Drug therapy of the future: The patient is injected with a small amount of a drug attached to tiny magnetic particles, which are then guided to the target in the body, then excreted, with no side effects.

This project is the subject of collaborative work between physicists and chemists in the USA and Australia. The catalyst is Dr Linda Harris, who is at UWA on a prestigious fellowship grant from the United States’ National Science Foundation (NSF).

The work of the young American chemist was given a huge boost when she was awarded an International Research Fellowship Grant … to work here at UWA.

The Fellowship Grant, funded by the NSF Directorate of Mathematical and Physical Sciences, was awarded for a proposal submitted by Dr Harris to investigate novel methods of making magnetic nanoparticles in collaboration with Associate Professor Tim St Pierre in the School of Physics at UWA.

Just months after Dr Harris completed her PhD in polymer chemistry at Virginia Tech, she had joined the Schools of Physics and Biomedical and Chemical Sciences, working on a collaborative project with Professor Sue Berners-Price (Chemistry) and Associate Professor Tim St Pierre (Physics).

Dr Harris’ decision to come to UWA was sparked by the collaboration between her PhD advisor, Professor Judy Riffle, at Virginia Tech...
THE BOMBING OF DARWIN DURING THE SECOND WORLD WAR very much brought that great global conflict and many of its horrors and suffering directly into Australia.

Now the terrorist bombers of Kuta in Bali have drawn all of us as Australians into direct involvement with international violence, 21st century style. “Victims of War” declared the Daily Telegraph across a front page devoted to graphic photographic evidence of the terrible event.

“Terror hits home”, headlined The Australian. “It is on our doorstep” said Prime Minister John Howard of this global act of terror.

Most immediately I sense that on campus there is both anger that such a thing could have happened in Bali of all places — for many of us a familiar place of vacations, travel, pleasure — as well as deep grief for all those most immediately affected.

To any of our staff and students, graduates and wider WA community, who are in that sad situation, the University sends you all comfort and all sympathies.

For each of us the news has impacted differently. That weekend I was drafting the AVCC presentation in my speech to the National Press Club. I had to ask myself whether I should go on with the task of delivering a speech about the future of our universities to Australian higher education at this time.

I recalled how Americans learned to carry on after the September 11 tragedy in New York. Don’t let the terrorists shape your lives, seemed to be the message.

I also increasingly came to think that perhaps higher education should indeed be talked about at just such a time in world history and of our interactions as Australians with the wider world of the 21st century. For a start, it occurred to me, in an obvious way, that rarely in recent times has there been a greater need for an educated understanding of international politics – the dynamics of modern international history and a capacity to create inter-cultural understandings.

The work of the humanities and social sciences are surely the great ‘enabling disciplines’ at a time like this. The media, the public debate, the policy makers and analysts are all essentially dependent on knowledge — both historical and contemporary — embedded in the scholarship of humanists and social scientists.

Moreover, universities are by their very nature international. They are about deep knowledge of our social and natural worlds, they are deeply engaged in the dialogue between cultures, and they are about developing the kind of new knowledge that can empower prosperous and compassionate societies.

The very internationalisation of our Australian universities and their campuses over the past decade in particular is a wonderful symbol of cultures living together, benefitting from each other’s traditions, and developing the kinds of networks – professional and personal – which unites rather than divides peoples.

So I decided to speak about universities and the ways in which they represent and also help to create the kinds of practical intercultural understandings which are so critical if this country is not to be marked by conflict and violence between cultures.

What I may not have space to mention is a special UWA episode which occurred for me in Ballarat a few weeks ago when I had been invited to present the AVCC reform agenda to the Ministerial Council of Federal and State Universities of Education.

I was having an early morning jog along the lake in Ballarat when I came across the rowing events of the World Masters’ Games. And there being cheered on was one of our UWA masters teams, with loudest cheers coming from other UWA graduates.

It was a great pleasure to greet our rowers — who were surely surprised to find their VC suddenly appearing! But I have now often thought of that happy international event as a balance of the violence and conflict of the Kuta terrorists.
Catering, animal care and clerical work stations have set high health and safety standards on campus over the past year.

The Guild scooped the pool at the fourth annual Safety Awards, winning both the individual and group awards, with the Animal Care Unit and the Library achieving special mentions for their health and safety procedures.

Announcing the awards, run by the Safety and Health Office and sponsored by the Co-op Bookshop, Deputy Vice-Chancellor, Professor Alan Robson, said that there had been a swing away from the ‘what’s gone wrong … let’s fix it’ attitude to health and safety, towards preventative measures, and this was a credit to the UWA Safety Committee.

“Best practice does not stop at fulfilling legislative requirements. We don’t want simple compliance, we want people to go the extra yard and be pro-active,” he said.

One of the key ideas of the awards is to facilitate sharing of achievements and initiatives in the health and safety areas and Chair of the UWA Safety Committee, Dr Allan McKinley, said this was more important than winning the award.

“We don’t want to see this award system as a competition, rather as a chance to share and learn from each other,” he said.

The Group Safety Award acknowledges best practice approaches and achievements in occupational safety and health management by faculties, schools or sections.

The finalists this year were the Library, the Guild, the Animal Care Unit (Research Services), Office of Facilities Management workshops, and Soil Science and Plant Nutrition.

The Guild won the award for its outstanding overall approach to health and safety, including developing its own risk management policy and systems, achieving FoodSafe accreditation this year, ensuring first aid supplies are fully stocked at all times, training Guild Tavern staff in the responsible service of liquor and patron harm minimisation planning, and safety induction training for all new staff.

The Library was awarded a Special Certificate of Achievement for its attention to ergonomic design of employees’ workstations, the creation of a comprehensive safety and health handbook for all staff, the conclusion this year of a five year program of replacement of old style book trolleys with more ergonomically sound models, and an active occupational safety and health committee with meets every six weeks to identify safety issues and follow them up.

