Tiny beads aid fight to cure cancer

Materials engineering

Thousands of tiny beads implanted into the body could become the new weapon in the fight against liver cancer.

Ms Kathryn Spiers, a PhD student with Monash University's School of Physics and Materials Engineering, is manufacturing beads, called microspheres, which measure 0.02 mm in diameter, and, to the naked eye, resemble a speck of dust. She's making two different types of microspheres — radioactive and magnetic — to treat malignant liver tumours. The novel aspect of Ms Spiers' research project is a focused magnetic field device used for heating the magnetic microspheres.

Because cancer cells are more susceptible to heat than healthy cells, increasing the temperature of the tumour is an effective way of targeting, and ultimately killing, malignant cells without damaging normal tissue.

Ms Spiers said the treatment's magnetic field is localised to the area around the liver, so the patient's body is subjected only to a small, focused field, minimising the possibility of side effects.

In the past, this type of liver cancer treatment has been less specific to the area around the liver, which is the main blood supply for the liver. The new treatment involves injecting thousands of the beads via an incision into the hepatic artery — the main blood supply for the liver. When the microspheres are injected, they are picked up by the blood flow and eventually lodge in the malignant cells of the tumours. A magnetic field is then applied to the body to heat the magnetic microspheres, which works to damage the cancer cells.

"If successful in treating the malignant tumour, apart from the minor procedure of injection there would be no need for any further surgery," Ms Spiers said.

"Treatment itself would be finished within a week, but the microspheres would stay fixed for about one to two months before being reabsorbed into the body."

Ms Spiers said she was currently working to use the active ingredients of the microspheres within hydroxyapatite, which is bio-compatible with human bone.

Once trials are completed over the next few years, with the help of researchers from the Peter MacCallum Cancer Centre and the Austin Hospital, Ms Spiers hopes the technology could be used in a practical clinical application to treat liver cancer.

A last-minute decision to enter a painting in Australia's richest art prize, the Doug Moran National Portrait Prize, has paid off handsomely for Melbourne artist and Monash University masters student Prudence Flint. Her entry, 'A Fine Romance #9', won the $100,000 first prize. The winning portrait was selected from 30 finalists, narrowed down from 518 entries.

Ms Flint, who is enrolled in the Master of Fine Arts program within the Art and Design faculty at Monash's Caulfield campus, spent three months working on the painting. She says the prize money will enable her to buy, among other things, a new computer to indulge her other passion — writing.

The figurative painting is in essence a fictionalised self-portrait and part of a recent series of paintings by Ms Flint featuring women absorbed in various tasks. "The painting is an amalgam of the two things I love — painting and writing," she said. "In a sense the portrait is about women artists and writers who have inspired me."

"The minimalist books in the painting create a backdrop to the figure, who is completely absorbed in her laptop computer. In a patriarchal world, women find refuge in the 'devotional practice' of writing and reading."

Ms Flint's academic supervisor, fine arts Associate Professor Euan Heng, describes her work as "not large in scale but modest, evoking a mood of quietness and contemplation — poetic, never crude or vulgar".

"Prudence is a representational figurative painter working in a conventional style but one that is not traditional or academic," he said. "Through her work, she explores 'woman' as a subject for her paintings, resulting in a content that she would describe as 'personal interior narratives'."

The Doug Moran award is presented biannually. The prize, sponsored by the Moran Health Care Group, was first presented in 1988 in celebration of Australia's Bicentenary. Ms Flint is the ninth winner.

A trip down memory lane

Rich rewards for a fine romance
The development of the multi-campus structure has occupied a lot of time and energy. This structure is something we are all finding in our university in terms of the capacity to attract great talent around the world, the capacity to attract and retain great talent and the capacity to attract large and diverse student bodies. It has also allowed us to adapt our campuses to the needs of the 21st century, and to create a more attractive environment for our students and staff.

The Victorian Government has announced major upgrades to the Monash University campus, which will include the establishment of the new Outdoor Road Ambulance and Paramedic Studies. A monthly column by the vice-chancellor of Monash University, Professor Richard Larkins, will focus on the campus development process.

