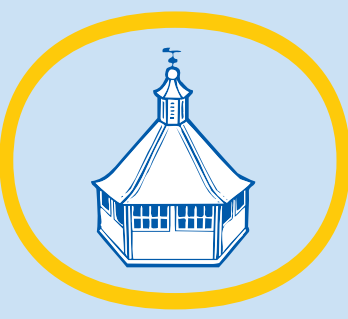


# ROUNDHOUSE



Newsletter of the Veterinary Science Foundation  
at the University of Sydney



Issue 5 November 2001



ROUNDHOUSE IS PROUDLY  
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CONTACT US

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Doctoral research student Fiona Hollinshead with four of the first lambs in the world to be born to ewes inseminated with with sex-sorted frozen-thawed semen



# FACULTY CULTURE CHANGE AND THE FUTURE

Professor Reuben Rose, Dean, Faculty of Veterinary Science

Over the past six months, the Faculty has been reviewing its strategic plan for the next three years, our current three-year plan finishing in December this year. Examining our achievements since 1999, it has been pleasing to see progress in the eight strategic areas identified in our plan: financial viability and Faculty renewal, student selection and retention, teaching and learning, research and postgraduate training, veterinary clinical centres, alumni, professional and community relations and Faculty structure. We have been able to attract external financial support of more than \$2 million, successfully market our degree internationally with a total of eighty international students in the Faculty in 2001, improve our teaching performance, introduce a new curriculum that has been widely applauded by the profession, increase our research performance, re-launch the Veterinary Science Foundation with a full time Director to focus on fundraising and promotion of the Faculty, and introduce a new Faculty structure, eliminating departments and focusing our resources on veterinary education and research.

These achievements have been made in a period when the Faculty has been under extraordinary financial pressure with severe cuts of more than 50% in government funds. Our success points to the capability of our staff and their resilience and adaptability in the face of huge change. We have been helped greatly by the involvement of members of the profession and business community in thinking and planning for the future.

Earlier this year, I asked a number of people to join the first Faculty External Advisory Group to provide strategic advice, ideas and assistance in planning for the future of the veterinary profession. A number of individuals are alumni of the Faculty who have become prominent in the profession, business and the community and the group is Chaired by Dr Garth McGilvary, an alumnus and former President of the Australian Veterinary Association. The other Faculty alumni are Bruce Chick (*Principal of Veterinary Health Research Ltd, Armidale*), John Copland (*Research Program Manager, Australian Centre for International Agricultural Research*), Lindsay Hay (*Senior Partner, Baulkham Hills Veterinary Hospital*), Wendy Lapointe (*née Paul – a veterinarian with extensive experience in large animal practice and animal production*), Ian McCausland (*McCausland and Associates - consultants, and former Managing Director of the Meat Research Corporation*), Bob Menrath (*Executive Chairman of Provet*), Graham Mitchell (*distinguished research scientist, currently involved in promoting commercialisation of science*) and John Rich (*Director and founding shareholder of PT Santosa Agrindo, Indonesia's largest integrated beef company and Australia's largest single live export client*). Additional commercial and financial expertise on the group comes from Elizabeth Bryan who has a successful track record in managing businesses and wide experience in the financial sector and Denis Hussey, former Executive Chairman of ACIL Consulting, a major rural/agricultural consulting firm.

This group provided ideas about key issues to be addressed in our new three-year plan, which will commence in 2002, and we will have a strong focus on improving our teaching, research and our facilities. We also realised we needed to focus on our own Faculty culture. Corporate culture is increasingly being recognised by the business community as being closely related to excellent performance. Kotter and Heskett (1992) in their book *Corporate Culture and Performance* provide powerful evidence that shows a focus on organisational culture is a key to organisational success. Healthy cultures can provide the capacity for organisations to adapt successfully to change. The challenge for our Faculty is to develop the capabilities to meet the enormous and continuing challenges facing higher education - I believe working to create a culture of innovation and adaptability is critical to our long-term success.

Most of the academic and general staff of the Faculty have been involved in planning meetings to create a culture statement for the Faculty and recently attended a three-day retreat at Camden to work on implementing culture change. The key points in our culture statement are as follows:

- A strong sense of common purpose supported by open and honest communication
- Mutual trust and respect between all staff and students regardless of position
- Fairness for all staff and students with recognition and reward for their achievements
- A willingness and capability to adapt to internal and external change
- Pride in the Faculty's heritage and belief in our core values
- Everyone accepting personal responsibility and shared leadership for our future

We have a lot of work to do to implement this culture but we have taken important first steps to create an environment where staff can achieve excellence and we can lead change for the benefit of the veterinary profession.

# WINS FOR COMMUNITY AND STUDENTS

## NEW APPROACH TO SURGICAL TEACHING

Since May 2001, approximately 10 dogs per week have been spayed or neutered by final year students from the Faculty of Veterinary Science under a ground breaking Canine Desexing Program conducted on the University of Sydney Camden Campus.

The result of negotiations undertaken by Professor Brian Farrow with Blacktown City Council and extensive consultation involving the Veterinary Surgeons Board, Australian Veterinary Association, Faculty staff and students, the surgical teaching program has created a win-win situation for veterinary students, unwanted dogs, and the community.

Dr Christina Dart, Senior Registrar at the University Veterinary Centre at Camden and a specialist anaesthetist said "This program provides a wonderful opportunity for the University to give something back to the community. Before the dogs arrive for desexing, many already have a suitable home organised by the staff of Blacktown City Council pound, so they can return to their future owners desexed, vaccinated and wormed by the Faculty of Veterinary Science, and microchipped by the Council".

The program has won excellent reviews from participating students, including those most concerned about animal welfare issues. Students from other Australian Veterinary Faculties, including Murdoch University in Western

Australia, have been closely following the success of the program.

Dr Jo Rainger, a Resident in Anaesthesia at Camden, is another staff member involved in the desexing clinic. With Dr Dart and other members of the surgical team at Camden, she supervises the weekly surgical teaching program. Dr Rainger believes the program is successful because it is "designed to give students exposure to a surgical procedure they will be doing commonly in practice, with opportunities to learn about anaesthesia, analgesia and post-surgical care as well as the surgery itself".

The University of Sydney, in recognition of the importance of the desexing clinic in supporting excellence in veterinary undergraduate surgical teaching, has generously provided \$240,000 to support the program. The Faculty is now seeking on-going sponsorship to enable the program to become a permanent part of the surgical teaching curriculum.

The desexing program was conceived as one solution to the growing concern in the veterinary profession and the wider community about the use of animals in teaching and research while acknowledging the need to produce veterinary graduates with excellent surgical skills. The Faculty responded to these concerns by convening a



Camden campus staff Dr Christina Dart (left) and Dr Jo Rainger supervise the students participating in the canine desexing program.

working party chaired by University Veterinary Clinic specialist surgeon Dr Geraldine Hunt with representatives from the Faculty a veterinary nurse, veterinary students, practitioners, a representative of the Australian Veterinary Association and a member of the Cat Protection Society. The group developed a policy on the use of animals for teaching that recognises and incorporates animal welfare issues.