Research Services’ Animal Care Unit also has a Special Certificate of Achievement for ensuring that safety issues are a standing item at all their meetings and are always followed through. The unit has done extensive planning for the new Small Animals Facilities, which will eliminate or reduce safety and health hazards and reduce the risks from the development of laboratory animals allergies.

The individual safety award went to Francois Leuenberger, the Guild’s Operations and Functions Manager. He is the Guild’s Safety and Health representative, has generated safety manuals for all Guild catering outlets and has contributed significantly to the emergence of a safety culture within the Guild.

Others shortlisted for the individual award were Jo Silver (Research Services) and Jack Kirkness (Office of Facilities Management).
Research patterns of the future

and Professor Tim St. Pierre’s biomagnetics group. The collaboration was cemented after a PhD student of Professor St Pierre’s, Joan Connolly, spent part of her postgraduate studies at Virginia Tech.

“We are very lucky to have somebody of Linda’s calibre here at UWA,” Professor St Pierre said. “Her experience with polymers and our speciality in biomagnetics allows for a brilliant interdisciplinary collaboration. And we are maintaining links with Virginia Tech at the same time.”

The current group’s project is involved with making very small magnetic particles for medical applications. They are working on the synthesis of novel magnetic nanoparticles, engineered with polymeric micellar templates, and looking at new experimental models for probing magneto-structural relationships.

Professor St Pierre described it in lay terms: “We are working on making very tiny magnetic particles, to which we can attach things like drugs, so they can be injected into a person’s body and be magnetically guided inside the body to the correct site.”

Dr Harris explained that drug therapy using chemicals which might otherwise be toxic to other parts of the body should be possible with the perfection of the magnetic targeting.

“The particle size and the polymer used for the coating are very important as they need to be able to be excreted by the body, once the drug has been delivered,” she said.

Professor Berners-Price, who will be working with Dr Harris later in her 18-month fellowship on the biological systems involved in the project, said the research was bringing the disciplines of physics and chemistry together in a perfect interdisciplinary collaboration, and one which did not finish with academic involvement.

John Devlin, the manager of technical services in the School of Physics, has been helping Dr Harris to design and build a special piece of equipment – which is now housed in the School of Biomedical and Chemical Sciences.

“John has built a safety mechanism into which I can place an ampoule of a toxic reagent and it can be safely transferred into the high pressure reactor without ever coming into contact with me or anybody else in the laboratory,” Dr Harris said.

She spent several years of her thesis studies learning the fundamentals of formation and solution stabilisation of magnetite nanoparticles designed to disperse in aqueous media for biomedical applications.

Professor St Pierre has been studying the structure and magnetism of nanoscale iron oxides since the mid-eighties, specialising in the area of biomagnetics. His most significant contributions lie in his multidisciplinary approach to research.

A major hurdle to understanding the relationship between structure and magnetic behaviour is the availability of magnetic nanoparticles with well-defined structural features.

“Our collaborative research is allowing the biophysicist and the organic polymer chemist the opportunity of combining their diverse learning perspectives and experiences to address these issues,” Dr Harris said.
The Australian Centre for Geomechanics (ACG) is celebrating 10 years of providing research expertise and training to the Australian mining industry.

Since 1992, the ACG has grown from a two-person team – foundation director Associate Professor Richard Jewell and Christine Neskudla – working in a small office in the Civil Engineering Building, to a team of six staff and three PhD students, currently housed in Rokeby Road, Subiaco. Current director Professor Yves Potvin joined in 1998, his appointment prompted by concern for the number of mining fatalities in WA.

Despite advances in technology, and regulations and procedures aimed at improving safety, open pit and underground mining still carries risks and, as mines in WA progress to deeper levels, the challenges grow. The Centre is committed to working with industry to reduce the hazards, and it recently launched a new initiative to provide a selection of training tools, including videos and CD-ROMs.

“Our focus is to make Australian mines a safer place to work,” says Professor Potvin. “We believe that our activities over the past 10 years, in partnership with regulators and industry leaders, have contributed to the cultural change towards safer mining practices, yielding significant reduction in the industry lost time injuries statistics.”

The ACG’s education programs, attended by over 1,600 mining personnel since 1993, focus in particular on tailings management, rock mechanics, ground support and mining methods as they impact on the dynamics of soils and rocks.

According to Professor Potvin, ACG research programs focus on the practical rather than the fundamental. “This is in response to a mining industry that is demanding solutions to immediate problems threatening their short term sustainability.”

In 1996, the State Government gave the Centre a $500,000 grant, and in 1998 a further $500,000 to enable it to broaden its expertise in rock mechanics and structural geology.

The ACG’s five top research projects are aimed at:
• eliminating rockfall fatalities
• mine seismicity and rockburst risk management
• saline tailings disposal and decommissioning
• integrated monitoring systems for open pit wall deformation, and
• methods of analysing the stability of deep open pit mines.

Industry support is strong, with corporate and technical affiliates assisting in identifying, developing and promoting education programs and research projects. Says Professor Potvin: “The ACG has developed a unique partnership with the mining industry. We are now the largest provider of mining professional development programs in Australia, attracting more than 400 mining staff annually to our courses and seminars.”
Medical research in Western Australia aims to be among the best, and getting the best out of your research sometimes may come down to something much easier and more attainable than just more dollars.

Professor Peter Klinken, who has been involved with WAIMR since its inception in 1998, has taken on the leadership and, over the past six months, he has spearheaded a campaign of strategic relocation, or, more simply, moving people with complementary expertise closer together.

Professor Klinken, who has been involved with WAIMR since its inception in 1998, has taken on the leadership and, over the past six months, he has spearheaded a campaign of strategic relocation, or, more simply, moving people with complementary expertise closer together.