A UNESCO Chair at Monash breaks new ground

In a first for the Southern Hemisphere, a UNESCO Chair in Intercultural and Inter-religious Relations - Asia Pacific is being established at Monash University within the School of Political and Social Inquiry. The chair will be led by Professor Gary Booma, who will take up the chair in November. The chair will be established to address the challenges of intercultural and inter-religious relations in the Asia Pacific region, with a view to influencing social policy. Professor Booma said the chair would be a vehicle for promoting scholarly research on the management of intercultural and inter-religious diversity and the role of religion and religious figures in conflicts in the Asia Pacific region.

Funding boost for ambulance and paramedic studies

Monash University researchers have received half a million dollars in grants to promote promising early-stage projects. The centre, based at Peninsula campus, recently received a $20,000 Eureka grant to support its research into the development of new and innovative approaches for the early diagnosis of prostate cancer.

A total of four scholarships are presented to Monash Centre of Green Chemistry. Dr Anastas, an internationally renowned expert on sustainability in chemical manufacturing, will take up his position in Washington, D.C., in early 2005.

Monash Centre of Green Chemistry. Dr Anastas praised the innovative research being conducted at Monash, saying: "Monash is accomplishing all the goals of industry diversely," he said. "It is certainly one of the world leaders in this area.

The Commonwealth Government recently announced a funding boost of $3 million to establish the new Australian National Stem Cell Centre at Monash. The centre will be based at Peninsula campus and will conduct research on the potential uses of stem cells in regenerative medicine.

The centre will use the funding to investigate the role of cells and stimulate others to investigate the role of cells in regenerative medicine. It will also conduct research on the potential uses of stem cells in regenerative medicine.

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Biodegradable scaffolds for treatment of spinal injuries

Treating damage caused by spinal injuries is not easy. But Monash postgraduate student Ms Rosalyn Jackson is tackling the problem head on, developing a new material to help regenerate spinal cord tissue.

Ms Jackson, working under the supervision of Dr John Fuszcyk in the School of Physics and Materials Engineering, has been developing the hydrogel, a biomedical material that can be used in clinical medicine, over the past 18 months. The jelly-like substance can be injected directly into a lesioned area of the spinal cord.

"This therapy has the benefit of encouraging tissue regeneration without the use of invasive surgery, as is common in other treatments for spinal injuries," Ms Jackson said.

Composed of a novel and highly versatile material which can be readily modified to optimise mechanical properties, degradation rates and bio-compatibility, the hydrogel works to fill the damaged area of the spinal cord. Its bio-compatible makeup ensures there is no toxic response or reaction from living tissue, encouraging regeneration of the spinal cord.

"We are trying to fool the body into thinking the hydrogel is regular tissue, so the nerve cells will infiltrate and grow," Ms Jackson said.

"As the tissue regenerates, we want the hydrogel to slowly break down, and by careful selection of substituents, or chemical compounds in the hydrogel, we can control the speed of this effectively.

"As the implant breaks down, it releases non-harmful products that are already found in the body.

Ms Jackson describes her project - which has direct applications for one of the most elusive fields of medical research - as ambitious, but hopes her work may pave the way for future study. "I know there are thousands of scientists and researchers working on cures for spinal cord damage, but the use of a biodegradable hydrogel for this application is a relatively unexplored area," she said.

Ms Jackson's research has been in material science and engineering, and her ambition is to develop hydrogel-based implants that can be used in a variety of healing applications, from spinal cord injuries to wounds and orthopaedics.

"We are just about to begin the cellular studies, which will tell us how the hydrogel will behave with cells. If this is successful, it will enable us to begin trial tests with rat models," she said.

"Of course we are working on one of the most complex areas of the body, and there are years of more research before this could even be considered for human trials."

- Ingrid Sanders

Contact: ros.jackson@spme.monash.edu.au

Ambitious project: Ms Rosalyn Jackson is developing a new material to help treat spinal cord injuries.

Women say no to children as society fails to value mothers

Social studies

Lack of recognition of the contributions mothers make to society is an influential factor for some women who decide not to have children, a Monash research study has found.

Dr Maryanne Dever and a research team from Monash’s School of Political and Social Inquiry found that most women interviewed for the study felt that the general community had an ambivalent view of motherhood. The other team members were Dr JaneMarie Maher, Dr Jennifer Curtin and Dr Andrew Singleton.

"While most women said motherhood was an important job, even if they were not planning to become mothers, they recognised mothers were not accorded high status and their contribution wasn't always valued," team leader Dr Dever said.