The program also initiated crucial discussions with the Veterinary Surgeons Board concerning the status of veterinary students under the Veterinary Surgeons Act. The result – students who have completed year 3 are now required, for a small fee, to obtain a permit from the Veterinary Surgeons Board that enables them to undertake a number of procedures under supervision, whether within the University or during their practical work with private practitioners.





# VETERINARY SCIENCE FOUNDATION

The Veterinary Science Foundation of the University of Sydney is the promotional and fundraising arm of the Faculty of Veterinary Science.

Jennie Churchill (above) assumed the role of Director of the Veterinary Science Foundation in March 2001 following the departure of Dr Jill Maddison to the UK. A practitioner for almost twenty years with experience as a media veterinarian and author, Jennie has worked since 1994 in the not-for-profit sector in the fields of communications, marketing and special events, gaining a post graduate marketing degree in 1998. Jennie's most recent role was with the Organising Committee for the Sydney 2000 Paralympic Games.

## ANIMAL MEDICAL CENTRE CAMPAIGN

The core priority for the Foundation over the next twelve months is the raising of \$3 million to support the \$8 million Capital Campaign for the vital redevelopment of the University Veterinary Centre on the Sydney campus.

Already, \$1 million has been pledged for the specialist feline wing in the new Animal Medical Centre through the Valentine Charlton Bequest, managed by the Post Graduate Foundation in Veterinary Science. The remaining \$4 million will be provided by the

University of Sydney as dollar for dollar funding.

The redevelopment of the Sydney University small animal clinic and teaching hospital, built in the 1960s, will enable the Faculty to continue to deliver the highest quality companion animal care, excellence in veterinary education and innovative research.

For further information on the campaign and how you can contribute, please contact Jennie Churchill on (02) 9351 8024.



An American Corn Snake at home with a group of vet students in the reptile house at Taronga Zoo.

## VETERINARY CONSERVATION BIOLOGY JOINS THE CURRICULUM

Ninety percent of 2001 first year veterinary science students nominated the treatment and care of wildlife as a major field of interest. The introduction of a new unit of study into the veterinary science curriculum, Veterinary Conservation Biology, will contribute significantly to this rapidly growing focus by veterinarians on the conservation and management of wildlife.

Led by Associate Professor Tony English, the undergraduate program provides an introduction to the multidisciplinary approach that is now found in the science of conservation biology, and the roles for veterinarians in teams concerned with the conservation of biodiversity. The program includes wildlife health, the conservation of endangered species (captive breeding programs and threat abatement plans), sustainable farming practices and the sustainable utilisation of wildlife. Staff from Taronga Zoo also contribute to this totally new unit of study.

The Faculty is also involved with the School of Biological Sciences in another innovative teaching program – the new Applied Science in Wildlife Health and Population Management – available as a Graduate Certificate, Graduate Diploma or Masters.

The award course teaches students to recognise and solve problems in field

populations and focuses on conservation and pest management, a detailed understanding of Australian wildlife, ethical issues in wildlife studies, the detection and diagnosis of health and other problems in wildlife populations, and skills for sampling field populations and diagnosing management problems.

Three postgraduate students – two of them international veterinarians – have already commenced work on their Masters degree (see platypus project in this issue).

Two staff are taking a leading role in the award courses. Associate Professor Tony English, a Director on the NSW Zoological Parks Board, has extensive international experience in wildlife health and is an expert on the biology and management of deer. The second key staff member is Dr Chris Dickman, Director of the Institute of Wildlife Research at the University of Sydney, he is also internationally recognised for his work on the ecology, conservation and management of terrestrial vertebrates.

The Faculty of Veterinary Science Wildlife Health and Conservation Centre, proposed for the Camden Campus, will be central to the development of veterinary conservation biology at both undergraduate and postgraduate levels.



The Parramatta International Agility Club entertained the Open Day crowd with demonstrations by dogs of many breeds, large and small. Image by specialist pet photographer Sue Town. Contact Sue on 0411 101223, fax (02) 9584 0209, email sue\_town@hotmail.com – visit the website <http://pinnacle.freesevvers.com> to see more dogs in action.



Vet Week, an annual event of the Faculty, expanded to embrace the general public this year with an Open Day on 1 September attended by 3,000 enthusiastic pet lovers. The day featured free dog washes, behind-the-scenes tours of the clinic, free pet health checks by senior veterinary students, and a full day of entertainment and demonstrations in the Ralston Purina ring led by Sydney alumni Dr Harry Cooper and Dr Katrina Warren of Channel Seven's Harry's Practice.

Students from the 2001 Pfizer Leadership Program played a key role in the Vet Week organising committee and the huge Open Day team effort involved almost 200 student and staff volunteers. Two hundred and thirty-three dogs (an audited figure) were washed in six hours, breaking the previous record of 166 dogs to easily make the Guinness World Book of Records.

Julius Sumner Miller Fellow and media celebrity Dr Karl Kruszelnicki launched Vet Week 2001 on 30 August with the Bayer J D Stewart Address presented by Dr Gardener Murray, Chief Veterinary Officer of Australia. The launch showcased Faculty creativity with an exhibition of art works by Faculty artist Bozena Jantulik and students, and music provided by two student string quartets and a jazz band.

Vet Week 2001 was totally underwritten by funds external to the Faculty and the Foundation acknowledges and thanks our sponsors' generosity. The event won a \$7,500 University Sesquicentenary Grant, and fourteen veterinary industry sponsors provided significant support – Bayer, Ralston Purina, Iams, Post Graduate Foundation in Veterinary Science, AVA NSW, CSL, Intervet, Uncle Bens, Jurox, Elanco, Nature Vet, Provect, Pfizer and Guild Insurance. Sponsors participated in the trade fair on Friday 31 August, and seven companies returned to present to the public on the Open Day, joined by the Faculty, WIRES, the Ferret Society, Cat Protection Society and the Greyhound Adoption Program.



Teams of students operated five mobile dog wash units on Open Day to wash more than 230 dogs in 6 hours!



## DARIA LOVE MEMORIAL FUND

Associate Professor Paul Canfield,  
Chairman Daria Love Memorial Fund

Associate Professor Daria Love left an enormous legacy to her students, the veterinary profession and industry.

Associate Professor Daria Love, who died on 9 June 2001 at the age of fifty-four, was a woman renowned for pioneering new ground. She was the first woman at the University of Sydney to be awarded the University Medal and the first to obtain a PhD in Veterinary Science. She was the first woman in Australia to be awarded a Doctor of Veterinary Science and, as Associate Professor in Veterinary Microbiology at the University of Sydney, she devoted her life to the advancement of knowledge and the training of others in the field of infectious diseases.