For example the research groups of Professor Klinken (Biochemistry), Associate Professor Peter Leedman (Medicine) and Associate Professor Rod Minchin (Pharmacology), which form the Laboratory for Cancer Medicine, are now in one place instead of being spread across three campuses.

Other research groups are following suit. “It increases collaboration; it provides a critical mass for students; it encourages exchange between the postdoctoral fellows; there is a greater flow of information; and, of course, there is sharing of equipment,”

Cancer Medicine Research leaders (from left): Professor Peter Leedman, Associate Professor Rod Minchin, Professor Peter Klinken
Professor Klinken explained.  “Forget about e-mails, telephones and faxes … just being physically close makes a huge difference. The number of times colleagues discover something while making a cup of coffee is quite amazing!”  

WAIMR is also currently bringing together a powerful new group of molecular geneticists. Associate Professor Nigel Laing from the Centre for Neuromuscular and Neurological Disorders and Dr Mary-Anne Kedda from the Asthma and Allergy Research Institute have been joined by a new Professorial Fellow in molecular genetics, Luba Kalaydjieva. Having moved their research teams into WAIMR laboratories, these groups will be sharing premises, equipment and expertise which will improve their interactions and, ultimately, their research productivity. 

At its launch in March 1998, WAIMR espoused the vision of creating an Institute that would enhance the intellectual environment in WA, and of becoming an international leader in biomedical research that would improve health care in Western Australia.  “If this doesn’t work, health care in this state WILL suffer,” Professor Klinken said. “If you don’t have a viable medical research institute in WA for adult diseases, you will have trouble recruiting the best doctors and researchers to Perth. One of the big pushes four years ago, when we started, was to create a facility that people would want to come back to, to reverse the brain drain.”  

And it’s starting to happen. Dr Joanne Britto came back from Cambridge University to work with Dr Samantha Busfield, who has also just returned after several years in the biotech industry in the US. Associate Professor Karin Eidne joined the institute after many years research at the Medical Research Council laboratories in Edinburgh. Dr Nik Zeps, project manager for the West Australian Research Tissue Network, has moved his operation into WAIMR laboratories. Tissue samples and DNA derived from patients’ biopsies are being stored, so that the material will be available to researchers throughout WA.  

WAIMR has close to 90 staff on two sites who, Peter Klinken says, are reaping the benefits of working collaboratively. The Institute has recently become a listed UWA research centre (The Centre for Medical Research) and its commercialisation processes are handled by the University’s Office of Industry and Innovation(OII).  

“Karin Eidne has a contract with a German instrument maker which went through OII extremely smoothly. Through Andy Sierakowski’s office, my lab has taken out a world-wide patent on the potential uses of a gene as a cancer suppressant. Peter Leedman’s group has also obtained patents with the assistance of the OII. It’s all working really well.”  

Initial funding for WAIMR started with $5m over five years from Wesfarmers Ltd. BankWest and many other corporations, donors and sponsors were also instrumental in establishing the Institute. UWA has committed $10m to this exciting initiative. 

The Institute has recently received a donation of $3.5m for a Chair in Genetic Epidemiology and for an appointment in Cancer Biology. This will add to the $1.2m from the Australian Cancer Research Foundation a couple of years ago, and $3m in seed capital from the National Health and Medical Research Council for an animal testing facility, to which UWA is contributing $15m. 

Earlier this year, WAIMR invested more than $4m in 29 new medical research projects and partnerships. The new postdoctoral fellows, bio-statisticians, bioengineers, research assistants and PhD students appointed through this scheme will contribute to the increasing cohesion between researchers in WA, and foster the careers of outstanding young investigators. Dr Shane Colley, a UWA graduate currently working at the University of Bristol, will be returning under this scheme. 

Peter Klinken is revelling in the upsurge of activity and enthusiasm over the past six months. “I love watching it all develop,” he said.
Some of Western Australia’s most prominent women are supporting the establishment of a trust that will help women take advantage of educational opportunities and that will provide support for those juggling family and other commitments.

Professor Fiona Stanley, Dr Janet Holmes à Court and Justice Christine Wheeler are behind UWA’s newly-established Centenary Trust for Women.

Professor Stanley, founding director of the TVW7 Institute for Child Health Research, who has an international profile for research in the area of maternal and child health, says that the Trust — a University of Western Australia initiative – will offer support for women from all backgrounds.

“We need to ensure that there is adequate support to enable women at all stages of their academic and family lives to have more choices. With the incredible demands on women these days to perform at the highest level and to somehow juggle family, caring for others, being a friend and umpteen other things, we need to provide a variety of opportunities so that women can make the most of their intellect without that meaning that they need to be some sort of superwoman,” Professor Stanley said.

“I firmly believe that women must contribute fully in today’s world to make it a better place. In a world that has such frighteningly powerful weapons of mass destruction, we need to have decisions being made by those who understand family life and how important peace is to the planet. Having a Trust like this one means that we can encourage our women students to participate in a university education and to start on their journey of lifelong fulfilment. I can think of nothing better!”

The Centenary Trust for Women was launched this month and aims to build a $1 million funding base by the year 2011, when UWA marks its centenary. A hard working committee of UWA graduates has been established with Mrs June Jones, a member of UWA’s Senate, serving as both a patron and chair of the Trust committee. Patrons of the Trust are Lady Jean Brodie-Hall, Dr Janet Holmes à Court, Professor Margaret Seares, Professor Fiona Stanley and Justice Christine Wheeler.

“The Trust intends to provide advice and financial assistance to women who may have financial or cultural difficulties, disability or responsibility for the care of children, the ill or the elderly,” says Mrs Jones. “The days of a cost-free tertiary education are over and will not return. Soon it will be very difficult to finance a university education for all and there will be an ever-increasing need for help.