"For women with children, this often meant they valued their work as a crucial aspect of their identity. For women choosing not to have children, this lack of support was often mentioned in how they had decided motherhood was not for them."

The Families, fertility and the future: hearing the voice of Australians’ study was based on interviews with more than 100 men and women in metropolitan, regional and rural Victoria living in partnerships and alone, with children or without.

Other key findings of the study included:

- women choosing not to have children did not reflect the common image of career-driven high achievers or women who could not find partners
- women with more than three children featured strongly among those with significant and ongoing attachments to the workforce
- workplace policies and entitlements did not generally influence first birth timing or decisions about having children, but were particularly important to women choosing to have more than one child.

The study was prompted by increasing public concern over Australia’s falling national birthrate, currently about 1.75 children per woman, compared to the ideal ‘replacement’ level of 2.1 children.

- Michele Martin

Contact: maryanne.dever@arts.monash.edu.au

Ph: +61 3 9905 5259

Breakthrough close on kidney disease cure

An effective cure for the common kidney disease glomerulonephritis is one step closer, thanks to the efforts of researchers from Monash’s Department of Medicine.

The team has developed a greater understanding of the disease and believes the complete study led to new and more targeted treatments.

"If we could tailor a drug that was less toxic and more specifically focused on that organ, it would assist us to develop a far more effective treatment," said Dr Richard Kitching, a research assistant based at Monash Medical Centre’s Inflammatory Diseases Centre, who led the research team.

Dr Kitching said the disease was currently treated with non-specific anti-inflammatory steroids - a moderately effective method with many negative side effects.

"Fully understanding glomerulonephritis is an important step in developing more effective and safer treatments for this common cause of kidney failure," Dr Kitching said.

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Fertility study research team: (from left) Dr JaneMarie Maher, Dr Andrew Singleton, Dr Maryanne Dever and Dr Jennifer Curtin.

Ph: +61 3 9905 5259

Contact: richard.kitching@med.monash.edu.au

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Pharmacy students treat virtual patients

Students in Dr Jennifer Marriott's Clinical Pharmacy unit within Monash University's Victorian College of Pharmacy are using an innovative computer program that allows them to work with and treat their own virtual patients. The case-based assessment method, developed by Dr Marriott, is being used by about 200 third-year and 175 fourth-year Bachelor of Pharmacy students.

The program has been devised to present situations in a realistic way to enable students to be assessed on their ability to deal with real-life problem-solving situations.

"The students are treating virtual patients and need to deal with the scenario as if they were practicing pharmacists," Dr Marriott said. Each student chooses their "patient" from a database of 200 virtual patients.

They receive details (including the patient's age, gender, smoking and allergy history, up to four pre-existing medical diagnoses and 300 drugs) and the results where appropriate, from a database with more than 150 medical diagnoses and 300 drugs - each with individualised dosage regimens.

Using the program, Dr Marriott is able to randomly assign clinical scenarios to the students, and the students must then 'dispense' medication, keeping in mind their patient's existing conditions.

"Once the student has chosen their patient, that patient is not available to any other student and forms the basis of a unique assignment: the student will complete over the final two years of the course," Dr Marriott said.

In third year, the students' patients are assigned a respiratory or gastroenterological scenario, whereas in fourth year are given a dermatological scenario, ranging from nappy rash to pressure sores.

"To complete the assignment, the student has to diagnose and determine appropriate management of the symptoms presented in the scenario," Dr Marriott said.

Since its introduction to the faculty in July, Dr Marriott said and program had been extremely well received by the students. The students have found the program easy to access - in fact 149 of the students had logged on and chosen their patient on the first day the program was available," she said.

"This program would be suitable for use by other disciplines as well. Once you have a bank of standard patients, it would then simple to develop scenarios for students in medicine, nursing or physiotherapy, for instance. It is a flexible, easy-to-manage program that would certainly be attractive to other pharmacy schools."

The program was written by Mr Michael Calagaz and Mr Eric Goh from the Media Development Unit, Centre for Learning and Teaching Support, with specifications set out by Dr Marriott.

Contact: Jennifer.marriott@vcp.monash.edu.au

Pharmacy students have been awarded an International Prize for their essay on the interpretation of the Magna Charte.

Mr Stephen Lay, soon to be awarded his PhD in medieval history, has won a prestigious international prize for his essay on today's interpretation of the Magna Charta Universitatum.

