ROUNDHOUSE

VSF
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Newsletter of the Veterinary Science Foundation at the University of Sydney

ROUNDHOUSE

Associate Professor Max Zuber, Director of the Sydney University Veterinary Centre, gives Trim a health check before the adventurous black and white cat joined the crew of the Windeward Bound on the Matthew Flinders Circumnavigation voyage. The Windeward Bound, with Trim on board, is currently tracing Flinder's epic 1802 voyage around Australia. Photo: Lindsay Moller, The Australian.

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LEADERSHIP
IN FARM ANIMAL HEALTH AND PRODUCTION

Professor Reuben Rose, Dean, Faculty of Veterinary Science

Our new curriculum, now in its third year, has a major unit of study called Professional Practice which aims to ensure that students have an understanding of the wider profession, information literacy skills, practice management issues, communication and finance. In their first year, students have lectures from a range of veterinarians in large and small animal practice, government service and research, and work on case studies of problems faced in these different areas.

In listening to some of the speakers and reflecting on the changes in veterinary science over the last twenty years, I have been struck by the extensive range of opportunities available for veterinary graduates of the 21st century. Nowhere is this more evident than in the area of farm animal health and production.

Over the last 2 years, the Faculty has been moving strategically to rebuild its core teaching and research expertise in the area of farm animal health and production, following a number of retirements in the early 1990s. We have been delighted to receive strong industry support for this core mission and we now have fully or partly funded Chairs in the following areas:

•Chair of Dairy Science – Professor Bill Fulkerson, funded by the Dairy Research and Development Corporation, NSW Agriculture and the Dairy Research Foundation

•Chair of Genetics and Reproduction – Professor Herman Raadsma, funded by a range of research and development funds, focused in the area of genomics

•Sesqui Chair of Farm Animal Health – Professor Richard Whittington, funded by a University of Sydney Sesquicentenary Grant and Meat and Livestock Australia

•Chair of Poultry Science – currently advertised, and supported by the University of Sydney and the poultry industry

•Chair of Functional Genomics – currently advertised, and supported by the new CRC for Innovative Dairy Products.

These Chairs are key investments for the Faculty and its industry partners, providing the leadership needed to push forward major research programs and stimulate the interest of undergraduate students in production animal veterinary and animal science, and biotechnology.

The foot and mouth disease outbreak in the UK, together with bovine spongiform encephalopathy, has demonstrated the need to have both systems in place for surveillance and effectively trained veterinarians. To ensure we have the skills needed in the veterinary profession, the Faculty, in consultation with key industry groups and with the support of Meat and Livestock Australia and the Vincent Fairfax Family Foundation, is developing a postgraduate training program in epidemiology and veterinary public health.

The concept is an articulation from Certificate to Diploma to Masters qualifications, focused on a number of core skills including leadership development, global agri-economics, critical research methods, veterinary public health and animal health, and epidemiology skills. A major emphasis of the program will be the development of core competencies in information technology and the capacity to critically analyse information.

The Faculty is making these investments because of our commitment to the production animal industries and we will continue to play a key leadership role in ensuring animal health professionals have the skills needed to support and strengthen Australia's livestock industries.

Veterinary Science Foundation
UNIVERSITY OF SYDNEY

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

Dr Jennie Churchill, Director, Veterinary Science Foundation

contact us

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Sydney Animal Medical Centre Campaign

The capital fundraising campaign to redevelop the Sydney University Animal Medical Centre has reached a major milestone with the projected commencement, in late 2002, of Stage 1 of the new clinic development on the Sydney campus.

A total of $3 million was secured in 2001, with $1.5 million in pledges achieved by the Foundation (including $1 million provided by the Post Graduate Foundation in Veterinary Science through the Valentine Charlton Bequest), and $1.5 million matching funds provided by the University of Sydney. The Foundation has received further generous pledges in 2002.

Stage 1 will comprise demolition of the old stables (by end 2002) with subsequent construction of the Valentine Charlton Cat Centre, a new and expanded central reception and administration area, and the installation of a CT Scan. Clinic operations will temporarily move to the new feline centre to enable the existing consulting areas to be upgraded into an accession area for canine patients. The completion of Stage 1 is scheduled for the end of 2003.