“To lay the foundations for the Trust, the patrons and committee have themselves given a financial commitment, and the Trust’s purpose has already inspired others from UWA and the general community to assist. We have also received generous support from sponsors which means all the proceeds from our inaugural lunch will go directly to the Trust.”
The University has signed a contract for work to start on a new state-of-the-art science building in the middle of campus.

The $60 million Molecular and Chemical Sciences Building will replace the old Chemistry building and bring together the disciplines of chemistry, biochemistry and crystallography.

Teamed with microbiology and physiology, in the new School of Biomedical and Chemical Sciences, the collaboration will provide outstanding opportunities for teaching and research in cutting-edge biomedical areas, greatly enhanced by the new high tech building.

The Dean of Life and Physical Sciences, Professor George Stewart, said that the new building would create an exciting and innovative environment for the future of science.

"The new building will support the vision of UWA which resulted in the restructuring of its Faculties and Schools and the formation of a Faculty of Life and Physical Sciences. The building with its central atrium and linking corridors will promote synergism and collaboration between scientists working in different disciplines and strengthen the integration of its research and teaching in the chemical and life sciences," Professor Stewart said.

"It will be home to our recent appointments, Professor Sue Berners-Price, who is the foundation Professor of Biological Chemistry, Professor David Day, one of Australia’s leading plant molecular biologists, and Associate Professor Matthew Wilce, who heads up the protein structure group. Bringing these and other scientists together in the new building will create a world-class centre for teaching and research in molecular science."

The five-storey building will be recognised across campus by its 21-metre representation of the DNA double helix sculptured into the western wall of the central atrium.

The contract has been won by BGC, and the building is due to be completed in 2004 when it will house 80 staff and form the research and teaching hub of the School of Biomedical and Chemical Sciences.
With clean water becoming a rare phenomenon in countries around the world, finding ways to reduce the effects of pollution in waterways is an increasingly pressing issue.

United States Fulbright scholar Jordan Furnans has come to Australia to do just that. The University of Texas PhD student, only the second US Fulbright scholar to choose UWA, believes that only by gaining greater understanding of the physical, chemical and biological factors affecting water quality in lakes, bays and estuaries, will it be possible to improve water quality and make it suitable for use by humans and animals.

Jordan in is Perth, with his wife Debora, to spend his year-long fellowship at UWA studying the innovative water quality modeling and analysis techniques developed at the Centre for Water Research (CWR).

Why UWA? Because the CWR, under the direction of Professor Jorg Imberger, has an international reputation for its expertise in computer-based modeling of water bodies.

"Although the US continues to study and develop models for water quality, the CWR in Australia remains the world leader in this area," Mr Furnans said.

The purpose of Fulbright Scholarships is to encourage an exchange of ideas and expertise between researchers in different countries. In exchange for the expertise he is gaining here, Jordan is helping the CWR by incorporating their models into a GIS (Geographic Information System) framework, using expertise he gained studying for his Masters’ Degree in Science and Engineering at the University of Texas in Austin. He studied under Dr David Maidment, director of Austin’s Centre for Research in Water Resources, which is recognized around the world for its expertise in GIS modelling.

His aim: “To use the advanced techniques I learn in Australia to address water quality problems in the United States.”

But he is optimistic that the outcome of his work will have much broader benefits, because merging the expertise of the University of Texas and UWA will promote a global exchange of ideas by providing a tool that can be easily accessed by researchers.

On his return to Texas, Jordan intends to use the advanced techniques he has learnt here to develop methods to fight serious pollution problems at Lavaca Bay, where mercury contamination has closed down a once productive fishery and destroyed the livelihood of communities living around the bay.

“Sadly, it is a typical example of pollution in waterbodies in the US and across the world, one that this research project will help eliminate,” he said.

Since June, he has already completed the GIS aspect of his work, and has moved on to a second project on the Perth coast. It involves modeling the ways water moves along coastal margins when it flows into the ocean from inland waterways, and Mr Furnans expects his findings to be applicable to lakes and estuaries.
A taxonomic garden doesn’t sound like the kind of place where little children run and play, where people are married and others get together for a sundowner on a balmy summer evening.

But the School of Plant Biology’s (formerly Botany’s) taxonomic garden plays all those roles, as well as its main role of providing plants for teaching and research.

It’s a beautiful tranquil garden, with a waterfall, resident ducks and shady and sunny spots, ideal for a relaxing lunch or some quiet contemplation.

But, despite being part of the University for more than 30 years, the taxonomic garden has remained a bit of a CAMPUSSecret. It lies between the agriculture buildings and the glasshouses, at the southern end of the campus. A little gate on the southern side lets you in to enjoy what some people describe as a miniature Kings Park.

Senior lecturer in botany, Dr Bill Loneragan, was in at the beginning, when the garden was an area of wasteland and a memo popped up in April 1964 about the possibility of establishing a garden for the then Botany Department.

Until then, plant material for classes was collected from all over the University grounds but this was apparently frowned upon. A former staff member tells a story that on several occasions, the material he needed to collect for the following week’s practical class had been doing well when he checked it earlier but when he went to collect it, it had been pruned by the grounds staff!

After initial discussions about a garden, a committee was set up in October 1965, with four ‘graduate assistants’, Bill Loneragan, Neville Marchant, Graeme Pearson and Jan Goodwin. The first architectural plans came out in January of the following year. It was December 1966 before the Vice-Chancellor finally agreed to set aside $6,500 in the budget for the new garden.

Plants from South Africa and the eastern states are combined with plants native to WA and all of them are labelled. Some of the first plants were donated by John Beard, the then Director of Kings Park.

The garden has been maintained almost as it was designed. It is looked after by Steve Mole, Plant Biology’s horticultural technician.