An initiative of the University of Bologna, Italy, the Magna Charta is a series of principles to guide university administration, and was originally agreed to in 1298 by more than 400 universities and now endorsed by more than 500 around the world.

Mr Lay received the Carmine Alfredo Romanzi Award, a cheque for 10,000 euros (about A$15,000) during a ceremony at the University of Bologna on 18 September.

The main argument in his 30,000-word essay is that a university is an evolving institution and must be reflected in the Magna Charta's principles.

Open to doctoral students and post-doctoral researchers in any discipline from universities all over the world, the essay competition is organised by the Observatory of the Magna Charta, which monitors implementation of the principles.

"I was stunned to find out I'd won," Mr Lay said. "The advertised date of notification had passed, and about three weeks later I received an email asking where I could come to Bologna to collect the prize."

Mr Lay, who has just commenced as an administrative officer with the Monash University London Centre, said his essay arose from his interest in university policy, particularly its international focus and development.

"For this reason I very much look forward to my work at the London centre, which is at the forefront of Monash's strategic vision for international research collaboration."

Contact: stephen.lay@monash.edu.au

Chief Justice delivers Lucinda lecture

The Chief Justice of the Victorian Supreme Court, Her Honour Marilyn Warren, recently delivered the 12th annual Lucinda Lecture at Monash University.

In this year's lecture, titled "The Separation of Powers", the Chief Justice asserted the importance of maintaining the separation of the three arms of government - the legislature, which makes the laws; the executive, which enacts the laws; and the judiciary, which interprets them.

"In today's British constitutional system, there will be a touchstone - the doctrine of separation of political power," she said. "The executive of the day must, under such a system, acknowledge the role of the courts in their system, both in principle and in practice."

"Similarly, historical inquests into such as the system exists, the judiciary will not go away and, when necessary, will not be silenced."

Chief Justice Warren, who is also a Monash Law alumnus, delivered the lecture at the university's Clayton campus.

The Lucinda lecture series is named after a steam paddle vessel of the same name. The naming commitment of the National Australian Convention made important revisions to the earliest form of the Constitution while creating the Hawkesbury River in New South Wales about the Lucinda in March 1891.

The lectures, which canvas fundamental issues of constitutional law, are hosted by the Law faculty and sponsored by the Right Honourable Sir Zelman Cowen, PC AK GCMG GCO KSt QC.

Contact: www.law.monash.edu.au

Innovation: Dr Jennifer Marriott has developed a computer program that allows pharmacy students to work with virtual patients.

Before the lecture: Chief Justice of the Victorian Supreme Court Her Honour Marilyn Warren, football governor general Sir Zelman Cowen and Monash Law dean Professor Art Frewin in the Monash Law library.

Schools

2005 Enhancement Studies information evening

Wednesday 29 October

Monash University, Clayton campus

7.30 pm - 9 pm

Interested students, parents and teachers are invited to attend an information evening to receive comprehensive advice about Enhancement Studies choices and to find out about the benefits of choosing an Enhancement subject in lieu of a third or fourth subject.

To register, book online at www.monash.edu.au/policies/enhancementinformationevening or return the form included in the back of the Monash University Enhancement Studies Program Booklet.

For further information, contact Ms Rachel Todd on +61 3 9905 3167 or Ms Rebecca Hallinan at Monash University Enhancement Studies Program Booklet.

Scholarship applications

Students who are considering applying to Monash in 2005 should also consider applying for a scholarship. An extensive range of scholarships based on both academic merit and equity reasons are available. Applications close at 5 pm on Friday, 29 October 2004.

For more information, visit the scholarships website at www.sfm.monash.edu.au/scholarships/.
Web security – a matter of convenience?

Information technology security is a hot topic at IT security conferences, in IT professional societies and in institutions of higher and further education. Senior lecturer and associate dean (graduate studies) in the IT faculty at Monash University CHRIS AVRAM argues that to maximise IT security we need adequately trained professionals who have a full understanding of general security issues as well as a thorough knowledge of the IT industry.

It is well understood that security reduces convenience; that convenience reduces security and that we can buy slightly more security or convenience with a slightly higher expenditure. This is often expressed as a trade-off between security and convenience.

However, often overlooked, however, is a second hidden variable that has significant influence over the level of security achievable in a particular environment. This is the skill or, more generally, the professionalism of the people responsible for providing security.

