



The team at the top: Premier's Research Fellow Malcolm McCulloch, Associate Director Research Grants Christine Casey, DVC Research Robyn Owens, Nobel Laureate Barry Marshall, Humanities Professor Susan Broomhall and young researcher Andrew Whitehead, representing the different aspects of our success

Top 100 in time for 100th year

By Lindy Brophy

Barry Marshall's Nobel Prize was the final chapter in more than 20 years of research but it marked the beginning of a new story for UWA.

The University's global ranking took a big leap forward with the Nobel Prize and signalled that a place among the world's top universities was a distinct possibility.

Last month, another chapter was written, as UWA entered the internationally-recognised Academic Ranking of World Universities' Top 100.

We jumped 14 places to number 96 and staff are delighted with the synergy of being in the Top 100 in time for UWA's 100th anniversary celebrations.

But like Professor Marshall's research, the work doesn't stop with the celebrations. UWA researchers are working towards being counted in the world's top 50 universities by 2050. According to Deputy Vice-Chancellor (Research) Professor Robyn Owens, we will seek to be ranked by whatever system is used then which also includes teaching and community engagement. It will not be a ranking just by research but as a university as a whole.

The Academic Ranking of World Universities (ARWU) was formerly known as the Shanghai Jiao Tong Index and is the most watched and respected of global rankings of educational institutions. The announcement on 15 August was the 10th annual edition of the rankings. Eight of the top 10 places are occupied by US universities, with Harvard taking number one for the tenth consecutive year, and Stanford number two. The only two non-American universities at the top are Cambridge (five) and Oxford (10).

This is the first time that five Australian universities have been ranked in the Top 100. The others are Melbourne (57), ANU (64), University of Queensland (90) and University of Sydney (93). Results by disciplinary fields are also impressive with UWA leading Australia in the Top 50 list, with our agricultural and life sciences (including biomedical sciences) ranked 26th in the world.

Professor O'Donnell, Dean of Science, said that moving up seven places in the category of Agriculture and Life Sciences

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recognised the sustained efforts of many researchers from across the University to perform at the highest international standards. "I am confident that this significant improvement in our position will provide staff with the impetus to aim higher and in so doing help UWA secure its lead position in this area," he said.

The ARWU has been presenting the world top 500 universities annually since 2003, using objective indicators including Nobel Prizes and Field Medals, numbers of highly-cited researchers, number of articles published in *Nature* and *Science*, number of articles in the Science Citation Index and the Social Science Citation Index, and per capita performance.

The index does not include humanities, as these disciplines are not a driver at Chinese universities and the index was initially established, not as a global

rating service, but as an indicator for China on what made the world's top universities the best and how to learn from them. The data and comparisons used are traceable but complicated.

When UWA decided it would aim for a high global ranking, researchers were encouraged to publish their work in the two most prestigious journals in the fields of science and social science, *Science* and *Nature*. Former Vice-Chancellor, Professor Alan Robson, strongly encouraged international collaboration as a way of improving the University's research output and profile.

"Science publications and our numbers of highly-cited scientists have boosted UWA into the Top 100, but our position reflects equally on researchers in the humanities," Professor Owens said. "There is some cross-disciplinary publishing from humanities academics in science and medical journals, but

mostly they publish in books and book chapters, not in journals, and this index is based on journal publications."

She said being in the Top 100 would have a massive impact on our reputation. "An outstanding international reputation attracts the staff and students from overseas. And foreign universities which use the ranking to distribute scholarships for research and research training will be attracted to UWA."

The Vice-Chancellor Professor Paul Johnson said the outcome was a tribute to the hard work, dedication and commitment of all UWA staff and a credit to the leadership of the University over the past decade.

Chris Evans, Federal Minister for Tertiary Education, congratulated UWA, saying that five Australian institutions in the Top 100 was due, in part, to the record \$37 billion the Government had invested in our universities.

Art from the heart for China partner

A violin, some scrap metal and a lifetime of creativity have evolved into a tangible link between UWA and Nanjing University.

Concordia, a steel sculpture by UWA's talented Len Zuks, has been installed in Nanjing which has double connections with Perth. The Chinese city has a sister city relationship with Perth and the university has a research partnership with UWA.

The Lord Mayor, Lisa Scaffidi, and WA's Chief Scientist, Professor Lyn Beazley, presented the sculpture to Nanjing last month during a program to promote science and education in WA throughout The People's Republic of China. UWA's Eva Chye, principal adviser on international relations for north and south-east Asia, accompanied them.

The 2.4 metre high, 2.5 metre wide zinc-dipped steel creation was made by Len for the Beijing Biennale in 2010. He was the first Australian to be invited to exhibit there and this was his third entry in the international arts festival.

Len says he was inspired by a drawing of a violin on a School of Music brochure and he created *Concordia* to depict femininity and harmony through the violin. "The violin becomes the violinist, an evolving journey reminiscent of life and symbolic of the growing relationship between Perth and Nanjing," he said.



Lyn Beazley and Lisa Scaffidi at the unveiling of *Concordia* in Nanjing

Concordia was the ancient Roman goddess of harmony and peace.

When Len visited Nanjing to arrange the gift to the city, he went to the foundry where another Perth artist, Tony Jones, had his sculpture of Eliza (which sits in Matilda Bay not far from UWA) fabricated.

"They were casting bronze panels for a 60 metre high statue of Buddha," he said. "It was the most amazing project

I've ever seen. The yard was full of cast bronze pieces about three metres square, which were then going to be welded together on site."

Len has recently been invited to another huge biennale in South Korea next month. "I'll be going with a group of Olympic artists. We all exhibited in Beijing during the 2008 Olympics and have been invited as a group to do some wonderful things together."



Medical educators still running

TELL supports practitioners teaching across different health professions, with everybody in the team learning from each other

Fiona Lake and her colleagues started by helping doctors who were run off their feet to fit teaching into their busy lives.

Now, 12 years since *Teaching on the Run* was introduced through the Faculty of Medicine, Dentistry and Health Sciences, it is Winthrop Professor Lake, Head of the School of Medicine and Pharmacology, and her team who are run off *their* feet, providing training for doctors, nurses, midwives, oral health and allied health practitioners and even vets, indeed anyone who teaches and supervises health professionals in the workplace.

These programs are now run all across Australia, along with facilitator training programs to teach health professionals how to deliver *Teaching on the Run (TOTR)* courses. More than 100 facilitators have been accredited.

With the vision of Dr Margaret Potter, a physiotherapist with educational training, the TELL Centre (for Teach Educate Learn and Lead) was developed.

Gone are the days of posting out workshop and pre-reading materials. The on-line centre has educational resources, and provides an administrative structure for running workshops, aiming to develop a community of practice among clinical teachers and workshop facilitators.

But still it's hard for many clinicians to find the time to attend workshops to improve their teaching and supervising skills.

So the team at TELL (Dr Margaret Potter, Anne Winterton, Julie Grundy, Angela Lindley, Christina Moy, Dannielle Phelan and Fiona Lake), are continuously developing teaching resources and combining online with face-to-face teaching, to save time. They have designed *TOTR* courses for different professions in different circumstances and geographic locations.