Daria was a brilliant researcher of international reputation who made ground breaking advances in the areas of soft tissue infections, oral cavity disease and feline and equine respiratory infections. Her work on Equine Herpes Viruses brought her great accolades, and in 2001 she was honoured with a Rural Industries Research and Development Corporation (RIRDC) award for her outstanding contributions to equine research and the Australian Horse Industry.

A passionate veterinary educator, Daria skilfully imparted the principles of good laboratory diagnosis for infectious diseases to more than a generation of undergraduates, and was equally committed to the more than thirty postgraduate microbiological research students she guided through her career.

The Daria Love Memorial Fund has been established, in recognition of Daria's commitment to her students, to provide scholarships and support for both undergraduate and postgraduate Veterinary Science students at the University of Sydney, in particular, for those focusing on veterinary microbiology.

Daria left a legacy to the veterinary profession of courage, commitment and care in research and teaching, a benchmark to which others can aspire. We ask you to join us in keeping Daria's name, memory and mission alive and invite your support through cash donations, pledges and bequests.

Donations should be made to the Daria Love Memorial Fund and forwarded to the Veterinary Science Foundation, Building BO1, University of Sydney, NSW, 2006.

For further information please contact: Associate Professor Paul Canfield on (02) 9351 2020 or [P.Canfield@vetp.usyd.edu.au](mailto:P.Canfield@vetp.usyd.edu.au)





# FACULTY'S KEY ROLE IN DAIRY CRC

The Faculty of Veterinary Science has been invited to play a key role in a new Federal Government initiative, the Cooperative Research Centre (CRC) for Innovative Dairy Products. Through the Centre for Advanced Technologies in Animal Genetics and Reproduction (ReproGen), the Faculty is the lead agency in the gene discovery program of this CRC. Other high profile partners include the Dairy Research and Development Corporation, Bonlac Foods Limited, Genetics Australia Co-operative Limited, Australian Dairy Farmers Federation, CSIRO, Garvan Institute of Medical Research and other universities including Monash, Melbourne and ANU.

Led by Professor Herman Raadsma, Associate Dean for Research and Director of ReproGen, the Faculty's involvement with the Dairy CRC will significantly boost research in the Faculty, generating more than \$1 million per year in research income over the next seven years.

The Centre is expected to result in eleven new positions, including a Chair of Functional Genomics, Post-doctoral and Research Fellows, a Bioinformatician, senior technical officer and technicians. Other members of the Faculty contributing to the Dairy CRC team include Associate Professor Frank Nicholas, Professor Bill Fulkerson, Associate Professor Chris Moran, Dr Paul Sheehy, Associate

Professor Peter Wynn, Dr Imke Tammen and Dr Peter Thomson.

The Australian dairy industry expects its future needs to focus on increasing consumer-driven demands for health-promoting and nutritional dairy products and a continued pressure on both farm and manufacturing productivity.

To underpin the drive towards a highly innovative, progressive and internationally competitive Australian dairy industry, the CRC for Innovative Dairy Products aims to develop and implement new genomic and reproductive technologies and products based on genetic information associated with lactation in the dairy cow. Past estimates have shown that up to 40% of on-farm productivity growth has resulted from genetic improvement in plants and animals, and genomics technology is expected to raise these figures even higher.

The Centre's work will encompass the development of a more diverse range of dairy products, including some with greater health and nutritional attributes, improved efficiency of production, a focus on the genetic make-up of the dairy cow with the identification of cows with specific genotypes for the production of specific products, enhancement of the health and welfare of the dairy cow by increasing resistance to disease (for example, mastitis), and for the Centre's partners, a portfolio of

intellectual property which is globally competitive.

The role of the Faculty of Veterinary Science within the Dairy CRC will include management of the Gene Discovery program, aimed at the initial identification and evaluation of potentially important genes in the dairy cow (for example, genes critical for mammary gland development, lactation, milk composition and production, and response to pathogen challenge). Other work will focus on the use of genetic markers (marker-assisted selection or MAS) to identify cows or bulls of specific genotypes to enhance the performance of valuable traits – for example, resistance to dairy industry-related diseases such as mastitis, or diseases like Johnes Disease that could become non-tariff barriers.

The Commonwealth Cooperative Research Centres Program has the objective of enhancing scientific and technological capabilities and supporting scientific research in higher education institutions, CSIRO and other Commonwealth and State Government and private sector research organisations. The CRCs aim to promote collaborative research and to encourage the commercial applications of science and technology.

CLOSE UP



ASSOC. PROFESSOR, DR. FRANK NICHOLAS

**What is your current position?**

Associate Professor and Sub Dean, Postgraduate Education and Research Training.

**What qualifications do you hold?**

A Certificate of Agriculture from Yanco Agricultural College, Bachelor of Science in Agriculture from the University of Sydney, and a PhD in genetics from the University of Edinburgh.

**How did your career begin?**

I became hooked on genetics as an undergraduate. As soon as it became evident that I could actually earn a living as a teacher and researcher in genetics, my fate was sealed!

**What are your current key projects?**

A major activity is maintaining Online Mendelian Inheritance in Animals (OMIA) – a database of inherited disorders and other traits of animals freely available on the website at [www.angis.org.au/Databases/BIRX/omia/](http://www.angis.org.au/Databases/BIRX/omia/). Keeping this up-to-date is a big task, but it is rewarding to see it being accessed from around the world each week.

Another project is the Heritage Working Party on horses in the Guy Fawkes River National Park, assessing claims that the wild horses in the Park have heritage value. We are collecting all relevant historical information and conducting a genetic study to compare the extent and nature of genetic diversity in these horses with other populations of wild horses around the world.

Also a few months ago we were invited to take responsibility for the functional-genomics section of the Cooperative Research Centre for Innovative Dairy Products. Under the direction of Professor Herman Raadsma, this CRC will provide a big boost to the Faculty's research activities for the next seven years, creating 11 new positions, including a chair of functional genomics.

**What project is giving you the most satisfaction at the moment?**

The establishment, with colleagues Dr Paul McGreevy and Dr Paul Della Torre, of a process for collecting and disseminating information on the incidence of diagnoses of inherited disorders and behavioural problems in dogs. Our aim is to provide free web access to up-to-date information that will help potential purchasers of puppies make informed decisions, enable veterinarians to provide better advice on breed predispositions, and help breeders to identify problem areas and define the success of control programs.

**So, why the fascination with genetics?**

When growing up on my parent's farm in the central west of NSW (Alectown – just a few miles from The Dish!), I became intrigued with the "mysteries" of inheritance. Why do offspring resemble their parents and differ from their parents? We now understand a lot about these "mysteries", but there is still much to be discovered. I derive great enjoyment from explaining these mysteries to people and making a small contribution to discoveries.