In order to provide a safe IT infrastructure, designers, integrators and operators must understand the features of the systems being used and those available more broadly. They need to know how to operate and configure IT systems and the levels of security required – including the levels of confidentiality, integrity and the user availability required. They also need to know how to keep such systems secure.

This knowledge is currently achieved and maintained through manufacturer certification. As professionals, security practitioners also need to keep their knowledge current and aware of new threats and vulnerabilities. They also need to keep their knowledge current and aware of new threats and vulnerabilities.

Security is a complex and ongoing task. We cannot leave IT security in the hands of people who only know how to configure – even if it is configured well – the latest piece of security equipment or software. The security systems themselves may be faulty and vulnerable.

We should only leave security in the hands of people who understand the principles of security learned through a thorough study of failures in security over the millennia. These people, if professionals, will ensure that the security systems they have been tasked with protecting are secure.

We should only leave security in the hands of people who understand the principles of security and have ongoing current skills and systems knowledge.

The specification of a curriculum in IT security is a current and ongoing task – please join in.

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“Security infrastructure should be more secure and more closely monitored than the infrastructure it protects.”
Documentary artist takes residence

Documentary film-maker Jordan Bauman is the latest participant in the 2004 Artist/Designer in Residence Program conducted by Monash Art and Design faculty. Mr Bauman began his period of residence last month and will be in residence at the Caulfield campus until 11 November.

Originally from Pennsylvania in the US, he has lived in the UK since 1986, completing a masters in fine art in 1988 at Goldsmiths College, University of London. He is a senior lecturer in sculpture and head of the masters program in fine art at Wimbledon School of Art.

In recent years, Mr Bauman has focused on making films, after breaking away from object-based artwork in 1998. His contemporary portraits of people are constructed from hours of footage he has taken of his subject. "I am interested in what motivates people. My films are not about truth, but my perception of truth," he said.

Mr Bauman is spending time developing his latest films projects including a documentary based on Michael Jackson impersonators sourced from a dance-off at a Melbourne nightclub.

He is also participating in higher degree and honours seminars, conducting one-on-one tutorials with students and contributing to the faculty's Arts Forum program.

Outstanding visiting academic: Mr Jordan Bauman
Photo: Greg Ford

Drawing and Bachelor of Visual Arts student, coordinator Mr Kit Wise said Mr Bauman's involvement in the residential program was highly valuable.

"Jordan's extensive experience as both a lecturer and practitioner across a range of art disciplines makes him an outstanding visiting academic," Mr Wise said. "In offering an 'outside voice', Jordan will provide a fresh and unencumbered approach to studio critique from the perspective of a truly international practitioner and teacher of the highest order."

Contact: jordan.bauman@blueyonder.co.uk
Ph: +61 3 9903 2080

Photographic space of the maternal

The Line Between Us exhibition at Monash University's Museum of Art features contemporary works by five noted women photographers from Australia and New Zealand - Donna Bailey, Pat Brooking, Annie Ferran, Anne Noble and Rolene Robertes.

Curated by Kyla McFarlane, the exhibition features some 60 works exploring the maternal relationship between photographer and subject, and in so doing revealing relationships of both intimacy and distance. The photographs engage with the photographic medium as a metaphor for the maternal, creating emotional connections and painful separations that are part of this complex relationship," Ms McFarlane said.

"While several depict the joyful performances of the child, others are infused with darker narratives of absence and loss," Ms McFarlane said.

Many of the works also engage with provocative discussion surrounding photography such as censorship and debates over the way children may be represented.

"Despite their different approaches to these issues, all the artists reveal the photographic space of the maternal as a shifting, contested realm," she said.

Karin Stichtenoth

Show notes
What: The Line Between Us
Where: Monash University Museum of Art, Clayton campus
When: Until 23 October
For information: Contact max.clayton@adm.monash.edu.au
Ph: +61 3 9905 1644

The Art/Books

Inclusive Education

By Tim Lewisman, Joanne Deppeler and David Harvey
Published by Allen & Unwin
RRP: $45

Exclusive Education is a practical guide to working with primary and secondary students who need extra attention because of disabilities or giftedness. It is written by classroom teachers and practitioners, rather than those who have specialist training in working with students with special needs.