Sundowners and weddings have been held in the garden and Dr Loneragan says the children from the on-site day care centre are brought there to play. “They call it the secret garden,” he said.

The preferred interpretation of the bean counters, however, is that we have started doing rapid-turnover junk research. This is rubbish.

So, what are the likely consequences of this?

• We will publish even more in American journals, sending them even more of our hard-won grant money and also sending non-American journals down the gurgler;

• Some fields of research will disappear … in my own field, animal reproductive biology, the best journals have an IF of about three, well below the top-flight journals in, say, cellular biology or molecular genetics; thus, assessment of my impact factor means the end of grants for me no matter how good my research; nationwide, this means the end of research in the whole field;

• The funding models will separate our Universities from their commitment to the community. A theoretical example – a research team could publish, say five papers per year for five years in the internationally-respected Australian Journal Agricultural Research (IF about one), describing work that solves the problem of salinity and saves Australian agriculture, yet be rewarded the same amount as the people who produced a single half-pager in Nature (IF about 30);

• Most insidious of all, we will be supporting an overall reduction in funding from Canberra. Consider this: over the past decade, we have seen a more and more overt push from our governments to make our research more relevant and more applicable, to get industry involved, to support the push for solutions to the big issues facing our community.

Reading back over the ARC guidelines and documenting the changes over the past 10 years will provide evidence enough. Yet, the basic fact is that this type of research does not make it into Nature. So, we are forced to go for “relevant” research. Then, remarkably, we have our outputs-based budget reduced because we publish in journals that have been erroneously deemed as low quality. This is a covert funding cut. If I’ve thought of this, so have they.

Conclusion

Impact Factor is a marginally useful but fundamentally flawed method of assessing journal quality, and a totally useless method for assessing the quality, relevance and usefulness of scientists and their projects. We should not let our funding bodies use them to judge grant applications and we should not let universities use them to judge their academic staff. Most importantly, we should not let the Government use them as a sneaky way of reducing our funding.
Impact Factor = Rip-off Factor

By Professor Graeme Martin
Chair, Animal Science
Dean, Faculty of Natural & Agricultural Sciences

We are seeing an increase in the use of “bibliometrics” for judging the value of journals, research projects and scientists. In particular, the “Impact Factor” of publications is being used by reviewers of research grants as a means of judging a researcher’s track record.

This is both incorrect and unjust because Impact Factor is absolutely flawed as a criterion of quality. Worse, we are now being threatened with the use of Impact Factors in our budget models. If we let this happen, our funding will be reduced.

Fundamental problems with Impact Factor as a measure of quality

The Impact Factor of a journal is the ratio of the number of citations made in a given year to the number of papers published in the previous two years. This approach has been analysed in, for example, the Editorial of Nature Neuroscience (1, 641; 1998) and the article by Amoin & Abe (2000; Perspectives in Publishing 1, 1). In brief, Impact Factors have five main flaws:

• they reflect opportunity for citation (the number of papers published in the field), using them as a measure of quality will reward followers in science rather than leaders developing a new field;
• they are much more variable with smaller journals than with large journals, so the apparent quality of a small journal and the people who publish in it, can vary greatly from year to year — this is clearly absurd;
• they are biased towards journals in which multiple-author papers are common (due to self-citation by authors); this can border on fraud — there are tales of editors requesting authors to select supporting references from amongst papers published in the editors’ own journals;
• they actually reflect only a very few articles in a given journal, being heavily biased by controversial papers and by review articles;
• they are biased by papers that are only two to three years old, so take no account of consistent accumulation of citations over long periods.

So how does this affect us?

For most fields of science, Impact Factors favour American journals over others, including our own, simply because there are more scientists and more journals in the USA. This means:

• in the end, few if any journals will be published outside the USA;
• we will send hard-won Australian research money to the USA because American journals can have quite exorbitant page changes, even though they make a profit. Consider an ARC grant of $100k pa: we would spend 85 per cent in salaries and leave $15k pa for operating; hard work might produce 5 journal papers per year that, if published in the US, might cost a total of $5k pa, or a third of the operating budget; I doubt that the US scientific system needs our money so badly: and
• we could almost accept this if the money was going to scientific societies that own some of the high profile journals — at least there would be some chance of a return (eg, student travel grants) — but many of the favoured journals are published by purely commercial organisations that return nothing to the scientific community. Note: Elsevier currently takes about $20 million out of Australian science.

The problem is that Impact Factors were never designed to be used for evaluating the quality of scientists or their research projects. So, why are they being used for this? It is a cop-out by reviewers, referees and, perhaps more importantly, administrators who are distributing funds — it is a brutish, simplistic quantitative tool that allows them to avoid hard decisions in the judgement of quality.

We researchers know this, so more and more first class Australian science is published overseas, especially in the USA.

Wait! There is worse!

There are rumours that Impact Factor will be included in the funding model for our Universities! And, of course, our Universities will have to seriously consider doing the same for their internal funding models.

Is this a real concern?

For several years now, our funding models have included ‘rewards’ for inputs (eg, research income) and outputs (eg, publications). We have adapted to this and now the bean-counters have discovered that the average Impact Factor of university publications is falling. This is hardly a surprise! Clearly, with the attraction of financial rewards, we have published quickly and we have not let those not-quite-so exciting but nevertheless useful data to rot away in the drawer. Not a bad outcome, surely, and arguably the original aim of the scheme.

Continued on page 11
Can you help with this research?

**EATING, DRINKING AND BREATHING ... we all do them. And researchers in the areas of asthma and psychology need volunteers to help them study these basic activities of life.**

Sarah Russell, in Psychology, is looking at visual working memory deficits in long-term problem drinkers. She is seeking volunteers, both male and female, between the ages of 20 and 60 who do not have a history of problem drinking.