**Apart from genetics, what are your other passions?**

Like all biologists, I am intrigued with the rich variety of living organisms. Anyone who wishes to try to understand this variety has to become familiar with the work of Charles Darwin. Many years ago, my wife and I became interested in Darwin's visit to Australia in 1836, and we eventually wrote a book about it – Charles Darwin in Australia – to be reprinted as a paperback next year. And I am involved in a 2003 tour for students and some staff to the Galapagos Islands, being organised by Associate Professor Tony English.

As a diversion, I sing with the Sydney Philharmonia Choirs. We have just finished doing Ravel's Daphnis and Chloe with the Sydney Symphony Orchestra under Charles Dutoit. Hitting the right notes proved to be a real challenge, but the words were easy – nothing but "ah".

**Who inspires you and why?**

My colleagues at this and other universities, because of their continued enthusiasm – in the face of enormous challenges – to maintain the time-honoured role of universities, namely to create and transmit knowledge.

## LEPTOSPIRA IN FREE-LIVING PLATYPUS

Thirty year old Brazilian veterinarian Dr Leonardo Loewenstein is the first student enrolled in the new post graduate Master of Applied Science (Wildlife Health & Population Management). Based at the Faculty's Camden Campus and the University of Sydney property Arthursleigh at Marulan, Leonardo's research is focusing on the prevalence of Leptospira (Leptospira interrogans) in the Platypus (Ornithorhynchus anatinus) and its relationship with cattle and sheep sharing the same river environment.

Previous work done by Whittington & McColly (1981) showed a high prevalence of Leptospira (mainly from the Hardjo serogroup) among free-living platypus, but the confirmation of domestic livestock as a major source of infection is still not certain. Antibodies for Leptospira (Leptospira interrogans) are found in all three animals and water is likely to be one of the major sources of dissemination. Leonardo's project aims to determine the prevalence of the Leptospira organism among a population of wild platypus in the Wollondilly River and to correlate this with the domestic livestock using the same river environment.

The research involves netting platypus using a safe standard procedure developed and used by platypus researchers over the past 20 years. Following the recording of various body measurements and the collection of a 1-2ml blood sample, the monotremes will be microchipped with PIT tags (Passive Integrated Transponders) to enable on-going monitoring before release at the site of capture.

Leonardo's project, which will improve our understanding of the health status of the platypus and its role as a host or recipient of livestock diseases, has attracted a \$1,000 grant from Australian Geographic – a corporation boasting a platypus logo.



Dr Leonardo Loewenstein with a Wollondilly River platypus – carefully handled to avoid the male's spurs.





Dr Mervyn Jacobson of USA-based XY Inc, Associate Professor Chis Maxwell and doctoral research student Fiona Hollinshead with one of the lambs produced using sex-sorted cryopreserved ram sperm.

**In July 2001 twenty-five lambs of a pre-determined sex were born at the University of Sydney property Arthursleigh, near Marulan. The small flock represents the world's first progeny from ewes inseminated with sex-sorted frozen-thawed semen.**

# A WORLD FIRST



Conducted by Associate Professors Chis Maxwell and Gareth Evans with Research Fellow Dr Justine O'Brien, and doctoral research student Fiona Hollinshead, at the University of Sydney's Centre for Advanced Technologies in Animal Genetics and Reproduction (ReproGen), the field trial provided the first demonstration that lambs can be produced from sexed frozen-thawed sperm.

While the production of offspring of the desired sex has been achieved in a few species on a research basis, the commercial application of this sex pre-determination technology requires the freezing and thawing of the sorted sperm without loss of fertility and breeding efficiency. Prior to this trial, successful cryopreservation of sorted sperm has only been achieved in cattle and horses.

The trial began in February 2001, with the insemination of ninety-six ewes with either X or Y frozen-thawed spermatozoa by commercial laparoscopic or mini-laparotomy techniques. A control group of forty-eight ewes received non-sexed sperm. Pregnancy diagnosis on day sixty with ultrasound revealed twelve pregnancies in the X chromosome group and 7 pregnancies in the Y chromosome group. The final result was almost perfect – the Y group produced eight male lambs, and the X group seventeen females and one male. The twenty-six ewes in the control group produced the expected 51% to 49% male to female lambs.

The sex-sorting process involves a number of procedures. The

sperm are sorted by first staining the DNA in the sperm with a fluorescent dye. An ultra violet laser excites the stain and the intensity of fluorescence in each cell is measured. As X chromosomes are larger and so have more DNA than Y chromosomes, the sperm with the X's have a slightly higher intensity of fluorescence than the Y sperm (there's about 4% difference).

The sperm are passed through an optical detector that measures the fluorescence and puts a charge on each cell. Electromagnetic plates then deflect the sperm from one side to the other depending on the charge and they are sorted into a pink or blue test tube (who said researchers don't have a sense of humour!).

The success of this procedure and the subsequent production of lambs using sex-sorted cryopreserved ram sperm is a significant advance towards the commercialisation of this technology and its use within Australia's \$5 billion sheep export industry.

Associate Professor Chis Maxwell said "While development of this technology for commercial application in the sheep industry will require improved pregnancy rates and fertility, the production of pre-sexed offspring at low cost will add a new dimension to sheep production – impacting on wool, lamb, mutton and milk."

Pre-determination of the sex of offspring is not restricted to domestic species. An exciting and challenging alternative application of this research is its potential for conservation and

management of captive endangered species, particularly those with single sex-dominated social structures such as primates and the big cats.

Conservation scientists need females when trying to increase the numbers of a slowly reproducing endangered species and, in conjunction with artificial insemination and sperm preservation, sperm sorting techniques could benefit captive breeding programs through structuring the sex ratio of groups to resemble those in the wild. It is hoped the procedure will also be used to advantage with Australian endangered marsupials, such as the Northern Hairy Nosed Wombat.

The ground breaking research that led to this world first in sheep is a collaborative program between ReproGen (University of Sydney) and XY Inc (Colorado, USA), with additional funding provided through the Australian Research Council (ARC) industry linkage grants.

ReproGen, a research and early commercialisation centre for advanced genetic and reproductive technologies in livestock, is located within the Faculty of Veterinary Science at the University of Sydney. The centre consists of fourteen research staff with specific expertise in artificial reproductive biotechnologies, molecular and quantitative genetics, and advanced cell biotechnologies. Its core mission is to provide new technologies for animal breeding by integrating strengths from the three core disciplines of reproduction, genetics and cell biology.

## MONITORING STRESS IN WESTERN LOWLAND GORILLAS

Getting to know the vets at Taronga Zoo through her involvement in the Faculty's wildlife group inspired Alison Peel to launch into a Bachelor of Science (Veterinary) focused on her passion – the study of wildlife and exotic species. Since February she has spent five days each week in close proximity to the zoo's western lowland gorillas (*Gorilla gorilla gorilla*).