"Our online community is partly about teaching teachers but also about research and passing on new ideas to lots of people," Professor Lake said.

"People have loved the face-to-face style of the *TOTR* program, but we now have a blended learning program and we've tried to capture and retain what they loved, while giving them online resources that they can refer to when it's convenient."

The first blended courses were delivered through TELL in the eastern states last month.

"In the workshops, we've retained the interactive, sharing and confidence-building components," she said. "For the on-line resources, we made sure it was relevant to the health professionals' workplaces."

"We use stories with people who are easily recognised and face problems just like workshop participants: 'Pauline, who works in a rural area alone and supervises students ...' or 'Paul, a physiotherapist who supervises four students in the clinic ...' We 'hide' the educational theory behind the stories."

Professor Lake said the TELL Centre supported the breaking down of the 'silo' mentality in the workplace, in particular in teaching hospitals, where doctors, nurses, pharmacists and allied health professionals were only taught by people in their own professions.

Through *TOTR*, health professionals discover they have more in common than they think, face similar challenges with teaching and can share solutions.

"In our teaching program at Sir Charles Gairdner Hospital now, we have some attachments with a mix of professionals, with a nurse educator teaching junior doctors, a physician teaching nurses and physiotherapists, and students from several professions learning together."

After a decade of small grants and being paid to run individual courses, TELL has at last secured a two-year contract through HealthWorkforce Australia, to provide introductory and supportive learning programs for clinical supervisors working in the allied health professions around Australia.

Looking to UWA's future



Paul Johnson
Vice-Chancellor

The University of Western Australia can proudly claim a century of outstanding intellectual achievement and distinguished service to communities locally, nationally and internationally.

In looking forward to our second century of achievement, we should aim not just to replicate past success, but also to set new goals which will ensure that the University remains relevant and valued in the changing circumstances of the 21st century.

I am delighted that our University has succeeded in achieving our ambitious goal of being counted among the world's top 100 research universities before we celebrate our centenary next year.

Ours is only one of five universities in Australia to join the ranks of the world's top 100 universities according to the world's foremost indicator, the Shanghai Jiao Tong University's Academic Ranking of World Universities.

And this outstanding result – up 14 places from our rank of 110 last year – is a tribute to the hard work, dedication and commitment of all our staff.

The ranking will give us even more cause to celebrate during 2013. Few universities can boast of being counted among the world's best 100 within 100 years.

We now need to focus on the larger agenda of becoming recognised as a top 50 university by 2050 – a goal that relates not just to our research, but equally to our educational programs and activities and to our broader social and community impact, particularly within Western Australia.

The paper I have released, *UWA Futures*, is intended to promote discussion and debate within the University about what our goals should be, and how we should endeavour to achieve them. We will need to build on past achievements, but also be alert to new opportunities and changing expectations both within and beyond the University community.

The higher education sector in Australia and around the world is likely to look very different in 10 years' time. Regulatory, commercial and technological innovation, changing student expectations and behaviours, increased global interconnectivity in teaching and research, and an increasing emphasis on the relevance of universities to the broader society, will all bring pressure to bear on what we do and how we do it.

The paper represents my personal views on these issues. It is not a policy document, but rather a stepping-stone towards a new medium-term strategy for the University which will be adopted in our centenary year.

I am sure there are many other ways, large and small, in which we can build on our current strengths and position the University for success in the future.

There is a discussion paper on our website at staff.uwa.edu.au/uwa-futures and a discussion forum for your ideas. You can also send comments directly to me by email.

I look forward to hearing your thoughts and ideas during the discussion about our future.

What exactly IS the Higgs boson?

The discovery of a particle had the physics world in a spin recently.

Existence of the Higgs boson (or Higgs particle) had been predicted since 1967, but was not confirmed until July in experiments using the Large Hadron Collider (LHC) at the European Organisation for Nuclear Research (CERN).

If the news story of elated scientists left you wondering what all the excitement was about, UWA's Head of the School of Physics, Winthrop Professor Ian McArthur, will try to explain.

He will give a lecture, *Discovery of the Higgs boson – not the end but a new beginning*, later this month. It is the second in the *Inquiring Minds* series presented by the Institute for Advanced Studies.

The Higgs boson is named after the British theoretical physicist Peter Higgs, who just over 50 years ago, proposed a mechanism by which mass can be given to certain types of elementary particles.

A promising model for the interactions of elementary particles called the *Standard Model of Particle Physics* was developed in the 1960s and 70s, and incorporated the 'Higgs mechanism'. In the intervening years, all aspects of the model have been stringently tested, with the exception of the Higgs boson.

The theory was accepted but the particle was hard to find because, as Professor McArthur explained, nobody knew what amount of energy it would take to create a Higgs boson.

"The significance of this discovery is a little indirect but very profound," Professor McArthur said. "It is one of four similar particles that are among the initial ingredients of the Standard Model (along with others such as quarks, electrons and photons). But three of them are not detectable because they are 'eaten up' to provide mass to some other particles via the Higgs mechanism.

"Finding the fourth one gives us confidence that the Higgs mechanism is a correct description of the origin of the mass of some of the particles in the *Standard Model*."

Like to know more? Book a place for this *Inquiring Minds* lecture in the Social Sciences Lecture Theatre at 6pm on Thursday 13 September. Entry is free but reserve a seat through the Institute for Advanced Studies on 6488 1340 or at ias@uwa.edu.au

Light years of development in half a century

It was almost 50 years to the day since UWA installed its – and the State's – first digital computer.

As some of the staff involved in that bold move prepared to celebrate the anniversary, the University launched its powerful new supercomputer, known as Fornax.

In 1962, when the IBM 1620 was acquired by UWA and set up in the Physics building, nobody dreamed that every person would have a computer on the desk at work, at home and, more amazingly, in the phones they carry around in their pockets.

Half a century on, and Fornax is said to be 10,000 times faster than those IBM computers.

It is the cornerstone of iVEC, the Interactive Virtual Environments Centre, which was formerly known as the WA Supercomputer Program (WASP).

Federal Minister for Science and Research Chris Evans launched Fornax (Latin for furnace), named after a southern hemisphere constellation known as a birthplace for stars. And on the subject of stars, it is big enough to store 2,000 years of iTunes music.

Fornax is part of the Pawsey project, an \$80 million Federal Government Super Science initiative to help bolster Australia's role in building the world's biggest radio telescope – the Square Kilometre Array (SKA) – in WA, and will make Perth one of the world's top supercomputing centres.

The State Government has also contributed significant funding to support iVEC's management of supercomputing infrastructure in WA.

UWA, CSIRO and Curtin, Murdoch and Edith Cowan universities are partners in the iVEC joint venture to provide advanced computing services to scientists, industry and government.

Part of the Federal Government's Super Science Initiative to boost WA's supercomputing resources, Fornax represents a big leap in WA's supercomputing power.

The director of UWA's iVEC Centre, Associate Professor Paul Bourke, said Fornax had been especially designed to give researchers unprecedented access to both highly parallel processing and data-intensive computing.

"These are critical in many areas of research, particularly for astronomy signal processing (including the SKA) and geoscience," Professor Bourke said.