Participants will be asked to fill out some short questionnaires and complete a computerised memory task. The experiment will be conducted in the Psychology building on campus and will take about an hour. Time and travelling expenses will be reimbursed, for $10. If you would like to help, contact sarah@psy.uwa.edu.au.

Another investigator in Psychology, Hayley Hutchison, is studying individual differences in diet, weight and body shape concerns.

She is trying to identify why people's concerns about their personal habits and attributes differ and she needs females who are concerned about their diet, weight or body shape.

They will be required to perform two small experiments. The first involves writing a brief passage describing a typical day in your working/studying life. And then completing a word colour naming task.

In the second experiment, participants will be asked to complete some simple arithmetic problems, a second colour naming task and a questionnaire assessing mood, levels of stress and eating attitudes.

The experiments can be done together in one session of no more than 40 minutes and the reimbursement is $5.

Participants are free to withdraw from the research at any time. If you can help, contact hayley@psy.uwa.edu.au.

At the Allergy and Asthma Research Institute, you can take part in an international study looking at a new asthma medication in tablet form.

The researchers say that during the 11-week study asthma sufferers will get a better understanding of their asthma through the close monitoring.

If you have been diagnosed with asthma for longer than one year, have persistent or intermittent symptoms, are between 18 and 45 years of age, have been a non-smoker for at least a year and are taking reliever medication (Salbutamol) or an inhaled steroid, the Institute would like your help.

Taking part would involve 11 weekly visits to the Institute at SCGH. If you can help please call the Asthma and Allergy Research Institute on 9346 3198 or aari@cyllene.uwa.edu.au.

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**Health Department of WA**


**International Researcher Exchange Programme**

**Dr Jishan Liu**, Oil and Gas Engineering, and **Prof Derek Elsworth** and **A/Prof Abraham Grader** (external): ‘Collaborative research on in-situ minerals extraction’ — $26,800 (2002-04).


**Main Roads Department of WA**

**A/Prof Mark Stevenson**, (left) Public Health: Fellowship — Establishment of Main Roads Western Australia Research Fellow.

**Research Grants & Contracts**

**Royal Automobile Club of WA (INC)**

**A/Prof Mark Stevenson**, Public Health: ‘Fellowship — Establishment of the RAC-WA Research Fellow.’

**Foreign Affairs & Trade (ACIAR)**


**Grains R&D Corporation**

**Dr Sarita Bennett**, Plant-based Management of Dryland Salinity and Mr R. Snowball (external): ‘Improving the utilisation of pasture germplasm by the development of a core collection using ecogeographical and molecular techniques’ — $250,612 (2002-04).

**Can you help with this research?**

EATING, DRINKING AND BREATHING ... we all do them. And researchers in the areas of asthma and psychology need volunteers to help them study these basic activities of life.

Sarah Russell, in Psychology, is looking at visual working memory deficits in long-term problem drinkers. She is seeking volunteers, both male and female, between the ages of 20 and 60 who do not have a history of problem drinking.

Participants will be asked to fill out some short questionnaires and complete a computerised memory task. The experiment will be conducted in the Psychology building on campus and will take about an hour. Time and travelling expenses will be reimbursed, for $10. If you would like to help, contact sarah@psy.uwa.edu.au.

Another investigator in Psychology, Hayley Hutchison, is studying individual differences in diet, weight and body shape concerns.

She is trying to identify why people’s concerns about their personal habits and attributes differ and she needs females who are concerned about their diet, weight or body shape.

They will be required to perform two small experiments. The first involves writing a brief passage describing a typical day in your working/studying life. And then completing a word colour naming task.

In the second experiment, participants will be asked to complete some simple arithmetic problems, a second colour naming task and a questionnaire assessing mood, levels of stress and eating attitudes.

The experiments can be done together in one session of no more than 40 minutes and the reimbursement is $5.

Participants are free to withdraw from the research at any time. If you can help, contact hayley@psy.uwa.edu.au.

At the Allergy and Asthma Research Institute, you can take part in an international study looking at a new asthma medication in tablet form.

The researchers say that during the 11-week study asthma sufferers will get a better understanding of their asthma through the close monitoring.

If you have been diagnosed with asthma for longer than one year, have persistent or intermittent symptoms, are between 18 and 45 years of age, have been a non-smoker for at least a year and are taking reliever medication (Salbutamol) or an inhaled steroid, the Institute would like your help.

Taking part would involve 11 weekly visits to the Institute at SCGH. If you can help please call the Asthma and Allergy Research Institute on 9346 3198 or aari@cyllene.uwa.edu.au.

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**Health Department of WA**


**International Researcher Exchange Programme**

**Dr Jishan Liu**, Oil and Gas Engineering, and **Prof Derek Elsworth** and **A/Prof Abraham Grader** (external): ‘Collaborative research on in-situ minerals extraction’ — $26,800 (2002-04).


**Main Roads Department of WA**

**A/Prof Mark Stevenson**, (left) Public Health: Fellowship — Establishment of Main Roads Western Australia Research Fellow.

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**Dr Sarita Bennett**, Plant-based Management of Dryland Salinity and Mr R. Snowball (external): ‘Improving the utilisation of pasture germplasm by the development of a core collection using ecogeographical and molecular techniques’ — $250,612 (2002-04).
Tuesday 22 October
SOIL SCIENCE AND PLANT NUTRITION SEMINAR
'Some effects of land use and management on dissolved organic matter in soil', Dr Andrew Macdonald, IACR-Rothamsted, England. 4pm, Agriculture Lecture Theatre.

POPULATION HEALTH SEMINAR
'Taking a public health approach to clinical psychology: a universal school-based bullying prevention intervention', Yolanda Pintabona, Psychology, Curtin University. 11am, School of Population Health, Hew Roberts Lecture Theatre.