This species has World Conservation Union endangered classification, with just over 100,000 wild animals remaining in lowland rainforest of western Africa and less than 10% within protected national park boundaries. Gorilla populations are threatened by habitat loss from commercial deforestation or agricultural clearing – this facilitates the bushmeat trade, which is rapidly becoming the primary threat to gorilla survival. Other threats include poaching for the pet trade and souvenirs, crop protection and civil war.

Alison aims to develop reliable, non-invasive techniques for monitoring the stress responses of captive western lowland gorillas by analysing salivary and faecal hormones (cortisol) then correlating this with behavioural observations. She hopes the techniques will be applied to assisted breeding and captive management practices.

The Faculty of Veterinary Science is collaborating with Taronga Zoo on a study involving reproductive cycle monitoring of female gorillas and Alison's project was

prompted by interest in potential stress resulting from a positive reinforcement conditioning program which forms part of this project. The minimally or non-invasive collection of saliva and faeces allows repeated sampling of cortisol levels at regular intervals and circumvents the stress that would result from blood collection.

Saliva was collected from the gorillas by training them to lick cotton applicator tips or a gauze swab during conditioning sessions. Faecal samples were collected daily from all adults and urine samples were opportunistically collected from female gorillas for hormone analysis. The gorillas' behaviour during conditioning sessions and while on exhibit was observed, interpreted and compared to baseline data (pre-conditioning program) collected by zoo volunteer staff.

Alison spends about four to five hours each day making formal behavioural observations and collecting samples. She says she could distinguish between the ten gorillas within a week and has since become familiar with their individual personalities.

Alison, who won the Vet Week 2001 research poster prize, returns to her veterinary degree in 2002, but the project will continue with a large reproductive component – she can be contacted on [apeel@animail.net](mailto:apeel@animail.net).

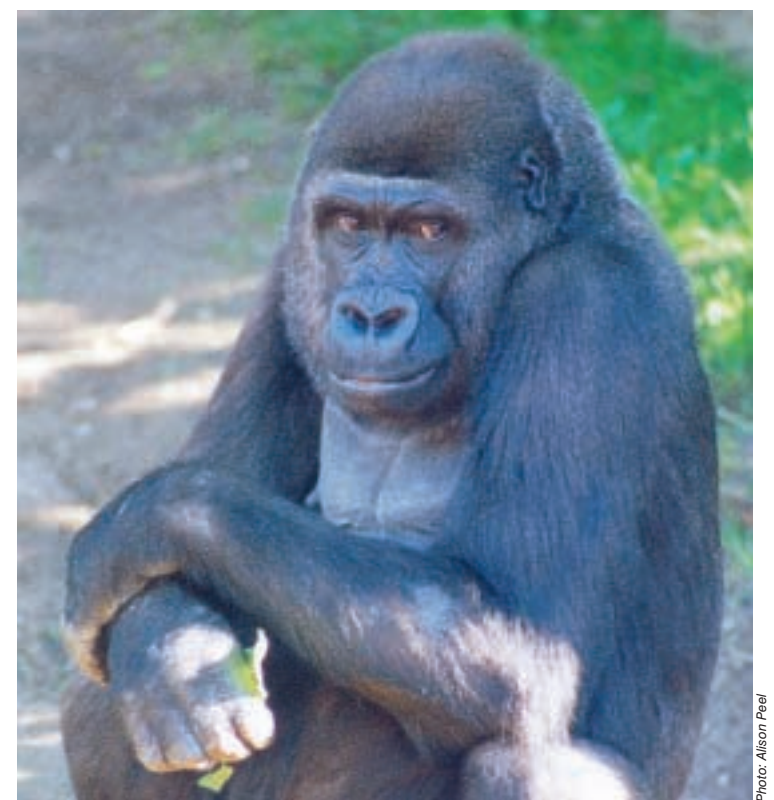


Photo: Alison Peel

With around 100,000 remaining in the wild, the Western Lowland Gorilla is on the World Conservation Union endangered list.



Bachelor of Science (Veterinary) student and primate researcher Alison Peel.



CLOSE UP



STUDENT PROFILE  
ZARA BOLAND

**You already have a civil engineering degree from Dublin, why study to be a vet?**

I always dreamed of becoming a vet and even spent some time at a vet practice in Dublin when I was at school. The experience left me a little disillusioned, with visions of a lifetime of desexing rather than fulfilling my ambition of becoming a wildlife vet. Civil engineering offered me a broad and challenging career path, travel and time outside the office and while I enjoyed it, I soon realised that concrete, steel and the wonders of timber construction were a far cry from improving the life of an animal. So here I am!

**Why study vet science in Australia?**

I came to Australia directly after graduating from engineering on a 1-year temporary working visa. I worked as an engineer and town planner but also undertook volunteer work at Taronga Zoo, a number of veterinary practices and became a native animal carer for the Sydney Metropolitan Wildlife Service. My aim is to become a zoo/wildlife vet - what better place to study wildlife and vet science than in Australia!

**Has it been easy being an international student at the University of Sydney?**

Being an international student, particularly the only Irish student in the Faculty, has been a great experience! Initially though it was a formidable experience from an administrative point of view. I've been able to have some input into changing the system and now the Faculty has a presence in the International Office to smooth the selection procedure.

**How different is the approach to teaching between Dublin & Sydney Universities?**

I find Sydney University a lot more informal and here everyone is on a first name basis. I think this encourages discussion between staff and students. Student feedback is actively encouraged by the staff here in terms of course content and teaching methods, but that may be the influence of the new curriculum.

**Has the curriculum lived up to your expectations?**

Yes, in many respects it has surpassed my expectations, particularly with the new conservation biology course and the integration of some courses. But there are times when I feel that all the self-directed learning could be a little more staff-directed....

**What are you planning to do after graduation?**

I would like to be accepted into a wildlife residency course but as this course progresses I am more open to specialising in other areas.

**Do you believe this course is preparing you for that career plan?**

Yes, in fact this course is causing me to have doubts about my chosen field as it introduces me to areas I had previously not even considered - the opportunities for vets today seem to be ever-expanding.

**What do you do in your spare time?**

What spare time! At the moment I'm doing volunteer work with the vets at Taronga Zoo, I'm the secretary for the University's Wildlife Society, I work as a nutritional advisor for a pet food company and when there's any time left over I'm still trying to master the quintessentially Australian art of surfing.

**Who inspires you and why?**

David Attenborough. When I was about eight and doing a dinosaur project at school, I wrote to him care of BBC asking for advice. Not only did he receive the letter but he took the time to personally write back and answer my questions. I believe he has been instrumental in changing people's wider perceptions of animals and largely responsible for igniting my own passion for their welfare.