Return to the scene: Dennis Moore (left) at the launch last month with Alex Reid, Andrew Rohl and Terry Woodings

UWA Deputy Vice-Chancellor Research, Professor Robyn Owens said the supercomputer represented an exciting development in science.

"It is science which will extend our knowledge from the beginnings of our universe – and at the same time develop technologies and processes that will be of practical benefit to industry, business and the wider community," Professor Owens said.



Dennis Moore cleans up around our first computer at the DEC headquarters in Boston in 1965. Also from left: UWA's DCV, Charles Birkett-Clews and Dr R Smart (General Manager of DEC)

There were not quite so high hopes for the computer supplied by IBM in September 1962 but it marked the dawn of electronic computing both at the Crawley campus and in the state of WA.

Keith Falloon, a UWA Masters student in 2001, wrote a thesis, *Cyberhistory*, which documented the early days of computing at UWA.

The first officer in charge of the IBM 1620 was Dennis Moore, who had previous experience running the same type of machine at CSIRO in NSW. Dr Moore, aged only 24, was also appointed as Director of the UWA

Computer Centre (UCC). He and a few other academics from the Departments of Engineering and Physics formed the solid core of computer knowledge at UWA. They established the Western Australian Computer Society.

The 1620 and the UCC were the first occupants of the newly-constructed Physics building, and the computer had to be kept in a large, temperature-regulated room (which at the time was the only air conditioned room on campus).

The cost of the IBM was \$88,054. The machine was used by external organisations such as CSIRO and the State Government, along with UWA academics. It was kept running 24 hours a day, seven days a week. Programs were punched through typewriter-like devices on to thin cards that would then be fed into the 1620 card reader.

In 1963 UWA offered its first computing course, a one-year postgraduate diploma in Numerical Analysis and Automatic Computation.

The first computer lab opened at UWA in 1985 in the Civil and Mechanical Engineering building with just 15 computers. At the same time, a major new first year computing unit, Computer Technology 105, was introduced.

The Faculty of Engineering Computing and Mathematics is now home to more than a dozen computer labs with 500 computers available to students around the clock.

On 15 September, the Western Australian Computer Society will celebrate 50 years and will host the Dennis Moore Oration Dinner at the University Club.

Young scientists get the complete package at UWA



Bangrui Chen and Cheng Zhang enjoy a break from research on Matilda Bay

Five students from USTC came to UWA and worked with scientists and postgraduate student mentors in 2010. The number has now increased to 18 and this year included four science students from Nanjing.

The program has increased interest from these universities in UWA for postgraduate positions and collaborative research.

During their stay, the students spent an afternoon with UWA BPhil (Honours) undergraduates, exchanging information about their degrees, sharing career expectations and study abroad experiences, and comparing differences between Australian and Chinese laboratory work. They also went to Rottnest and stayed overnight at the Gingin observatory.

Bangrui worked with Professor Kevin Judd and Assistant Professor Thomas Stemler in the School of Mathematics and Statistics. Cheng and another USTC student worked on two projects with Winthrop Professor Dongke Zhang in the UWA Centre for Energy.

“Our first project *Sustainability in a Jungle*, was very much like a fantasy story,” said Cheng. “Our job was to find the balanced population of each species in the jungle and the sustainability of the jungle ecosystem. Dongke designed it like a children’s story with rabbits, foxes and ‘dongkes’ in the Sherwood Jungle. It made it a lot of fun,” he said.

In their second project, *Agglomeration of two particles with molten ash coating*, the students had to find or build a model for two ash particles colliding with each other. “We had to examine in which conditions the two ash particles would stick together and in which conditions they would go their separate ways after the collision. Insight into the ash agglomeration mechanism can help to burn coal more efficiently,” Cheng said.

Bangrui’s mathematics project was *Stochastic Modelling of Long-term Climate Variability*.

“We investigated simple two-dimensional models of climate variability to explain the climate behaviour over the past five million years. Models should provide at least the qualitative explanation for amplitude variations and time asymmetry in each of the climate periods.”

Six weeks at UWA provided 18 undergraduate students from China with much more than just a research training program.

Food and the differences between China’s and Australia’s eating habits were high on the agenda for most of the students.

“In Australia, most people eat quite a lot at dinner time, at night, but not so much for breakfast or lunch,” said Cheng Zhang, a physics student from the University of Science and Technology, China (USTC). “In China, we eat a lot at every meal. I think we don’t get fat because we don’t eat cheese.”

Bangrui Chen, a mathematics major from Nanjing University, said he was surprised to eat fish without bones. “At home, we always eat whole fish with the bones in but now I love the idea of a fish fillet,” he said.

Both students remarked on the amount of coffee drunk by Australians. “In China,

people mainly drink water. The quality of the tap water is not good, but bottled water is so cheap, say five or six bottles for a dollar. And if people want a hot drink, they drink hot water rather than coffee or even tea,” Cheng said.

Both the students, who are in the final year of their undergraduate degrees, said they wished their English vocabulary included the words for all the foods and sauces they had tried in Perth. “When we go to a restaurant, I just point at what I want,” Bangrui said.

Cheng and Bangrui were part of a group of high achieving science students who took part in the third year of an educational exchange program developed and run by Dr Judy Berman, Principal Adviser, International Research Networks.

She came up with the idea of the internship program while using an Endeavour Executive Award to look at increasing research linkages with China.

Scientists craft a vision for the future

Two days was all it took for 60 of Australia's brightest young scientists to create a blueprint for Australia's future.

Psychologist Petra Buergelt was the only UWA representative at the recent Australian Academy of Science's annual *High Flyers' Think Tank*.

Scientists from across a range of social and natural disciplines from around Australia and our near neighbours gathered in Adelaide to examine the science behind population issues and to consider essential questions to create a vision for Australia. Previous *Think Tanks* have considered stressed ecosystems, the future of Australian resource discovery and utilisation, agricultural productivity and climate change, and preventative health. The *Think Tank* is supported by the Theo Murphy (Australia) Fund.

The answers to the questions *Who will we be? How will we share activities and resources? What will we do? and How shall we live in our habitat?* will help to determine the way future Australians will need to live to address the challenges we are facing and to create well-being. Their ideas produced a to-do list for individuals, governments and institutions to produce a more just, healthier, more sustainable, more creative and productive population and society.

"I was in the *Who will we be?* group," said Dr Buergelt, who is a post-doctoral research fellow with the Bushfire CRC project, looking at ecological predictors of disaster preparedness and creating adaptable, sustainable, resilient communities.

"The first thing we did was to change the question to *Who do we need to be?* to tackle the individual, social and environmental challenges we are facing as Australians. It was a fascinating experience to learn to work so quickly with people we didn't know from different disciplines and to produce policies together in a very short time.

"I firmly believe that, with co-operation, humans can solve everything. Thus, we need to co-operate much more, with the common goal to solve the issues we are facing and to create a society in which all people and nature are thriving rather than competing with each other to ensure individual survival. We need to concentrate on others' wellbeing, not just our own. What we need is to figure out the most effective ways of being and living in the best interests of all of humanity and how to work together effectively to accomplish these goals," she said.