Bequest Program

A Planned Giving Strategy is the financial cornerstone of not-for-profit organisations, and during 2001 the Veterinary Science Foundation produced a range of bequest materials. A booklet, flyer and posters, which are being distributed with the assistance of the veterinary profession, have already attracted benefactors interested in supporting the work of the Foundation and Faculty and the education of future veterinarians.

Other Support

The Andrew Thyne Reid Charitable Trust and the University of Sydney have provided, for the third year, crucial funds for Foundation operational support and for the implementation of major fundraising initiatives.

As part of its fundraising role for the Faculty, the Veterinary Science Foundation seeks external financial support for a range of Faculty initiatives. The Foundation gratefully acknowledges the following supporters:

The Vincent Fairfax Family Foundation is providing $520,000 over a four year period towards undergraduate and postgraduate training in production animal epidemiology and pathology.

Merial has increased its financial support of the biannual Faculty newsletter Roundhouse, contributing significantly to production costs.

The ground breaking Canine Desexing Clinic, part of the Faculty's surgical teaching program, has won financial and product support from CSL Animal Health and Bayer. Both companies are contributing to the program's operating costs and providing the vaccines, worm tablets and flea treatment required for each of the 400 dogs expected to go through the program annually.

Blacktown City Council provides crucial in-kind contribution to the Canine Desexing Clinic, and the Faculty wishes to acknowledge Dr Russ Dickens, an alumnus and longstanding Councillor at Blacktown. Dr Dickens, with other Councillors, has been instrumental in encouraging the council's on-going support of the Faculty.

Sponsorship provided by the Post Graduate Foundation in Veterinary Science will assist the Professional Practice curriculum for first and second year students through the Post Graduate Media and Communications Studio. The studio, to be located in the Veterinary Science Conference Centre, will house recording and video equipment enabling students to learn and practice communication techniques for a wide range of situations.

Photo: Nigel Austin

New Faculty team for Farm Animal Health

A cornerstone of veterinary training – and a health and social factor increasingly recognised as important by the Australian community - is the understanding of the key issues around farm animal health and production and food safety. Building capacity in these fields is critical for the long-term viability of the farm animal sector. The Faculty has been a leader in promoting new veterinary programs focused on this sector and a new unit has been formed to develop and deliver training and research programs supporting the production animal industries.

Heading the unit as the new Sesqui Chair in Farm Animal Health is Professor Richard Whittington, most recently Principal Research Scientist for NSW Agriculture. His position is jointly funded by Meat and Livestock Australia and the University of Sydney Sesqui lectureship program celebrating one hundred and fifty years of operation.

Other members of the team, to be based at Camden, include Associate Professor Peter Windsor (Sheep Health and Production), Dr Jenny-Ann Toribio (Sesqui Lecturer in Veterinary Epidemiology), and Associate Professor John House (Cattle Health and Production, Head of the Bovine Clinical Unit).

Building on Richard and Peter's backgrounds with NSW Agriculture, John's international experience in the cattle industry and Jenny-Ann's expertise in production animal epidemiology, the Faculty will work on collaborative opportunities between the Faculty and NSW Agriculture which will benefit the livestock industries.

Vincent Fairfax Family Foundation

To further support this significant Faculty initiative the Veterinary Science Foundation has been successful in obtaining a major grant through the Vincent Fairfax Family Foundation to provide $520,000 over a four year period for the establishment of undergraduate and postgraduate training in epidemiology and pathology focused on the production animal, including the delivery of these programs using on-line media.

Professor Richard Whittington, the Faculty's new Sesqui Chair in Farm Animal Health.

Professor Richard Whittington

A distinguished research career ranging across broad disciplines places Professor Richard Whittington in the ideal position to lead the Faculty's new team in Farm Animal Health. A Visiting Professor to the Faculty for several years, Richard has held the position of Principal Research Scientist, NSW Agriculture, at the Elizabeth Macarthur Agricultural Institute since 1999.

In this role Richard has conducted – and published - extensive original research on the diagnosis, pathology, immunology, epidemiology, treatment and prevention of diseases of livestock and fish, with special emphasis on infectious diseases caused by bacteria and viruses. His work on Johne's Disease is critical to the future of the sheep and cattle industries in Australia.

Richard's strong personal interest in the diseases of Australian wildlife has resulted in extensive research and publications, particularly on the platypus.