The authors outline the principles behind educational diversity and inclusive policies and discuss the range of different needs teachers can expect to encounter in an inclusive classroom.

They explain the practical issues and offer strategies for managing the classroom and promoting positive social relationships. The emphasis is on ensuring students with special needs receive worthwhile educational experiences, without compromising the needs of other students in the classroom.

The director of the Krongold Centre, both within the Faculty of Education at Monash University. Tim Lewisman formerly taught at Monash University and is now assistant professor in the Faculty of Education at Concordia University of Montreal, Canada.

The Cambridge book is the original serial version of Ada Cambridge's best-known novel, A Married Man. Following the fortunes of Richard Delavel as a rebellious Oxford undergraduate in 1850s England and a restless middle-aged family man in 1880s Sydney, the story presents his life and loves, work and leisure and beliefs against a background of constraints and opportunities in Britain and Australia.

A powerful creation of an iconoclastic character in search of personal fulfillment, A Black Sheep is a complex reflection on marriage ties and social obligations and a brilliant evocation of loneliness and need.

 Serialized in the Melbourne Age in 1888, the book's title was changed and parts of the text rewritten for the Heinemann edition of 1900, on which all subsequent editions have until now been based.

Providing the text as Australian readers first encountered it, this Colonial Texts edition also has an introduction tracing the publishing history, a textual apparatus displaying variants in the later version and explanatory notes to help readers appreciate significant allusions and quotations that might not be as familiar today as they were in 1888.

Elisabeth Morison is an honorary research associate with Monash's National Centre for Australian Studies.

Animal instinct

Animals are the latest subject to feature in an exhibition at the Faculty Gallery at Monash University's Caulfield campus.

Insectes, presented by the Monash University Museum of Art, explores the work of contemporary artists involved with the representation of animals and who adopt or identify with the animal as a metaphor or allegory for explaining ideas of identity and humanity, creativity and the role of the artist.

Exhibition curator Ms Lisa Vassallo said insectes engages with the mysterious and ambiguous characteristics of the animal form to explore the equally uncanny and ambiguous characteristics of the human psyche and behaviour.

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Animals also figure in fantasy, myth and the supernatural, as an act of meditation or harbinger of the future and the untold," she said.

The exhibition features the work of Emily Floyd, Sharon Goodwin, Irene Hannenberg, Louise Hazman, Rebecca Ann Holmes, Ronnie van Heut, David Noonan, Lisa Rout and Kathy Temin.

Thinking Black

William Cooper and the Australian Aborigines' League

By Bain Attwood and Andrew Markus
Published by the Australian Institute of Aboriginal and Torres Strait Islander Studies
RRP: $45

Thinking Black tells the story of William Cooper and the Australian Aborigines' League and their campaign for Aboriginal people's rights. Through petitions to governments, letters to other campaigners and organisations and entreaties to friends and well-wishers, Cooper and the league fought a passionate struggle against dispossession, displacement and the denial of rights, particularly the right to citizenship in their own country.

Bain Attwood and Andrew Markus document the circumstances behind the most significant moments in Cooper's political career and explain the principles Cooper drew on in his campaigning, including 'Letter from an Educated Black', one of the most influential political tracts written by an Australian leader.

"Thinking Black sheds new light on the history of what it has meant to be Aboriginal in modern Australia. It reveals the rich and varied cultural traditions, both Aboriginal and British, religious and secular, that have informed Aboriginal people's battle for justice and their vision of equality in Australia of two peoples equal yet distinct.

Bain Attwood is associate professor of history in Monash University's School of Historical Studies and adjunct professor in the Centre for Cross-Cultural Research at the Australian National University. Andrew Markus is professor of Jewish civilisation and director of the Australian Centre for the Study of Jewish Civilisation at Monash. They have both published numerous books on Aboriginal history and Australian race relations.

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Monash News, October 2004

Taking a trip down memory lane

A compact museum in the heart of the Information Technology faculty building at Monash University’s Caulfield campus provides visitors with a fascinating glimpse into the heady, rapidly evolving world of information technology.

The Monash Museum of Computing History is the brainchild of Ms Judithe Sheard, museum curator and a senior lecturer at the School of Computer Science and Software Engineering at Monash.

The idea for a museum came after she attended a symposium at the school in 2001 and sat through a series of presentations by computer historian and collector Mr Max Burnet covering the history of computing and communications.