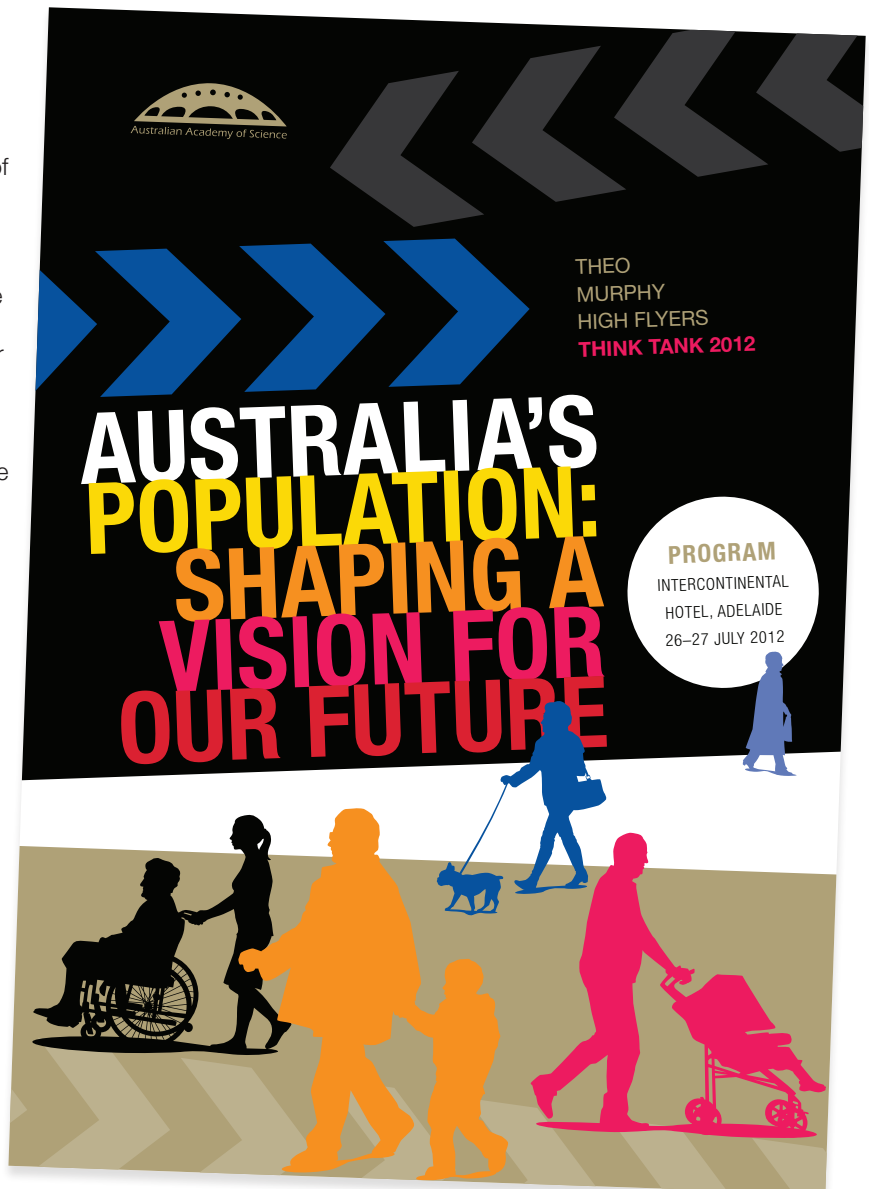
This philosophy applied to the group in which Dr Buergelt worked and the answers they came up with to their question.

"The most fundamental avenues to becoming who we need to be are education and socialisation which are less specialised, compartmentalised, competitive, and focused on providing theoretical information but concentrates on facilitating the development of lateral thinking, social and communication capabilities that will allow us to see and understand the world as a whole, and how different parts are connected, to accept personal responsibility for what we do or don't do, to value and utilise diversity, to dissolve conflicts, and to fully participate in working together with others to create environments that are

environmentally sustainable and conducive to the well-being of all creatures that share this planet. Together, these capabilities will enable us to see and invent creative solutions to address the increasingly complex and rapidly changing issues we are facing as humans," Dr Buergelt said.

"We need to learn to perceive individual, social and environmental issues from ecological and systems perspectives. The different aspects of society – government, researchers and communities – have to work more closely together to identify what is needed, what works and does not work, and then address those needs with a collaborative approach that merges top-down and bottom-up interventions. Collaboration requires governments sharing and delegating power across society. The key challenges of collaboration are for people with diverse personal, cultural, and professional backgrounds to understand each other and communicate effectively and to become part of a bigger group without losing their unique selves."

The participants are now working together to write up their recommendations, which will be summarised in the Oliver report to the Academy and passed on to the Federal Government.



The shark challenge:

keeping staff safe and protecting the species

Safety procedures for UWA divers have been reviewed after the recent spate of fatal shark attacks off WA beaches.

More than 30 researchers frequently dive and snorkel as part of their work and hundreds of students take part in underwater surveys and studies each year.

In late July, following the most recent shark-related death, of a surfer at Wedge Island, the University Diving and Boating Safety Working Group met, with other interested people, to discuss shark-related risks.

Warren Starr, Diving and Boating Safety Officer at the UWA Oceans Institute, said the University would adopt the Department of Fisheries' requirements of not conducting diving activities within 10 nautical miles and 72 hours of a confirmed shark sighting.

"This is not an official Government recommendation, but we think it's a conservative practice to follow," said Starr (his preferred name).

He reported to the University Safety Committee last month that the working group had also mandated the wearing of electronic shark devices unless a site-specific risk assessment was made which determined they were not required.

The electronic devices are worn by individual divers or snorkelers and claim to repel predatory sharks.

"We have always recommended that our people wear them, but now that recommendation is pretty much an onus on the user to prove why they shouldn't wear it," he said.

"While the studies on their effectiveness are inconclusive, there is enough positive evidence for us to require divers to use them," Starr said. "And the general public is keen on them too. They are on back order at most dive shops in Australia."

The University's Safety and Health website has more than 20 documents and forms on its diving and boating safety page, including procedures manuals, planning processes, registration forms for divers and snorkelers and fieldwork check lists. (Refer: safety.uwa.edu.au/topics/off-campus/boating-diving)

Recently added to this site is a link to Surf Life Saving's Twitter feed on recent shark sightings.

"This is the recommended place to go for up-to-date information on shark sightings," Starr said. "The Police, Fisheries and others all feed their information to Surf Life Saving and it goes live to this site."

The link is twitter.com/sls_wa_media

Ryan Kempster, shark expert and PhD scholar at the Oceans Institute said his research has showed that shark shields did not guarantee safety.

"The best way to protect people is through education. People need to be aware of the times of day and conditions under which attacks are most likely to occur," he said.