UNDERGRADUATE ACTIVITIES

VET BALL 2001

Almost 300 vet students, many having made a remarkable transition from washing dogs at the Open Day, attended the masquerade Vet Ball 2001 on Saturday 1 September at the Harbour Watch Restaurant.



VETERINARY SCIENCE FOR ANIMAL WELFARE

Left: Forensic pathologist and veterinary student Dr Tanya Grassi.

Veterinary Science for Animal Welfare (VSAW) was recently addressed by Dr Tanya Grassi, a former employee of the NSW Institute of Forensic Medicine and currently a second year veterinary science student. Dr Grassi's talk was part of a new VSAW lecture program designed to inform students about a variety of animal welfare issues they will have to make judgements about as graduates.

Veterinarians are playing an increasing role in the investigation of animal cruelty and 'wildlife crime', and as the field of veterinary forensics expands the average veterinarian is more likely to need to recognise signs and patterns of cruelty. Dr Grassi explained how such factors as the time and manner of death are established in human investigations, and how veterinarians may use these investigative techniques in the case of animal cruelty investigations.

In addition to clinical and scientific information, Dr Grassi shared her own insights into coping with death and remaining objective in welfare/cruelty investigations. She emphasised the need to respect the subject(s) at all times.

VSAW President Anne Quain (year two) and Vice-President Michele Lawler (year four) have worked hard to put together a program that genuinely informs students, promotes discussion and debate about animal welfare issues and encourages students to learn from one another. This approach has been welcomed by students: over two hundred attended Dr Grassi's lecture alone.

VSAW will continue to hold a lunchtime lecture series, and the executive is working on establishing two animal welfare project scholarships for students.

Anne Quain, President



SYDNEY UNIVERSITY WILDLIFE SOCIETY

A number of veterinary science students are significantly involved in the new Sydney University Wildlife Society. Society President Anne Martin, a third year vet student, said "while we anticipate membership will be largely drawn from the Faculties of Veterinary Science, Biology and Environmental Science, students from across the University are welcome to join the educational society, with staff eligible for associate membership. The new Society is already confirmed as a student chapter of the Australian Association of Veterinary Conservation Biologists and the Wildlife Disease Association (Australasian Section), and the Royal Zoological Society is considering a similar relationship."

The society will revolve around educational activities and will cover many aspects of ecology, zoology and wildlife health for both native and exotic wild species, with a focus on conservation of biodiversity and habitats. Other veterinary science committee members include Secretary Zara Boland and Treasurer Claire Connolly.

During 2001, the original veterinary science Wildgroup conducted a birdwatching trip to Cattai National Park with the NSW Field Ornithology Club, a whale watching trip to Port Stephens, lectures by Jo Smaller (*Sea Turtle Conservation in Costa Rica*), Dr James Thompson (*African wildlife*), Dr Ross Perry (*Psittacine Beak and Feather Disease*), Andrew Peters (*Australian and British Wildlife*), Beth Wilson (*Keeping and Breeding Phasmids*), Michael Bryden (*Humpback Whale surveys in Antarctica and Eastern Australia*) and Anne Quain (*Crocodile Farming in the Northern Territory*). Planned events include the annual visit to Western Plains Zoo, a guided bushwalk in the Royal National Park, and a bat evening presented by the Ku-Ring-Gai Bat Society Committee.

NEW DIRECTOR FOR THE SYDNEY CLINIC



Associate Professor Max Zuber.

Associate Professor Max Zuber is the new Director and Head of Surgery of the University Veterinary Centre on the Sydney campus.

Max brings broad veterinary and management skills to the role, with a career that has combined thirty years in practice at Gladesville Veterinary Hospital with time spent in academia. A part time lecturer at Sydney the last sixteen years, Max has also worked at the University of Florida.

Max is a Fellow of the Australian College of Veterinary Scientists in small animal surgery and in 1991 he commenced the only veterinary nuclear practice in the Southern Hemisphere. His professional work has been well recognised, including receiving the Seddon Prize for contribution to veterinary clinical science and, twice, the ASAVA Practitioner of the Year Award.



SYDNEY CLINIC EXTENDS HOURS

The Sydney Veterinary Centre has been operating under extended opening hours since August this year - 8am to 8pm Monday to Friday, 9am to 6pm Saturday and 10am to 1pm Sunday.

The new hours are the result of efforts to better promote the services of the clinic and to provide a varied case load for teaching purposes. Clinics General Manager Erik Kulakauskas believes the strategy is already working.

"Combined with the promotion through our Open Day in September, the longer hours are already drawing a measurable increase in the number of primary accession cases - our day to day consultations. This is good news for our students who want to experience a wide range of learning opportunities during their time in the clinic".

There are now plans to provide an even more comprehensive service for clients and their animals with a 24 hour emergency service to be implemented in 2002.



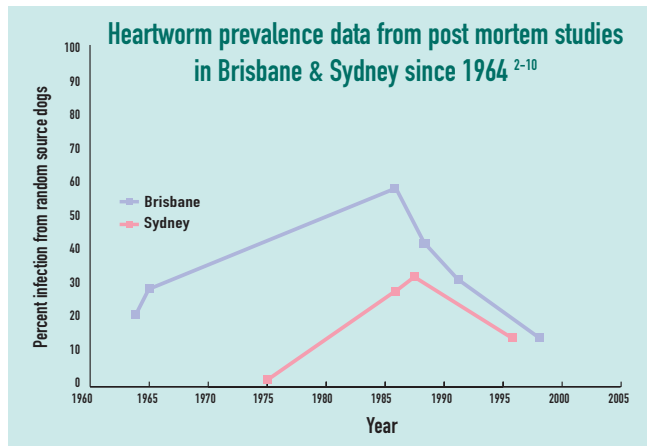


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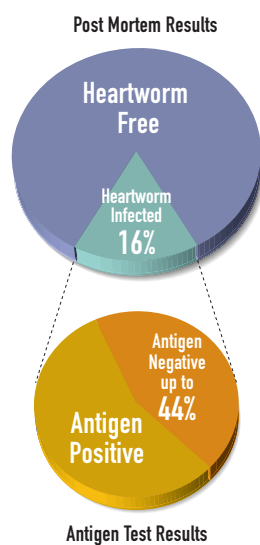
### The changing face of heartworm disease in Australia

The distribution and prevalence of heartworm disease in Australia is changing. In the last 40 years the disease has spread south from its original tropical distribution to include all states of mainland Australia<sup>1</sup>. The prevalence dramatically increased in the 1980s, then slowly reduced due to the widespread use of monthly prophylaxis.