Through his research projects, Richard has developed and maintained close ties with practitioners in the field and with the University and, from his new role in the Faculty, he will be encouraging continuing collaboration with NSW Agriculture. He also has a close association with industry groups through membership of industry-run committees including the NSW Technical Advisory Committees on Ovine Johne's Disease and Footrot, and he has been involved in the formulation of government policy on the control of infectious diseases in the livestock and fisheries industries.

Associate Professor John House, Cattle Health and Production and Director Bovine Clinical Practice.

Associate Professor John House

Associate Professor John House has returned from the University of California, Davis, to join the Faculty's Farm Animal Health team at Camden as Associate Professor of Cattle Health and Production and Director of the Bovine Clinical Practice.

Most recently the Clinical Associate Professor for Food Animal Medicine and Surgery at Davis, John brings to the Faculty both impressive teaching credentials and diverse large animal expertise, including extensive dairy experience in pasture-based dairying in Victoria, and freestall and drylot dairying in the Western United States.

Following graduation from the Murdoch Veterinary School in WA, John worked in private practice in Victoria before taking up a residency in Food Animal Medicine, Surgery, and Herd Health at the Veterinary Medical Teaching Hospital, Large Animal Clinic, University of California, Davis in 1989. He gained his PhD in 1997, and has been published widely.

John's exceptional teaching abilities earned him annual recognition at UC, Davis. His awards included a Graduate Clinical Education Award (outstanding clinical competency, chosen by Faculty), three times Resident award for outstanding teaching (chosen by senior class), two research scholarships, and in 2000 and 2002 the UC, Davis Faculty Large Animal Clinic Teaching Award.

John says his objectives for the Bovine Clinical Practice at Camden encompass both improving the profitability of livestock producers and teaching future generations of veterinarians about the management and enhancement of cattle herd health.

Dr Jenny-Ann Toribio, the Faculty's Sesqui Lecturer in Epidemiology.

Dr Jenny-Ann Toribio

Dr Jenny-Ann Toribio is the Faculty's Sesqui Lecturer in Epidemiology. A Queensland graduate, she received her doctorate in veterinary epidemiology in the year 2000 on research conducted on smallholder pig production in the Philippines. Jenny-Ann brings to the Farm Animal Health unit the experience of a career primarily focused on livestock production.

Jenny-Ann's role in the Faculty will encompass teaching veterinary and agriculture students, supervision of postgraduate students, participation in research (including Ovine Johne's Disease), and work on the development of a postgraduate program in veterinary epidemiology and public health.

One of her most recent and continuing roles is as a veterinary specialist for the ACIAR (Australian Centre for International Agricultural Research) Leyte Livestock Improvement Project working with Filipino families that raise pigs and poultry. She contributes expertise on epidemiological issues and innovative pig production programs, as well as the preparation of scientific publications. Other projects have included work for the ACIAR Australia-Thailand FMD program for the Queensland Department of Primary Industries.

Jenny-Ann's well-rounded career also includes University teaching experience and she has worked in private veterinary practice, either full time or as a locum when undertaking research projects.

Associate Professor Peter Windsor, Sheep Health and Production.

Associate Professor Peter Windsor

As the new Associate Professor of Sheep Health and Production, Dr Peter Windsor says he hopes to impart to veterinary and animal science students a strong interest in the exciting diversity of work available in livestock health and production – emergency preparedness, sustainability, diagnostic, extension, research and welfare issues.

Before holding the position of Senior Research Scientist at the Elizabeth Macarthur Agricultural Institute, NSW Agriculture, Peter's diverse career had taken him from a Fullbright grant for pathology training at Cornell University, USA, and the San Diego Zoo, to a PhD in ruminant neurology, OIC of the Regional Veterinary Laboratory Glenfield during the move to EMAI, cattle abortion research, NSW Agriculture field work in Grafton and Goulburn, production animal consultancies in Indonesia, and project management in Foot and Mouth Disease control in the Philippines with FAO. He has been published in numerous scientific journals and textbooks.

Peter, who has been an Honorary Associate of the Faculty through his co-supervision of postgraduate students, has maintained research links with the University of Technology Sydney Molecular Parasitology Unit (protozoal diseases) and with the Faculty's Reprogen (genetic diseases). His current research interest has focused on Bovine Neospora abortion, Ovine Johne's Disease, and evaluation of the Gudair OJD vaccine.