EUROPEAN LANGUAGES AND STUDIES SEMINAR
'Heimat in contemporary German film', Dr Alexandra Ludewig. 1pm, Arts Seminar Room 1.33.

Wednesday 23 October
CHEMISTRY SEMINAR

PERTH MEDIEVAL AND RENAISSANCE GROUP TALK
'Plainchant made plain: or sing along with Guido Arezzo', Janet Kovesi Watt. 7.30pm, Postgraduate Lounge, Hackett Hall. All welcome.

Thursday 24 October
FREE LUNCHTIME CONCERT
The UWA Wind Ensemble presents a programme of popular wind music. Peter Moore, Director. 1.10pm, Octagon Theatre.

GENOMICS SOCIETY AND HUMAN HEALTH: JOHN TooHEY ORATION 2002
'Genomics and democracy: a global challenge', Mr Justice Michael Kirby, High Court of Australia. 8pm, Social Science Lecture Theatre.

Friday 25 October
ASIAN STUDIES SEMINAR
'The power of oral history: coalmining women speak out', Sachiko Sone. 1pm, G.25 Seminar Room, Ground Floor, Social Sciences Building.

MICROBIOLOGY SEMINAR
'Transcriptional regulation of human complement receptor 2 (CR2/CD21): relevance to auto-immune disease', Dr Daniela Ulgiati, Biochemistry. 9am, Seminar Room 1.1, First Floor, L Block, QEIIIMC.

INSTITUTE OF ADVANCED STUDIES
'Plant sciences and agribusiness: new era, new challenges, new solutions', by Dr David Evans, Head of Research and Technology Syngenta AG, Switzerland. 12noon, Law Lecture Theatre (Law courtyard, opposite the Law Library).

Tuesday 29 October
SOIL SCIENCE AND PLANT NUTRITION SEMINAR
'Intensive grazing of alpine rangelands in Iran: the use of landscape function analysis (LFA) to evaluate rangeland capability', Seyyed Ata Rezai, Mineralogy, Soil Science. 4pm, Agriculture Lecture Theatre.

Wednesday 30 October
CHEMISTRY SEMINAR
'Addition to fullerene to form strings, rings, crowns, saturns and bathyspheres', Dave Kepert. 12noon, White Lecture Theatre.

ANATOMY AND HUMAN BIOLOGY SEMINAR
'Reconstructing the musculature and locomotion of T rex', John Hutchinson. 1pm, Room 1.81, Anatomy and Human Biology Building (off Hackett Entrance No. 2).

POPULATION HEALTH SEMINAR
'Do psychosocial factors effect occupational low back pain?', Lorna Rosenwax. 11am, School of Population Health, Hew Roberts Lecture Theatre.

Thursday 31 October
FREE LUNCHTIME CONCERT
'Double Act'. The 2002 Lunctime Concert Series concludes with a recital of two piano works from the late romantic era — Max Reger’s Variations and Fugue on a Theme of Beethoven and the Mozart-Busoni Fantasia in F minor. 1.10pm, Octagon Theatre.

BERNDT BIENNIAL LECTURE 2002
'Spiritual prescription, social reality: reflections on religious dynamism', Professor Robert Tonkinson, Professor of Anthropology. 7pm, Fox Theatre (Arts Building).
Do you have Asthma?

Would you like to take part in an international study looking at a new asthma medication in TABLET form?

During this study you will get a better understanding of your asthma through close monitoring. (11 weekly visits are scheduled).

All reasonable expenses will be reimbursed.

IF YOU ARE:

• Between 18 to 45 years old?
• Have you been diagnosed with asthma longer than 1 year and have persistent or intermittent symptoms?
• Non smoker for at least 1 year?
• If you are taking reliever medication -Salbutamol- or an inhaled steroid?

Please:

- Call the Asthma & Allergy Research Institute at Sir Charles Gairdner Hospital on **9346 3198**
- Send us contact details via e-mail at aari@cyllene.uwa.edu.au and an assessment appointment will be made for you.
**WA HEALTH PROMOTION FOUNDATION**

A/Prof Billie Giles-Corti, Mrs Terri Pikora, Public Health, Dr F. Bull (external), and Mr Mahesh Bulsara, Public Health: ‘Project Grant - What factors influence active-commuting in university staff and students?’ — $61,053 (2003-04).

A/Prof Matthew Knuiman, Mr Michael Rosenberg, Dr Anna Timperio, Public Health, Dr Tony Lower (external) and Mrs Terri Pikora, Public Health: —‘Project Grant - The long-term physical activity patterns of rural school leavers’ — $192,348 (2003-05).

Prof Kevin Durkin and Dr Werner Stritzke, Psychology, A/Prof Stephen Houghton, Graduate School of Education, Dr Valerie Burke and Prof Lawrence Beilin, Medicine: ‘Physical Activity - Media use, physical activity and diet in early adolescence’ — $300,000 (2003-05).

Valerie Burke, Psychology, Stritzke, A/Prof Stephen Houghton, Dr F. Bull (external), and Mrs Terri Pikora, Public Health, ‘The effect of stress/strain and fatigue fracture sites on durability of modular aortic endografts and arterial walls’ — $300,000 (2003-04).

Prof Lawrence Beilin, Mr Michael Rosenberg, Dr Anna Timperio, Public Health: ‘Project Grant - ‘The effect of stress/strain and fatigue fracture sites on durability of modular aortic endografts and arterial walls’ — $300,000 (2003-04).

**WANTED**

SAILING CREW to sail 580 out of South Perth Yacht Club. Competitive sailing on Saturday afternoons for summer season. Experience not necessary but enthusiasm and regular commitment essential. Very friendly skipper. Contact Guy on 9481 1711 (w) or 9364 1181 (h) or Wally on 9535 1017 or 0417 948 449.

