature.

"If I can get good clarity in the eyes and get them right, everything else will fall into place," he explained.

"But caricaturing can be incredibly nerve-racking, because sometimes you just cannot 'grab' someone's features and you sit there for hours and hours," he said. "And at other times, someone will just 'fall' onto the paper and it's so easy."

Phil's favourite Monash caricatures include Mr Peter Marden from Geography and Environmental Science; Associate Professor Claudio Romano from the Department of Accounting at Caulfield; and Dr Richard Cullen, who has since left the Law faculty.

He admits that caricaturing Monash vice-chancellor Professor Mal Logan was not an easy task.

"I had a lot of trouble with Mal – when I was commissioned to do him I was very much in my experimental stage and my style wasn't refined enough to capture him properly."

Phil also finds men easier to draw than women.

"I'm always a bit more aware of not wanting to exaggerate a woman's features too much, in case she hates it or starts to hate me."

So how much courage does it take to lay bare someone's best and worst features for possible public ridicule?

"I once had a primary school teacher who used to say 'Scamp by name and scamp by nature', so I guess I've lived up to that!"

BY SUE HOBBS

Photo: Shannon Mattinson



Whose freedom should the law protect?

From Montage 16

While the vast majority of Australians would sympathise with the aims of the bill, namely to control racist violence, threats and harassment, there has nonetheless been much criticism of the proposed law. Critics say the bill is poorly drafted, will not work, is not necessary, is dangerously broad, is 'social engineering' and so on. But lurking behind all these various nuances is one overall theme. There is clearly a fear that the bill will create a danger to 'freedom of speech' in Australia.

Yet 'free speech' critics fail to acknowledge the New South Wales experience. Former NSW Liberal Premier Nick Greiner successfully introduced racial vilification legislation in NSW in 1989, with not one restriction to free speech in that state over the past five years.

Opponents of the bill argue that while such laws may be necessary in other countries, they are simply not needed in Australia. While it is true that Australia does not have an organised racist scene on the scale of some European countries, the problem here is not insignificant. Available data makes it clear that well over a thousand incidents of racist violence or harassment take place in Australia annually.

Nor are criminal penalties for words, for "what people say", anything new, despite alarmist claims to the contrary. It is already a criminal offence to use publicly "threatening, abusive or insulting words" (Summary Offences Act), or to verbally incite "feelings of ill-will and hostility between different classes of Her Majesty's subjects" (Sedition, under the Crimes Act). The purpose of racial hatred laws is to redefine existing penalties on speech to deal with extreme, specifically racist, manifestations that are similar to existing crimes but not clearly covered under existing law.

Additionally, it is not correct, as many opponents of racial hatred laws argue, that existing laws in Australia already cover all racist acts. While racist violence is already illegal because violence is illegal, there are specific legal loopholes that racial hatred laws are designed to plug:

(1) Imagine a situation where the leader of an organised racist group addresses a rally of his followers, repeating a series of racist

slurs against a specific minority and urges that they be "driven from our shores". Immediately afterwards, his followers begin attacking members of the named minority. There is no law that can clearly be applied to the leader unless he either specifically instructs his followers to carry out specific legal actions, which would be incitement, or takes part in the violence himself.

(2) Current laws allow vast scope for racist harassment. There is no current law against an organised group of racists approaching immigrants and telling them: "You'd better get out of here, go back to where you came from. If you stay here, you might get hurt", or placing leaflets to this effect in the letterboxes of immigrant households. Similarly, it is difficult to prosecute skinheads and other racists who harass and intimidate visible minorities by slinging them out on the street and either chanting racist slogans at them or hurling abuse, insults and threats.

"All discussion and debate on public issues, as opposed to pure, unadulterated racist invective, is protected, and the commission can immediately dismiss frivolous or vexatious complaints."

(3) Defamation laws only protect individuals against damage to their reputation via malicious lies. If someone spreads lies about an ethnic group or minority, no matter how much it damages the reputation of the members of that group, the law allows absolutely no means for the members of the group to seek redress.