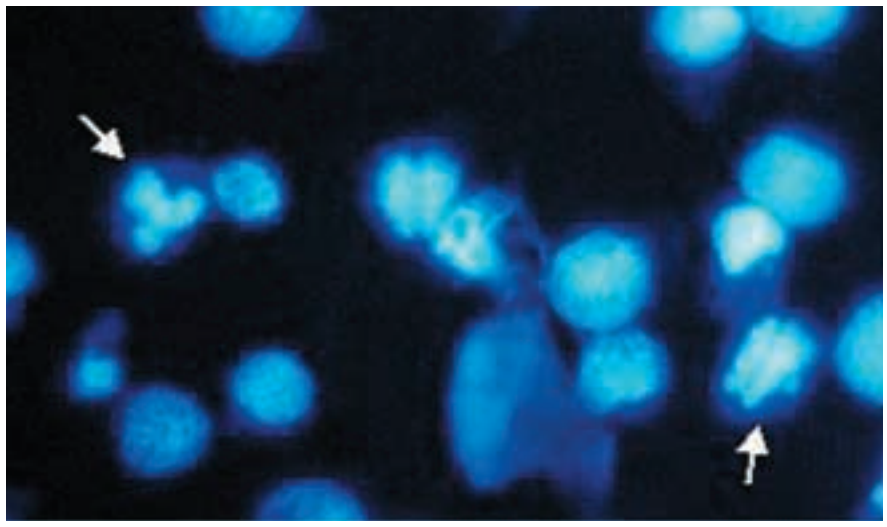
Like the other members of the new Farm Animal Health team, Peter has extensive experience in and a strong commitment to livestock health services and to excellence in teaching and learning.

RURAL LAND PROTECTION BOARDS WORK WITH FACULTY

The State Council of Rural Land Protection Boards (RLPBs) and the University of Sydney have partnered together in a move to attract veterinary students to the bush, and to maintain Australia's defence against exotic diseases.

Changes to the University's Faculty of Veterinary Science curriculum will see all fifth year veterinary students from 2004 complete a one-month placement with a local RLPB, providing them with practical experience in stock and herd management, disease containment and the actions necessary in the event of an exotic disease outbreak. In the new curriculum final year students will have completed all their formal training and will have limited registration to practice under supervision.

The State's RLPB system is a key defence in Australia's fight against exotic and other serious diseases affecting production animals, with regional vets responsible for investigating unexplained stock deaths. The partnership will help build a long-term veterinary skill base to assist with the response to the threat of exotic disease.



Left: Cancer cells induced to enter apoptosis (programmed cell death) after treatment with phenoxodiol (shown by arrows).

Above: Professor Alan Husband, leading Novogen's collaboration with the University of Sydney.

HALF A CENTURY ON
new human pharmaceuticals from an old veterinary dilemma

Professor Alan Husband

"Clover disease", a problem that besieged the sheep and cattle industries in the 1940s, is leading to new opportunities for novel pharmaceuticals following exciting 21st century biotechnology research.

Novogen is a human pharmaceutical company formed in the 1990s by University of Sydney veterinary graduates. Based since 1998 within the University's Faculty of Veterinary Science under the direction of Professor Alan Husband, Professor of Veterinary Pathology, the Novogen Research Institute is developing designer molecules based on the plant isoflavones discovered during the original clover research conducted more than half a century ago.

In the 1940s in Western Australia, research by CSIRO and university groups identified the cause of reduced fertility in sheep and cattle grazing high density clover pastures – so-called "clover disease" – as the oestrogenic substances isoflavones. The problem was solved with a combination of plant breeding research that produced low isoflavone clovers and better pasture management limiting clover content.

That was the beginning of a journey that has culminated in a multi-billion dollar pharmaceutical opportunity. In the late 1970s a Finnish steroid chemist Hermann Adlercreutz observed that vegetarian women, who often consume a diet rich in legumes (plants related to clovers such as peas, beans and lentils) had abnormally high oestrogen excretion rates. He speculated the same plant oestrogens causing clover disease in sheep might contribute to total oestrogen load in these women.

At the same time Dr Graham Kelly, a Sydney University veterinary graduate working as a research fellow in the Faculty of Medicine, was exploring links between diet and disease and the role legumes play in human health. He extracted and analysed plant oestrogens, filed patents on their therapeutic use and in 1992 established Norvet to explore their commercial application. Norvet became a public company in 1994 and was renamed Novogen in 1997. Novogen's scientific research led to a highly successful range of human dietary supplements consisting of purified isoflavones extracted from red clover, one of which is used successfully by women world-wide as a natural alternative to hormone replacement.