Ryan has listed information and tips to help people reduce the risks from shark attack. More information can be found on his website, supportoursharks.com





Ten things you need to know about sharks

- Sharks have ruled the oceans for more than 400 million years and play a vital role in the sea's overall health.
- 30 per cent of all shark and ray species are threatened or near threatened with extinction.
- Only three shark species have global trade protections under CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) – Great white shark, basking shark, and whale shark.
- Up to 73 million sharks are killed each year primarily for the global shark fin industry.
- Hong Kong's market accounts for about 50 per cent of the global trade of shark fins.
- Bees, wasps, and snakes each kill more people every year than sharks.
- Sharks do not see in colour but rather respond to contrast.
- Sharks help maintain balance in marine ecosystems. Their decline can lead to the collapse of commercially important fisheries.
- Sharks are extremely vulnerable to overfishing due to slow growth, late maturity and few offspring.
- Eating shark is bad for your health due to the high levels of toxic mercury they contain.

Ten tips to avoid a shark attack

- Swim at beaches that are patrolled by Surf Life Savers.
- Do not swim, dive or surf where dangerous sharks are known to congregate (ie: near seal colonies).
- Always swim, dive or surf with other people.
- Do not swim at dawn, dusk or at night.
- Do not swim, dive or surf in dirty or turbid water.
- Avoid swimming well offshore, near deep channels, at river mouths or along drop-offs to deeper water.
- If schooling fish start to behave erratically or congregate in large numbers, leave the water.
- Do not swim with pets and domestic animals.
- Do not swim near people fishing or spear fishing.
- If a shark is sighted in the area leave the water as quickly and calmly as possible.

(See also Ryan Kempster's column *The Last Word* on the back page of this issue.)



Ryan Kempster talks to high school students about his shark research



Ted Snell, Kerry Smith and Tim Ackland enjoy the exhibition

When the Modern came to Perth

It was a big year for Perth.

In 1962, the people of Perth turned on their lights for astronaut John Glenn who dubbed us the *City of Lights* as he flew over in February.

Just as the rest of world was hearing the name Perth for the first time, we hosted the Commonwealth Games (known then as the Empire Games), which brought thousands of athletes and visitors from all over the world. We were ready for them with sparkling new facilities: Perry Lakes stadium, Beatty Park Aquatic Centre, the athletes' village in City Beach and the newly-opened Narrows Bridge, Perth International Airport and Fremantle Passenger Terminal.

Some people remember that time as the year that Perth lost its innocence, as Eric Edgar Cook was arrested in August after a seven-year crime spree, charged with eight murders and 14 counts of wounding.

But the year is more happily remembered as 'when the Modern came to Perth'.

The Lawrence Wilson Art Gallery celebrates the 50th anniversary of that auspicious year with a fascinating exhibition, *Perth '62: Empire and Universe*. It's a must-see for baby

boomers. As curators of public and academic programs at the Gallery, Baige Zylstra and Yvonne Walker noted, every baby boomer who sees the exhibition has a story to tell.

Winthrop Professor Ted Snell, Director of the Cultural Precinct, escorted boomers Kerry Smith and Winthrop Professor Tim Ackland through the exhibition. As well as being the right age to get the most out of it, they are both involved in sport, working in the School of Sport Science, Exercise and Health.

Kerry was at boarding school at Loreto Convent in Claremont during the Commonwealth Games. "A wealthy patron of the school donated a big old black and white TV and the nuns allowed us to watch the Games," she recalled.

Tim was only four years old but luckier than his colleague as he remembers going to Perry Lakes with his family to watch the athletics live.

Their stories and reminiscences bubbled up as they toured the exhibition, starting with 20 minutes of film footage of Perth, shot in 1961 and distributed around the Commonwealth, urging people to come to Perth the following year.

The sunshine and relaxed lifestyle are portrayed with what now seems like an inordinate number of people smoking

cigarettes. A relative (by marriage) of the Vice-Chancellor, artist Geoffrey Allan, features in the video.

Another Perth artist, Guy Grey-Smith, is also shown, painting outside his stone studio in Darlington. Works by artists who were on their way up in 1962 are part of the exhibition. There are paintings from Robert Juniper, Brian McKay, Tom Gibbons and Guy Grey-Smith and a sculpture by Margaret Priest.

A portrait of Robert Juniper by Wim Boissevain shows a confident handsome young man. Photos taken by Richard Woldendorp of artists and other well-known people capture the social life of Perth. Painted panels depicting native plants, birds and mammals by Howard Taylor are shown decorating the walls of the new Fremantle Passenger Terminal. There is an original cartoon by Paul Rigby from *The West Australian* on 21 February the day after John Glenn flew over. And a sketchbook with drawings by Cedric Baxter is preserved in a glass cabinet, just near his Commonwealth Games poster.

A model of the new Perth City Council building and two oil paintings of the Games by Guy Grey-Smith, *The Hurdlers* and *Before the Race*, complete the show that runs until 6 October.



The collection of medals presented by UWA graduate Dr Mike Galvin to UWA. (Photo: Matt Galligan)

Centenary gift from a graduate

By Trea Wiltshire

With UWA's 2013 Centenary celebrations on the horizon, the University's history is being revisited by authors, archivists and history enthusiasts.

The Centenary History of UWA is being edited by Professor Jenny Gregory with the assistance of Honorary Research Fellow Jean Chetkovich and will be published by UWA Publishing early next year.

UWA Archivist Maria Carvalho is receiving more than the usual number of requests for old photos that chart the University's transition from humble accommodation in Irwin Street to the impressive Hackett Memorial Buildings.

The UWA Historical Society is funding oral history recordings – and is seeking further funding for this ongoing project (see the Society's web page at development.uwa.edu.au/friends/historical-society).

And the Reid Library's Special Collections recently received an early centenary gift from a graduate: a collection of decorations and medals presented to the University's first Professor of Mathematics and Physics, A.D. Ross.

The collection came to UWA from Dr Mike Galvin, a Science and Medicine graduate, who became actively involved in research on the Great War when he retired. He is President of the Military History Society of WA and a member of the Royal WA Historical Society.

"I was lucky to be attending a military antiques auction looking for some old books when the medals came up," Dr Galvin said.



"I remembered studying Physics in the Ross Lecture Theatre and knew that when UWA had recruited Professor Ross it was regarded as a great coup because of his international stature, so I bought the medals as a centenary gift to the University."

The recipient of these medals, Professor Alexander David Ross, studied at the University of Glasgow and the University of Gottingen in Germany. The brilliant young physicist arrived at UWA with a considerable reputation for research on rare earth elements, the properties of alloys and atmospheric physics. The University of Glasgow presented him with the Kelvin gold medal for the best DSc dissertation. This medal has been retained by Professor Ross's daughter Verna Rowbotham who feels it is part of the history of the Scottish university. It was the first Kelvin medal and prize awarded by the University of Glasgow.

The remaining Ross medals have found their way back to the University thanks to Dr Galvin, enriching the University's Special Collections in the Reid Library.

Enlisted as a non-combatant during World War II, Professor Ross involved the University in the war effort, with the Physics Department making, repairing and calibrating optical instruments. The professor's wartime contribution was acknowledged by a Commander of the British Empire (CBE Civil) decoration, along with The War Medal and Australia Service Medal.

The collection also includes a medal from The Royal Society of Arts (1951) as well as commemorative medals.

Everybody Zumba!

Hundreds of hips got going on campus recently to raise money for children's health research.