"The images of computing equipment from past decades and the accompanying stories fascinated me and highlighted both the phenomenal changes in this field and the impact on our society," Ms Sheard said.

"Conversations with younger colleagues who had not had the experience of working with superceded technologies such as punched cards and paper tape made me realise we were in danger of losing knowledge about this important part of our history unless an effort was made to preserve it.

The museum opened in October 2001 with a display of computing equipment from past decades and the accompanying stories. The museum provides an opportunity to establish it as an experience-based centre of learning about the history and development of computer technology," Ms Sheard said.

The displays of equipment effectively demonstrate how computers have become smaller and more powerful. The museum also purports to computer technology into a broader context with displays of other computing devices such as slide rules, abacuses and calculators.

It is currently being revamped under the supervision of Ms Sheard and will be relocated to a larger space within the building in March 2005.

A highlight of the new space will be an installation featuring the Ferranti Sirius—the first computer purchased by the university—displayed in a typically 1950s/1960s-style office.

Other installations will feature a range of personal computers and mechanical calculators to show how they have altered over the years, as well as visual comparisons of disk storage and how this technology has changed.

Current exhibits will be revamped to more closely reflect the chronology of computing and to show how computers were used in past decades and the impact they have had on education, work, home and society in general.

The faculty’s historian-in-residence Ms Sarah Wolf said an important part of the project would be the development of an education program for primary and secondary school students and a professional development program for IT teachers.

"The new museum is about accessibility and outreach and introducing people to the university environment," she said. "The primary aim is to establish it as an experience-based centre of learning about the history and development of information technology in Australia."

Ms Wolf is writing a book on the history of Monash’s IT faculty, the impetus for which was provided by the lunch of the original museum. The book is due to be published early next year.

Just three decades ago, there was only one computer science subject offered at Monash. From these modest beginnings, computer science grew into a fully-fledged academic discipline under the guidance of the late Professor Chris Wallis, foundation chair of computer science at Monash.

"The book is essentially about the history of two institutions—Monash University and Chisholm Institute of Technology—and how what we now call information technology emerged as a new discipline in the higher education environment," Ms Wolf said.

At Chisholm (which merged with Monash in 1990 and became the university’s Caulfield campus), teaching in computing began in the early 1960s with a single short course in electronic data processing. By the mid-1980s, there were several departments dedicated to the area.

"No-one really knows how hard the pioneers fought to have computer science education accepted in Australia. The contribution by Monash is a story of grit and determination in the face of rapidly evolving technology and the struggle for higher education funding," Ms Wolf said.

-- Karen Stichtson

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The Monash Museum of Computing History is located at the Caulfield campus, B Block, level 5, and is open daily.
Breaking down transplant rejection

Life sciences

A Monash University scientist who recently determined the structure of a drug widely used as an immunosuppressant in transplant operations has been awarded the 2004 Science Minister's Prize for Life Scientist of the Year.

Dr Jamie Rossjohn, who heads the University's Protein Crystallography Unit, was presented with the award in September for his work in the area of structural biology, specifically X-ray crystallography.

It was one of five awards presented as part of the Prime Minister's Prizes for Science.

Dr Rossjohn's research has contributed to knowledge in the area of immunology, asthma, multiple sclerosis, bacterial toxins and the performance of anti-cancer drugs.

X-ray crystallography is a technology-driven field of science that seeks to better understand the shape and function of proteins and other biological molecules. It requires X-ray radiation and powerful X-ray sources such as the synchrotron.

Dr Rossjohn has been in a team with Professor Jim McCluskey and his team at the University of Melbourne, used this technique to determine the structure of the immunosuppressant OKT3, used in organ transplants and auto-immune disorders, and how it interacts with its target - an essential component of the T-cell. This work was published in the Proceedings of the National Academy of Sciences.

Chronic rejection of kidney and other solid organ transplants is the major cause of graft failure in transplant recipients. A critical mechanism of rejection is the reaction of host T-cells, which recognise differences in therafted molecules and reject the donor.

As identical donors are rarely available, most transplant recipients receive immunosuppressive drugs to prevent this response.

Dr Rossjohn's findings have identified how the drug interacts with its target, given insights into the functions of a critically important component of the T-cell, and provided insight into how therapeutics can be improved to reduce rejection rates.

— Diane Squares

Award winner: Dr Jamie Rossjohn.