But the more interesting prospect for biopharmaceuticals comes from the designer molecules, based on the original plant isoflavone molecular structure, from which a library of novel drug candidates has been developed through Novogen's biodiscovery research undertaken in collaboration with the Veterinary Faculty.

One of the compounds, phenoxodiol, has produced outstanding anti-cancer effects in cell culture assays and animal models of human cancers, and is now undergoing evaluation in human clinical trials in Australia and the USA. The Cleveland Clinic Foundation in Ohio, USA, recently reported that 6 out of 10 cancer patients in one phenoxodiol study were found to have stabilised cancer progression.

Other isoflavonoid compounds have demonstrated potential as anti-hypertensive, anti-atherogenic and anti-inflammatory drugs. One of these has been evaluated in collaboration with Dr Vivienne Reeve's photobiology research team within the Faculty and is now in human clinical trials in collaboration with the Queensland Institute for Medical Research for its anti-UV skin damage and cancer effects.

The Novogen collaboration has been an outstandingly successful model of a University and industry partnership, with both scientific and cultural benefits – Novogen and the University were awarded the 2000 CSIRO Business Higher Education Round Table Award for Outstanding Achievement in Collaborative R&D. The award noted: "The discovery that the isoflavone derived human phenolic hormones represent an entirely new class of human hormones has been a breakthrough in human health".

BOVINE DWARFISM – POSTGRADUATE DISCOVERS GENE

Postgraduate student Julie Cavanagh with a sought-after Australian Dexter AI bull.

Supported by the breed society Dexter Cattle Australia, PhD student Julie Cavanagh has identified a mutation in a gene that causes chondrodysplasia in Dexter cattle. Julie undertook her research under the guidance of Dr Imke Tammen, Professor Herman Raadsma, Professor Frank Nicholas and Associate Professor Peter Windsor in the Faculty's Centre for Advanced Technologies in Animal Genetics and Reproduction (Reprogen). Her breakthrough is enabling the development of a DNA-based diagnostic test to identify carrier animals, to be released later in 2002.

Originating in Ireland, this small breed of cattle has been bred in Australia for several decades, with a recognised incidence of mutant, aborted chondrodysplastic foetuses or "bulldog" calves. Affected foetuses display disproportionate dwarfism, a short vertebral column, marked micromelia, a relatively large head with a retruded muzzle, cleft palate, protruding tongue and a large abdominal hernia.

Chondrodysplasia, a disease causing abnormal cartilage development leading to disproportionate dwarfism, is inherited in Dexter cattle in an incompletely dominant manner. That is, there are three different phenotypes: a homozygous normal animal (BB), a heterozygote (the so-called "short-legged" animal - Bb) and a homozygous affected animal, the "bulldog calf" (bb), normally aborted mid to late gestation.

Eleven likely candidate genes identified in other species (primarily mice and humans) were comparatively mapped to the cattle genome. Julie used a targeted homozygosity mapping approach to screen chromosomal regions with predicted candidate genes. One gene mapped to an area of homozygosity among affected animals, the gene was analysed for mutations by screening – and the disease-causing mutation was found.

Dexter breeders are aware of the disease's mode of inheritance and try to avoid carrier x carrier matings through identification of the heterozygous or short-legged animal, but identification by phenotype alone is not accurate. Apart from enabling unambiguous identification of heterozygote carrier animals, the DNA test will allow the selection of desirable breeding animals of a short stature that do not carry the chondrodysplasia defect.

The work Julie and her Reprogen colleagues have undertaken in Dexter chondrodysplasia may not just benefit the Dexter breed and cattle breeders – it also has the potential to be used as a model for human dwarfism and the identification of a disease-causing mutation.

CLOSE UP

DR ROSANNE TAYLOR

What is your current position?

Senior Lecturer and Chair, Teaching and Learning Committee, also Sub Dean for Student Learning.

What qualifications do you hold?

Bachelor of Veterinary Science, Diploma of Veterinary Clinical Studies (internship at the Rural Veterinary Centre Camden), a PhD, and my newly minted Graduate Certificate in Educational Studies (Higher Education), all from the University of Sydney.