UWA Sport and Recreation's first Zumbathon attracted more than 130 people, mostly young women, who danced their way through three-and-a-half hours of the South American dance and fitness program to raise money for Telethon.

UWA Zumba instructor Nicole Lemon co-ordinated five other instructors and they took shifts during the marathon class in the Fitness Centre on a Monday evening. Participants came and went during the evening with a core group dancing until the end.

Helen Booth, Group Fitness Co-ordinator, who came up with the idea, said she didn't know how much money they raised, as it was all put into sealed tins which she delivered to Channel 7. "They'll let us know after Telethon, when all the tins are opened and counted," she said.

Zumba, invented in Columbia in the 1990s is the latest fitness craze. Classes combine dance, aerobics, hip hop moves, sambo, salsa and mambo elements, martial arts and belly-dancing, all to vigorous Latin music.

Up to 12 million people attend a Zumba class somewhere in the world every week. At UWA, the Fitness Centre offers three weekly classes: at noon on Tuesday, 7pm on Wednesday and 6pm on Friday.



This result is a safe bet

Safety at work is not just an issue in dangerous situations.

Accidents can happen in a clerical setting, in the University grounds, or in the office kitchen.

So don't let the School of Physics run away with most of the UWA Safety Awards as they did last year. Have your say about the person, the group and the practices that make your workplace safe, no matter where it is, or what activities take place there.

The annual awards celebrate those people who work to keep us out of harm's way every day. There is a group safety award which acknowledges achievements by faculties, schools and affiliated centres. The individual award is for an outstanding contribution by an employee in establishing and maintaining high standards of occupational health and safety.

The safety leadership award encourages recognition of heads, managers and supervisors for their efforts to improve or sustain high safety standards.

And the safety recognition award can be made to groups or individuals. There are no specific criteria but the award recognises a group or individual for a recently completed safety-related project or activity.

The awards will be presented on 18 October, during Safe Work Week Australia.

Nominations for all awards close on Friday 28 September. For more information or help with a nomination, visit the UWA Safety and Health website: safety.uwa.edu.au/news/annual-safety-awards or call Rebecca Joel on 6488 3938.

Scholarships for future engineers



Oil and gas giants Apache Australia are supporting bright students at UWA.

Recently Tim Shanahan Director of UWA's Energy and Minerals Initiative, accompanied some UWA Apache Scholarship holders to a morning tea at Apache's office in Perth. In particular employees of Apache wanted to meet Xin Tan, the inaugural recipient of the Apache Graham Dryden Scholarship.

Graham Dryden was Apache's Director of Operations, widely recognised as an outstanding leader, mentor and confidante to many in Apache and in

the international oil and gas industry. He died in 2011 and the company created a UWA scholarship in his memory.

The scholarship is designed to support and encourage students who have achieved a high level of academic excellence at high school to undertake a Bachelor of Philosophy (Honours) degree course with a major in Engineering Science.

It will pay Xin, a local student, \$10,000 a year for the four years of his undergraduate degree. Apache is also keen to develop a relationship with him.

Scones and science for morning tea



Hannah Moore from Telethon Institute of Child Health Research, one of more than 80 scientists who spent the morning with high school students

Speed dating collided with musical chairs at UWA's annual Science Café in Winthrop Hall.

More than 280 high school students from Perth and the south-west spent the morning with 80 scientists from UWA, and the other three public universities, The WA Institute for Medical Research, the Telethon Institute for Child Health Research, government departments, the WA Museum, Perth Zoo, CSIRO, Kings Park and Botanical Gardens, PathWest, the Chem Centre and Scitech.

Science Café has become a regular feature of National Science Week. Students listen to speakers, then enjoy some one-on-one time with scientists at their tables, at a ratio of one scientist for every four students.

This year, the students were given a list of the scientists attending and were able to choose with which one they would like to spend time, after morning tea. When the scientists stood up and held up signs with their names and specialities, the students had two minutes to find their way to their chosen experts. The ensuing scramble was an entertaining addition to the morning.

WA's Chief Scientist Lyn Beazley was MC for the morning and upheld her reputation as an enthusiastic communicator. Former Australian of the Year Winthrop Professor Fiona Wood was a popular choice as keynote speaker and the students were enthralled with talks on sharks and bullets by PhD students Ryan Kempster and Anna Bradley.

Ryan is a marine neuroecologist or sensory biologist and founder of the shark conservation group *Support Our Sharks*. He told the students his research focused on the electrosensory capabilities of sharks and their relatives, with the ultimate goal of refining and improving electrical repellent devices.

Anna is doing her PhD in the Centre for Forensic Science. "My research is concerned with bullet chemistry, particularly the elements present within bullet lead, and how this may be used to assist the police in forensic cases, for example, establishing the relationship between crime scene bullets and a box of bullets found in the possession of a suspect."

Nearly half the scientists who took part were from UWA.

RESEARCH GRANTS

Grants awarded between 20/07/2012 and 17/08/2012

ARC AUSTRALIAN LAUREATE FELLOWSHIPS

Professor Malcolm McCulloch, Earth and Environment (School of): 'Coral reef futures: a new paradigm for quantifying the resilience of marine calcifiers to ocean acidification and global warming'— (2012-17)

ARC FUTURE FELLOWSHIPS

Dr Joshua Mylne, University of Queensland: 'Genetic evolution of plant proteins with biomedical applications' (2012-16)

Associate Professor John Bamberg, Mathematics and Statistics (School of): 'Finite geometry from an algebraic point of view' (2012-16)

Professor Paul Low, University of Durham: 'From Beaker to Bit: New Platforms for Molecular Electronics' (2012-16)

Professor James Leach, University of Aberdeen: 'The contemporary conditions of knowledge: Emerging transformations in the representation, transmission, and uses of indigenous and artistic knowledge' (2012-16)

Dr Evgeny Buchbinder, Imperial College London: 'Relating string theory and particle physics: model building and strong coupling phenomena' (2012-16)

Dr Ryan Lister, Plant Energy Biology (ARC Centre for): 'Deciphering the regulation and function of the epigenome in eukaryotic development and stress response' (2012-16)

AGILENT TECHNOLOGIES AUSTRALIA

Winthrop Professor Lorenzo Faraone, Professor Gilberto Umana Membreno, Professor Jaroslaw Antoszewski, Electrical, Electronic, and Computer Engineering (School of): 'Investigation of nBn Detector Architectures for Next Generation Infrared Focal Plane Array Imaging Sensors'— \$43,956 (2012)

AUSTRALIAN PRIMARY HEALTH CARE RESEARCH INSTITUTE APHCRI EX ANU EX UNIVERSITY OF ADELAIDE

Professor Linda Slack-Smith, Dr Leonard Crocombe, Dentistry (School of) / Oral Health Centre: 'Centre of Research Excellence in Primary Oral Health Care'— \$704,988 (2012-15)

BHP BILLITON IRON ORE PTY LTD

J Dortch, Dr Emilie Dotte, Social Sciences (School of): 'The Archaeobotany of the Central Pilbara – Phase 1: Wood Reference Collection'— \$62,650 (2012)

BJARNE K DAHL TRUST

Assistant Professor Rachel Standish, Dr Suzanne Prober, Plant Biology (School of): 'Fire as a Tool for Restoration of Degraded Eucalypt Woodlands'— \$13,500 (2012)

CANCER COUNCIL OF WESTERN AUSTRALIA

Dr David Joske, Associate Professor Min Zhang, Dr Reza Ghassemifar, Dr Gavin Cull, Pathology and Laboratory Medicine (School of), Population Health (School of): 'A Pilot Study of the Effect of Green Tea Polyphenols in

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Oral health for baby boomers.