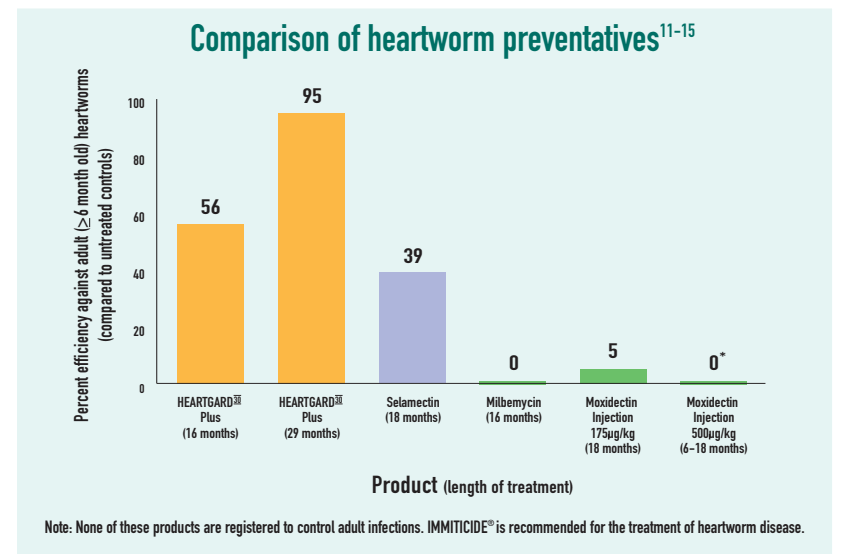
Current antigen tests provide the most sensitive means of testing dogs and are highly specific. However, undetected infections are becoming more common due to a reduction in worm numbers. For example, in Brisbane<sup>6</sup> a recent survey of pound dogs found that 16 of 100 were infected at autopsy, but 75% of these infections were not detected by a microfilarial test and up to 44% were not detected by antigen tests. Management of these cases creates a dilemma.

### Results of post mortem and antigen tests for heartworm (Brisbane, 1999)<sup>6</sup>



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\*Two of 212 dogs treated subcutaneously with moxidectin (500mcg/kg) in an uncontrolled study were subsequently determined to have had undetected heartworm infections at the time of treatment. The dogs remained infected for between 6 and 18 months following treatment<sup>15</sup>.

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## DIVERSITY IN THE VETERINARY PROFESSION

This speech was given by Elizabeth Bryan (left) to the Veterinary Science Education Forum held in September by the Veterinary Faculty. Elizabeth Bryan was the first female CEO of a major financial institution in Australia and has wide management experience in finance, government and management consulting. She is now a professional company director.



I have been asked to start this discussion by providing an insight into the social perspectives influencing the professions as more women join them.

Women are now entering the professions in Australia in large numbers. Universities have been graduating over 50% women in many professions. Last year women accounted for 59% of the University of Sydney's graduates.

The trends in the gender mix in Veterinary Science have been very clearly documented by Emeritus Professor Trevor Heath.<sup>1</sup>

Professor Heath has shown that over the last 20 years the proportion of women on the rolls of registered veterinarians has increased from 15% to 39%. He has also shown that of the average annual net increase of 159 registered veterinarians over the last 20 years, 63% of these veterinarians have been women.

Professor Heath has some interesting findings about how this increase in the proportion of women veterinarians is affecting the profession. But before turning to that I would like to talk about the broader social question of work patterns.

We have sought to explain women's employment patterns in terms of small deviations from men's patterns, or as sex discrimination. That is, on what they are expected to do, and what they are prevented from doing, but never on what they want to do.

However, recent work at the London School of Economics by Catherine Harkim<sup>2</sup> throws some real light on the work patterns we can expect in modern societies where the majority of women

have genuine choice about their participation in the market economy.

This research shows that in modern societies, across cultures, across socio-economic categories and across education levels, women fall into one of three very different employment and work patterns.

Catherine Harkim's classifications of women's work patterns will sound familiar.

- The category she calls Home-centred, makes up 20% of women, and this can vary from 10 to 30% of women depending on broad economic and social circumstances. For these women, family life and children are the main priorities throughout life.
- The second category she calls Adaptive. This makes up 60% of women and can vary from 40 to 80%. This is a diverse group of women who want to combine work and family
- The third category she calls "Work-centred", and they make up only 20% of women and can vary from 10 to 30% of women. Their main priority in life is employment or activities in the public arena such as sport, politics, art etc.

We know broadly how these work styles have evolved. Much of the feminist literature has focused on the unequal workloads borne by women in the home, the ways gender roles shape, or limit, the careers of women, and the value women place on relationships rather than status.

These patterns have very significant implications for professions that have built up their operating structures on male work

patterns. Structures that have been put in place to meet the needs of a full time worker, who is the primary bread winner for his family, who is work-centred, and motivated by success, success that is measured by peer approval, social status, wealth, power or fame.

The challenge for the veterinary profession is to understand and accept these working patterns of women. And once they are understood, to recognize new training needs, and to set about remodeling professional opportunities and practices to incorporate them.

Professor Heath's research supports patterns that we might expect on the basis of Catherine Harkim's theory. He says that the number of females now entering mixed rural practice is about three times that of males, but on average they are:

- less interested in full time work over the longer term — 73% of males and only 48% of females were working full time after 10 years
- less prepared to be on call after hours, and
- less interested in managerial or ownership responsibilities — women make up 39% of the profession but only 14% of the owners and partners.

What, then, is this change in gender proportions going to mean for the veterinary profession? What is likely to happen if we continue the bias of training towards women, and women continue to prefer part time work and therefore do not participate in the ownership and management of the profession?

(continued page 8)



DIVERSITY IN THE VETERINARY PROFESSION

(continued from page 7)

Well first of all, the profession will continue to be managed by men. This is not in itself bad, and it is something that we are all very used to. But we are used to men in management positions that arise fundamentally from their numerical domination of professions.

How do women feel about men running a profession that is made up largely of women?

There is a body of relevant literature under the language of "feminisation of work places". And the professions most often cited are nursing, teaching and librarianship. The complaints of women in these professions are low pay, the devaluation of women's work and second-class status. The concerns of these professions as a whole are low status, power and influence in the society, and devaluation of their services. So the lower status ultimately pervades the profession.

Are the lessons of these so-called "feminised industries" worth looking at in the modern context? Most certainly they are. They raise many important questions.

For example, are the characteristics of "feminised industries" as we have understood them likely to happen to a professional group today, given the rights that women now have in modern wealthy societies?

If women's work patterns stay as they are in veterinary science, what is it likely to mean for the returns on training in the profession? What are the numbers on the wastage factor from graduates not pursuing their profession? What are the costs of

maintaining technical skill levels in part time workers as opposed to full time workers?

So where do you begin then, in a fundamentally female friendly profession like veterinary science, to make full use of the talents of your female graduates?

Let me put forward some thoughts.