(4) There is clearly a case to be made that racially motivated criminal acts are often more damaging than similar non-racially motivated ones. The target is an entire

community, and the entire community pays a price in fear and insecurity. Most people would agree that painting threats and hate messages on a mosque or synagogue is worse than scratching your name into a public telephone booth. But legally these two acts are considered exactly the same.

Some critics have expressed particular concern about the civil provision of the proposed legislation, especially sections that allow complaints initiated by victims to be brought before the Human Rights and Equal Opportunities Commission. This would be for acts which are reasonably likely to "offend, insult or humiliate another person or group of persons" and undertaken because of their "race, colour and national or ethnic origin". Offending people is not only highly subjective but also inevitable in any public debate. Critics argue: 'How is it possible to have genuine free speech and at the same time outlaw mere offence?'

What this argument fails to consider is that not only are artistic and scientific works and fair reports exempt from this clause, but so too is any "fair comment on any event or matter of public interest if the comment is an expression of a genuine belief held by the person making the comment".

In other words, the whole provision only applies when a person is gratuitously being offensive and insulting and not dealing with any social, political or policy issue whatsoever.

All discussion and debate on public issues, as opposed to pure, unadulterated racist invective, is protected, and the commission can immediately dismiss frivolous or vexatious complaints. In genuine cases, confidential private conciliation is the initial course to be taken.

Concerns that this provision of the law could violate freedom of speech are therefore clearly misplaced. Is the right to yell insults and racist slogans at minority members really more important than the right of ethnic Australians not to be subjected to such harassment?

Racism has no place in the 'fair go' mentality that is part of the Australian identity. There are those who are determined to spread racism today, racism which will all too often result in violence, discrimination, harassment and insecurity among minority groups, and which can diminish or even destroy whole societies. And the problem has the potential to get worse. Reasoned, carefully drafted racial vilification laws are an important part of keeping Australia the pluralistic, free, tolerant and well-regarded society which we all take for granted.

Whose freedom should the law protect?

In this International Year of Tolerance, deputy chairman of the Victorian Ethnic Affairs Commission and senior lecturer in politics at Monash Dr Colin Rubenstein takes a close look at the issues surrounding the hotly debated racial hatred laws.

Most Australians appreciate the fact that our country is, by any standards, a tolerant society. People from all over the world have come to live here, follow their own religious beliefs, observe their own traditions, teach their children as they like, and maintain their first language, as long as they obey the law, fulfil their civic duties, and behave in a manner compatible with agreed Australian values.

But there are those in Australia who, through good old-fashioned hatred, bigotry and xenophobia, are determined to destroy this relatively happy consensus. Although the racists among us are only a small minority, they unfortunately have the potential to do a great deal of damage. Every act of racially motivated violence, every racist taunt, every act of discrimination or harassment, has an effect. It makes some Australians feel afraid or insecure, and it builds reciprocal hatred. It damages the feeling that we are all Australians, no matter where we, or our parents, or grandparents were born.

Four separate federal inquiries, including, most prominently, the 1991 Inquiry into Racist Violence in Australia, have recommended

that anti-racism laws should be part of the strategy for dealing with these problems. Why? Because it is very clear that severe forms of racist propaganda, the incitement to hate other people because of the group to which they were born, causes genuine harm. It not only often leads to genuine violence, harassment and discrimination, but also makes the targeted group feel less secure,

and threatens the tolerance that Australian society needs to survive.

Legislation outlawing such behaviour can fulfil a genuine need, and protect certain rights that are as important as free speech: the right not to be beaten up, not to be harassed, and the right not to live in fear of persecution or violence because of your ethnic background. The link between all

these negative effects and extreme racist propaganda is clear enough so that such material should be placed in the same category as violent pornography.

The Federal Government's response has been to introduce the Racial Hatred Bill, passed in the House of Representatives in December and due for Senate consideration soon. The purposes of the bill were spelled out by Attorney-General Michael Lavarch, who correctly pointed out that "while current criminal law punishes the perpetrators of violence, it is largely inadequate to deal with conduct that is a precondition of racial violence". The bill's provisions, he said, focus on "the incitement of racial hatred and threats made to a person or persons, or property because of race, colour, or national or ethnic origin".

Continued on Montage 15