From cracked teeth and old fillings to more serious concerns, oral health issues experienced by people in their middle years require special care to conserve a youthful, natural smile. Dr Chai Lim and his team have a special interest in dentistry for baby boomers.

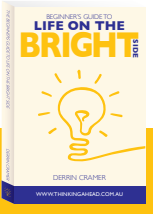
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Untreated Patients with Early Stage Chronic Lymphocytic Leukaemia' — \$90,000 (2012)

COOPERATIVE RESEARCH CENTRE FOR GREENHOUSE GAS TECHNOLOGIES CO2CRC

Professor Jishan Liu, Mechanical and Chemical Engineering (School of): 'CarbonNet Dynamic Seal Capacity' — \$191,868 (2012-13)

DEPARTMENT OF SUSTAINABILITY ENVIRONMENT WATER POPULATION AND COMMUNITIES COMMUNITY HERITAGE PROGRAM

Winthrop Professor Susan Broomhall, Faculty of Arts, Humanities (School of), ARC Centre for the History of Emotions: 'Rivers of Emotion – An Emotional History of the Swan and Canning Rivers' — \$18,182 (2012)

DIABETES AUSTRALIA RESEARCH TRUST (DART)

Associate Professor Matthew Linden, Microscopy, Characterisation Ctr (00012): 'Using Evidence to Guide Treatment of Aspirin Resistance in Diabetes' — \$58,407 (2012)

EDITH COWAN UNIVERSITY EX DEPARTMENT OF INNOVATION INDUSTRY SCIENCE AND RESEARCH DIISR

Winthrop Professor Carolyn Oldham, Associate Professor Marco Ghisalberti, Environmental Systems Engineering (School of): 'Protection of Coastal Ecosystems and Marine Resource Management' — \$48,600 (2012)

GEOGRAPHE CATCHMENT COUNCIL

Dr Neil Coles, Professor Mark Rivers, Ecohydrology (ARWA Centre for): 'Better Fertiliser Management to improve the Health of Coastal Waterways' — \$30,000 (2012)

INTERNATIONAL PLANT NUTRITION INSTITUTE IPNI

Dr Natasha Pauli, Earth and Environment (School of): 'Influence of IPNI Best Management Practices for Oil Palm Plantations on Soil and Leaf Quality Indicators' — \$4,732 (2012)

JUVENILE DIABETES RESEARCH FOUNDATION

Associate Professor Timothy Jones, Child Health Research (UWA Centre for): 'Hypoglycemia Prevention with Predictive Suspension of Insulin Delivery' — \$1,638,726 (2012-15)

MURDOCH UNIVERSITY EX AUSTRALIAN HOUSING AND URBAN RESEARCH INSTITUTE

Winthrop Professor Paul Flatau, UWA Business School: 'Intergenerational Homelessness and use of Supported Accommodation Assistance Program' — \$13,622 (2012)

OCEAN PARK CONSERVATION FOUNDATION HONG KONG

Winthrop Professor Charitha Pattiaratchi, Asha De Vos, Environmental Systems Engineering (School of): 'New insights into blue whales, the Sri Lankan enigma: Linking oceanography and blue whale distribution in an ecological cul-de-sac' — \$13,869 (2012)

RIO TINTO LIMITED

Winthrop Professor Keith Smettem, Dr Neil Coles, Environmental Systems Engineering (School of): 'Development of an Evaluation Tool for Soil Moisture Monitoring' — \$38,000 (2012)

UNIVERSITY OF ADELAIDE EX WATER RESEARCH FOUNDATION USA

Associate Professor Matthew Hipsey, A/Professor Justin Brookes, Earth and Environment (School of), University of Adelaide, Ecohydrology (ARWA Centre for): 'Impact of Climate Change on the Ecology of Algal Blooms' — \$14,430 (2012-13)

WA DEPARTMENT OF AGRICULTURE AND FOOD (DAFWA)

Dr Neil Coles, Rajendra Kurup, Ecohydrology (ARWA Centre for): 'Application of Moringa Olifera Seed Extract as a Coagulation Agent for Water Industry Applications' — \$3,000 (2012)

WA DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Winthrop Professor Eric May, Professor Michael Johns, Mechanical and Chemical Engineering (School of): 'Preventing CH4 Emissions from the Vent Streams of LNG Plants' — \$356,000 (2013-15)


Professor Michael Johns, Winthrop Professor Eric May, Mechanical and Chemical Engineering (School of): 'Low Emissions Energy Development Fund – Demonstration of Enhanced Gas Recovery for Optimised Natural Gas Production and CO₂ Sequestration' — \$493,000 (2013-15)

WA DEPARTMENT OF WATER

Professor Mark Rivers, Dr Neil Coles, Ecohydrology (ARWA Centre for): 'The contribution, forms and

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relationships of P from within drains to the wider agricultural catchment' – \$70,000 (2011-13)

WA ENERGY RESEARCH ALLIANCE WAERA EX CHEVRON

Professor George Koutsantonis, Dr Rebecca Fuller, Chemistry and Biochemistry (School of): 'Fisher Tropsch Nano Catalysts' – \$20,000 (2012)

NEW STAFF

26 July to 21 August 2012

Associate Professor Carolyn Banzon Valdez, Primary, Aboriginal and Rural Health Care

Dr Wayne Davies, Future Fellow, Animal Biology

Research Assistant Professor Robyn Goodwin, UWA Business School

Dr Renjie Gu, Super Science Fellow, Electrical, Electronic and Computer Engineering

Robert Harmer, Research Nurse, Medicine and Pharmacology

David Harrison, Chief Adviser (Corporate and Government Affairs), Vice-Chancellor

Research Assistant Professor Nader Issa, School of Earth and Environment

Research Associate Professor Scott Jeffrey, School of Agricultural and Resource Economics

Dr Nina McCarthy, Research Associate, Centre for Genetic Epidemiology and Biostatistics

Divya Muthiah, Graduate Research Assistant, Medicine and Pharmacology

Richard Norman, Field Officer, Facilities Management – Security and Parking

Anna Skwierczynska, Graduate Research Assistant, School of Chemistry and Biochemistry

Richard Slattery, Deputy Director, Energy and Minerals Institute

CLASSIFIEDS

ACCOMMODATION

Visiting Research Fellow and wife, recently arrived in Perth, urgently require rental accommodation for approx 3 years. Prefer 2-3 bedrooms, 1 or 2 bathrooms (or 1 bathroom, 2 toilets), and reserved parking, in a quiet location, not too far from UWA. Contacts: 0420-414-100 and rwb256@gmail.com and bitbasedow@gmail.com

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Convocation, the UWA Graduates Association

invites all graduates and other members of Convocation to attend the

SECOND Ordinary Meeting

to be held on Friday, 21 September 2012 at 6.30pm for a 7.00pm start in the Lawrence Wilson Art Gallery, UWA

with reports from

the Vice-Chancellor, PROFESSOR PAUL JOHNSON
the Warden of Convocation, ASSOCIATE PROFESSOR DAVID HODGKINSON
and the Guild President, MR MATTHEW MCKENZIE

Guest Speaker:

PROFESSOR PAUL JOHNSON, Vice-Chancellor who will speak on 'The changing role of universities in the 21st century'

RSVP on (08) 6488 3006 or via convocation@uwa.edu.au

Refreshments will follow the meeting

Need a photographer?