- Continue to manage the profession in ways that allow women to combine work with their family responsibilities. Most female graduates will find this very important, and to do otherwise will drive many of them out of the labor force.
- A much better understanding is needed about women's work-life style choices by all our professional bodies, by our universities and by our policy makers. This knowledge needs to be built up from the point of view of finding out how to use these work patterns as strengths in the professions.
- Change the way "part time" work is viewed. It does not necessarily denote some activity that is lesser to "full time" work. Understand the needs of the "Adaptive" female worker who can be attracted to spend the middle years of her career as a "portfolio worker". Paid work, child rearing and household management is a portfolio of activities.
- Portfolio workers will need new initiatives put in place to ensure they have avenues for the training and experience needed to take industry leadership roles.
- Portfolio workers will need opportunities to invest in the

ownership of the practices they work in. There are a wide variety of ownership structures that allow for part ownership and many methods of facilitating employee ownership.

- Women will need to drive these changes themselves. It is in their interests to bring about changes that suit their preferred work patterns and that do not exclude them from positions of power and influence. To do this women in the profession have to want it to happen, have to put time and energy into it and have to be prepared to take control.
- Male veterinarians, who have devoted their professional lives to establishing a skilled, active and influential profession, that works on behalf of their trusting clients, must now embrace the changes that are taking place in their profession and help ensure that the skills and compassion that women bring to veterinary science can be effectively used.

The social change to bring women into the labour force has been made, the training has been done, it is now up to professions to find the ways to use the diversity that is on offer. It will be much less disruptive to change our working patterns than to change social and family roles.

1. Emeritus Professor Trevor Heath, "Changes in the Distribution of Australian Veterinarians, with particular reference to those in Rural Areas and in Government Service, over the last 20 years". A Report to the Board of the Australian Veterinary Association, August 2001

2. Catherine Harkim, "Work-Lifestyle Choices in the 21st Century" Oxford University Press 2000.

FACULTY STAFF NEWS

Dr Michelle Hyde has been selected as one of three national finalists in the biological sciences category of the prestigious National Teaching Awards (to be announced in December) – the only University of Sydney staff member to make it to the finals. Dr Hyde and Dr Henry Collins both won Vice Chancellor Outstanding Teaching Awards.

Professor Michael Bryden retired from the Faculty after a distinguished career. Professor in Veterinary Anatomy since 1988, he is an internationally respected marine mammal scientist and headed the Australian Marine Mammal Research Centre.

Dr Bob Ratcliffe has been appointed Associate Professor in Clinical Veterinary Practice with the task of liaising with more than 50 partner practices of the Faculty.

Dr Brad Dowling has been awarded a Fellowship in Equine Surgery and Dr Sarah Matthews Membership in Equine Surgery for the Australian College of Veterinary Surgeons.

Genetics postgraduate student and assistant coach Colin Cavanagh's Animal Production students took out the first 3 team and first 4 individual places in the annual MLA National Meat Carcass Judging at Wagga Wagga, part of the final year curriculum for Animal Production students taught within the Veterinary Faculty. Cathy Stimson and Shawn McGrath are now in the Australian team to compete in the USA.

Dr Terry Rothwell retired after 20 years as a Veterinary Pathologist, and Mr Les Bowen, Building Attendant, retired after 40 years of service on the Camden Campus.

Dr David McNeill, from Queensland University, joined the Faculty as Senior Lecturer in Ruminant Production, based at Camden.

Dr Lee Morris returned from the Equine Fertility Unit at Newmarket, UK, to become Senior Registrar in Equine Reproduction at Camden and a researcher on sperm sexing in horses in the ReproGen Centre.

Mr Federico Costa is the new Web Services Coordinator for the Faculty.

Dr Jason Beck is Senior Lecturer and registered specialist in small animal surgery at the University Veterinary Centre, Sydney. Other new clinical staff include Primary Care Practice clinicians Drs Matt Almond, Joanna White and Jacqui Norris, and Dr Kim Ticehurst in anaesthetics.

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[www.library.usyd.edu.au/VEIN/](http://www.library.usyd.edu.au/VEIN/)



Fourth year students Patricia Santos de Oliveira, Tim Ahern and Patrick Kenny – with Maggie the cat – exploring the VEIN website.

VEIN, the Veterinary Information and Education Network, is the leading information service for veterinarians and animal scientists in Australasia. A partnership project of the University of Sydney Library, Faculty of Veterinary Science, Post Graduate Foundation in Veterinary Science and the Veterinary Science Foundation, VEIN provides easy access to specialist information services for University of Sydney staff and students, and also services more than 7,000 Australian and international veterinarians, animal scientists and animal health professionals in the community.

Managed by a dedicated team of specialist Librarians from the Life Science Libraries at the University of Sydney, VEIN is already providing access to information specialists, a research service, technology training programs, and advice by phone, email, fax or in person on finding scientific information.

The VEIN Website currently comprises 510 individual pages and from 1 April to 31 September 2001 the site received 81,877 unique page hits. Clients have linked to the site from a range of other professional sites including the AVA, Animal Health in Australia and a surprising number from the Karolinska Institute in Sweden. Most popular pages include the Links pages: Foot and Mouth Disease, Animal Welfare, Animal Behaviour, Horses, Cattle and the Research Databases pages. Most popular keyword searches to find information on VEIN include 'Foot and Mouth', 'dairy cattle' and 'Wally McGreevy'!

VEIN Uni provides tailored access to information services and resources for staff and students of the Faculty of Veterinary Science, and students studying animal science in the Faculties of Agriculture and Rural Management.

Many academic staff have contributed to the development of

VEIN during 2001. Dr Robert Dixon's Production Animal Clinical Toxicology resource at: [www.library.usyd.edu.au/VEIN/links/pact/index.html](http://www.library.usyd.edu.au/VEIN/links/pact/index.html) has been a highlight and current online projects include Professor Reuben Rose's horse lecture series and Dr Kym Abbott's Sheep Health and Production study unit. Dr Dixon has also contributed a section on exotic diseases with images contributed by the CSIRO and, with Dr Paul McGreevy, the Animal Welfare Student Essay project.

VEIN Community is funded by the Post Graduate Foundation in Veterinary Science (PGFVS) and supports information to veterinary and animal scientists in the community. The Manager of VEIN Community, Jane Barton, has received over 300 requests for passwords to access the special connection to CAB Abstracts and Medline funded by the PGFVS for its members. Over 50 people have signed up as full card-carrying members of VEIN Community, including one retired academic who is making wine and needed access to CAB Abstracts - and articles delivered to his home. We are considering negotiating subscription to VEIN Community by the case!

Training has taken place for community veterinarians in Sydney in October, and in November/December for NSW District Veterinarians at Wagga Wagga and Tamworth. The Veterinary Science Foundation will continue to support 5th year veterinary science students by covering the costs of their PGFVS membership for one year to encourage full membership of VEIN. A seminar was held for the students in October.

For further information about VEIN, contact Su Hanfling, Coordinator Library Services (Life Sciences), on 9351 5426 or email [S.Hanfling@library.usyd.edu.au](mailto:S.Hanfling@library.usyd.edu.au).