WANTED: LIVE-IN HELP. Easy-going medical couple with three, well behaved small children require mature and experienced live-in helper to assist with getting children up, dressed and fed and transporting them to nursery (at UWA) and with collection and bath time in the evenings. Might suit postgraduate student/researcher. Family currently living in Sth Fremantle but moving to Subiaco in approximately 6 months. Self-contained accommodation and use of car. Daytime largely free. Some babysitting required. Rates negotiable. Please contact Martha Hickey: mhickey@obsgyn.uwa.edu.au

WANTED TO RENT

A visiting teaching couple from America (with one child) requires a fully furnished home from mid Jan 2003 to end July 2003. They will be teaching at an independent western suburbs school. Rent negotiable. Please call 9384 9404.

**WANTED**

NEDLANDS/CRAWLEY, 1 bed studio apartment. Modern kitchen & bathroom, robes, air cond., gas cooker, gas hws, security screens, off-street parking. Available 11 October. Unfurnished $130 pw, furnished $150 pw. Contact Chris on ext. 1432 or 0417 963 390 or chrissydav@cyllene.uwa.edu.au.

MT LAWLEY, Four bedroom, two bathroom fully furnished family home available from Feb to Dec 2003. Reasonable rent to good tenant. Would suit visiting academic and family. Phone Barbara on ext 7208.

SOUTH PERTH (Mill Point Road) large unfurnished 3 bedroom unit in complex with lock up garaging, swimming pool, and tennis court. Available late October for 6 to 12 months. $450 pw. Phone Bob on 2563.

EAST VICTORIA PARK furnished 3 bedroom villa at rear of block of 4. Freshly painted, air-con., security grill and alarm system, remote car-port roller-door, reticulation to compliment beautiful lawn area, with paved patio. In quiet location, with train-line and bus routes handy. $200 per week. Email derek.ellerton@uwa.edu.au, or phone 0419 995 0628. For a picture, see: http://130.95.210.2/sys/evp.jpg

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**To let**

**Nedlands/Crawley**

1 bed studio apartment. Modern kitchen & bathroom, robes, air cond., gas cooker, gas hws, security screens, off-street parking. Available 11 October. Unfurnished $130 pw, furnished $150 pw. Contact Chris on ext. 1432 or 0417 963 390 or chrissydav@cyllene.uwa.edu.au.

**Mt Lawley**

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**South Perth** (Mill Point Road) large unfurnished 3 bedroom unit in complex with lock up garaging, swimming pool, and tennis court. Available late October for 6 to 12 months. $450 pw. Phone Bob on 2563.

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**Classifieds**

Classified advertising is free to all university staff.

To place your advertisement please email joanna.thompson@uwa.edu.au

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**Redundant Equipment for Sale**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PRICE</th>
<th>AGE</th>
<th>CONDITION</th>
<th>CONTACT</th>
<th>EXTENSION/EMAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple workgroup server 7250/120, 48MB RAM, 1.0GB Hard drive, 14 inch monitor, CDROM, MAC OS 7.6</td>
<td>$150ono</td>
<td>2</td>
<td>Mark</td>
<td>1405</td>
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</tr>
<tr>
<td>PC Pentium 133Mhz, 64MB RAM, 1.0GB hard drive, 14” Monitor, CDROM, network card, Win98</td>
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<td>Mark</td>
<td>1405</td>
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<tr>
<td>PC Pentium 166Mhz, 64MB RAM, 1.0GB hard drive, 15” Monitor, CDROM, network card, sound card</td>
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<tr>
<td>PC Pentium 233Mhz, 64MB RAM, 3.0GB hard drive, 15” Monitor, CDROM, network Card, sound card</td>
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<td>PC 486 16MB RAM, 540MB Hard Drive, 14” Monitor,</td>
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<tr>
<td>Computer Comedek 450/128/8.6Gb/Rom/Zip</td>
<td>$300</td>
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<td>2</td>
<td>Glenys</td>
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<tr>
<td>2x Apple Power Macintosh 7300/200 with 15” Multi-scan monitor</td>
<td>$400</td>
<td>5</td>
<td>2</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>Apple Power Macintosh 7200/120, with 15” Multi-scan monitor</td>
<td>$300</td>
<td>6</td>
<td>2</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
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<tr>
<td>Apple Power Macintosh 7200/75, with 15” Multi-scan monitor</td>
<td>$250</td>
<td>6</td>
<td>2</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>PC Compatible, P133, for parts</td>
<td>$50</td>
<td>6</td>
<td>3</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>PC Compatible, P100, for parts</td>
<td>$50</td>
<td>6</td>
<td>3</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>Apple Personal Laserwriter 300</td>
<td>$100</td>
<td>7</td>
<td>2</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>Apple Powerbook 190CS</td>
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<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
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<tr>
<td>Apple LW 12/640 PS</td>
<td>$50</td>
<td>6</td>
<td>3</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
</tr>
<tr>
<td>Apple LW 12/640 PS paper duplexer</td>
<td>free</td>
<td>6</td>
<td>3</td>
<td>Derek</td>
<td>041 9950 628 <a href="mailto:derek.ellerton@uwa.edu.au">derek.ellerton@uwa.edu.au</a></td>
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</tbody>
</table>

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**Bids should be accepted by Monday 4 November with departments to have first option**

Departments are reminded that all University equipment available for sale must be advertised in the **UWA News**. Receipts should be PeopleSoft account coded 490 (computing with barcode), 491 (non-computing with barcode) or 493 (items with no barcode). If equipment has an existing barcode please contact extension 3618/2546 for details.

**CONDITION** refers to the general condition of item (1 = as new; 2 = good; 3 = serviceable; 4 = unserviceable). **AGE** refers to the nearest year.