Prize nights, book launches, significant visitors and events: most staff want them captured by a photographer.

The University does not have an official photographer, but Public Affairs can provide advice and recommend a range of professional photographers.

Contact UWA Public Affairs for more information: Kate on 6488 7302 or Jeantine on 6488 8000.

NOTICES

Go8 European Fellowships – call for applications

THE GROUP OF EIGHT (GO8) HAS OPENED APPLICATIONS FOR ITS 2013 EUROPEAN FELLOWSHIPS.

The Fellowships are open to early career researchers from Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Russia and Croatia.

Each fellow will receive benefits worth up to \$20,000 to travel to Australia in 2013 and work at a Go8 university for up to six months.

Applications close on 19 October 2012.

Detailed information for applicants is available at go8.edu.au/university-staff/programs-_and_-fellowships-1/go8-european-fellowships

FOR INFORMATION

Martin Grabert, Director, International and Business Relations

Tel: (02) 6239 5488

Well-Versed presents

Poetry from the early 1960s

As part of the Lawrence Wilson Art Gallery's public programs, some of Perth's best theatrical artists from the 1960s and 70s will present a program of poetry that complements the current exhibition, *Perth 62: Empire and the Universe*.

Joan Pope, Faith Clayton, Pat Stroud, Collin O'Brien, David Goodall and others were the lifeblood of theatre at UWA in those days and they are still full of energy and fun.

"We all have very clear memories of the early 60s and what we were up to," said Joan. "The challenge is to make a selection of poetry that we can present in just 45 to 50 minutes."

The free lunchtime event, like the exhibition itself, is a must for baby boomers.

The poetry reading will be in the Gallery at 1pm on Friday 21 September.

On The Go Physiotherapy

ON THE GO HAS BEEN ON THE MOVE!

The practice that has helped to heal the aches and pains of staff and students for 15 years has relocated from the UWA Sport and Recreation Fitness Centre.

It is now part of the UWA Medical Centre, on the second floor of the Guild Village. Physiotherapists John Verity and Gerard Hurst run the practice from 8am to 6pm Monday to Friday.

The phone number is still the same: 6488 2118.

Financial Services Hire Vehicle

Financial Services is trialing a vehicle hire system for staff of The University of Western Australia for work-related journeys. The trial will be running over a period of six months. The purpose is to discover if the University may benefit from having a small central vehicle pool available for hire potentially reducing the numbers of School vehicles. The trial will only contain one vehicle, a 2010 Ford Fiesta. If you wish to hire the vehicle from Financial Services, contact James Morgan on 6488 2827 or look at the vehicle hire web page finserv.uwa.edu.au/forms/fs_vehicle_hire

IN A CAMPUS EMERGENCY

DIAL 2222

Security staff will call the emergency services, direct them to you and come to help you while waiting for their arrival.

UWANews deadlines for 2012

	Deadline (Wednesday)	Publication date (Monday)
14.	September 5	September 17
15.	September 19	October 1
16.	October 3	October 15
17.	October 17	October 29
18.	October 31	November 12
19.	November 14	November 26

Sharks: beware of people

By Ryan Kempster

Imagine a world where every car crash death was printed in the newspapers or every drowning mentioned on the radio or even every bee sting fatality broadcast on the evening news.

We would quickly be so overwhelmed with the sheer volume of reports that soon enough nobody would ever drive, swim or even step out of their house, due to the irrational fear of what might be awaiting them. Yet every day, the inaccurate and unjustified portrayal of sharks in the media fuels our fear that they are lurking off our coasts waiting for their next meal ... us!

The number of shark bite incidents occurring each year is directly related to the amount of time humans spend in the sea. With increasingly more people venturing out into the oceans every year the likelihood of someone encountering a shark increases, with which there is very likely to be a corresponding increase in shark bite incidents. Unfortunately, the vicious reputation of sharks ignited by Hollywood, through movies like *Jaws*, and fuelled by the international media, means that the public rarely oppose the killing of sharks.

However, the tide of fear and vengeance against sharks is changing. In recent years some countries have recognised the importance of sharks, affording them extra protection by establishing sanctuaries. But recent calls for culls in WA and Reunion Island are a sobering reminder that things have not changed enough. The public, especially friends and family of victims, are understandably emotional, but it is at these times there is an even greater need for educated decision-making rather than emotionally-driven retaliatory actions.

During the latter half of the 20th century, shark culling was carried out in Hawaii in an attempt to make the waters safer. From 1959 to 1976, the state of Hawaii culled 4,668 sharks including 554 tiger sharks. No significant decrease in the rate of shark attacks was detected. Yet here we are 40 years later, again attempting a failed strategy. The whole notion of a cull seems to imply some sort of quantitative strategy based on scientific data, which in the case of sharks is certainly not true. It is simply an appeasement tactic, one of emotion rather than real science.

As predators at the pinnacle of the marine food pyramid, sharks play a critical role in ocean ecosystems. They regulate the natural balance of these ecosystems at all levels, and so are an integral part of them. As they usually hunt old, weak or sick prey, they help to keep these populations in good condition, allowing the healthy and strong animals to reproduce and pass on their genes. The effects of removing sharks from our oceans, although complex and rather unpredictable, will be ecologically and economically damaging.

Studies have shown what happens to ocean ecosystems without sharks. Fisheries shut down due to increases in normal prey species which decimate commercial stocks. Coral abundance declines and is replaced by macroalgae. Species diversity declines. Ecological chain reactions are set in motion which cannot be undone. We should fear a world without sharks far more than one with them.



Ryan Kempster
PhD scholar and marine neuroecologist, Oceans Institute

Photo: Channing Egeberg

If we really want to make the public safer, the focus should be on education and research. Public awareness and education about sharks and attacks will stop the hysteria, stop the media sensationalism and turn public opinion from fear to acceptance of sharks as being critical to the health of our oceans and a necessary part of the ecosystem. The way to reduce attacks is not to kill anything that poses a threat to us. It is to educate people on how to minimise their risk, the times of day and conditions under which attacks are most likely to occur, put warnings at beaches that these areas are known to be frequented by 'dangerous' sharks.

There really needs to be some perspective involved as to the calculated risk we take when we enter the ocean, and some real facts as to how small that threat is, especially in comparison to other daily activities which hold a much higher risk to our health and well being. With the correct information, we can make a reasoned judgment as to whether or not we accept the risk to enter the oceans.



UWA NEWS

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