How did your career begin?

I became fascinated with neurological disease as a veterinary practitioner and stumbled into a PhD in 1984 when Professor Brian Farrow introduced me to a new neurological disease in dogs, fucosidosis. This opened the door to biomedical research as I explored the exciting possibility of treating this disease by transplantation, to benefit children as well as animals.

What are your current key projects?

My major activities span teaching development, the new curriculum for years 4 and 5, research into both neurological disease and how students approach learning.

My research group is testing the effectiveness of neural and mesenchymal stem cells in the treatment of demyelinating disease. We genetically modify stem cells to secrete therapeutic growth factors to enhance repair in damaged areas of the brain. In another project at Westmead, I am testing long-term enzyme replacement in canine fucosidosis.

Another interest is looking at how students approach learning and how best to encourage them to adopt a meaningful approach to study to achieve lasting, quality learning. The nature and style of assessment used is an influential factor, so I hope to use these findings to help improve assessment practices in the Faculty.

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

Developing my own skills and research projects in teaching has been enormously exciting and rewarding. All University teachers need to take a professional approach to teaching and I believe that research, reflection and ongoing development are the way forward. I am working with our very active Teaching and Learning Committee to ensure that all new staff receive support and development for their teaching role. We are also critically reviewing Faculty teaching performance and acting to improve areas of weakness – we want to create a Faculty culture of teaching excellence.

What have been recent career highlights?

Completing the Graduate Certificate in Educational Studies was a great achievement, and gave me a fresh understanding of the challenges students face (juggling work, study, family). It was also a great thrill to be recognised by the Faculty with the 2001 Grace Mary Mitchell award for service and a Pfizer award for teaching excellence.

What do you do in your (limited) spare time?

Full time work and parenting three young children doesn't leave time to pursue my past passions (diving and bushwalking), but my children have rabbits among their many pets and we are now involved with the Rabbit Fancier's Club of NSW – including vetting at rabbit shows. We often take students for intensive rabbit handling experience. My favourite trophy is for "best handler over 16 years" (I didn't have to record how far I am over 16!).

Who inspires you and why?

Colleagues who are passionate about teaching and helping students learn. They are not always recognised or rewarded, but they make a huge difference to students' experience.

WESTRAN PIGS FOR DIABETES RESEARCH

Associate Professor Chris Moran.

The unique Australian Westran line of in-bred pigs is fundamental to a human diabetes research program involving Associate Professor Chris Moran of the Faculty's Centre for Advanced Technologies in Animal Genetics and Reproduction (Reprogen).

Associate Professor Moran is a member of a distinguished multidisciplinary consortium of researchers awarded a $4.5 million program grant over five years to work on a curative treatment for Type 1 diabetes. Other consortium members are Associate Professors Phil O'Connell, Richard Allen and Jeremy Chapman (Westmead Hospital), Professor Anthony d'Apice and Dr Peter Cowan (St Vincents Hospital, Melbourne), Dr Andrew Lew (Walter and Eliza Hall Institute, Melbourne) and Dr Mark Nottle (Bresagen, Adelaide). The research has been funded by the National Health and Medical Research Council and the Juvenile Diabetes Research Foundation.

The group's long-term objective is the treatment of the majority of patients with Type 1 diabetes mellitus by transplantation of insulin secreting tissue. While whole organ transplantation has achieved insulin independence, the procedure has a high level of secondary complications. This research focuses on recent successful transplantation of human insulin producing cells that has achieved insulin delivery and diabetic control equivalent to that achieved by whole organ transplantation, without the associated surgical morbidity. The practical limitation is the multiple donor pancreases required for each patient (up to 8 per recipient).

Pigs have a digestive physiology, glucose homeostasis, and regulation of insulin secretion similar to that of humans, and porcine insulin has only a single amino-acid difference to that of human insulin and has been administered to diabetics for decades. This project will contribute towards assessing the potential of porcine tissue in the clinical management of organ failure with emphasis on treatment of diabetic patients with end-stage renal failure.

Enter the Westran pig colony, now located at the Faculty's Camden campus. Research has shown that foetal and or neonatal islet tissue xenografts from pigs have the potential to overcome the dual problems of resource limitations (donor organ availability) and safety – the consortium's short-term goal is to mature the porcine pancreatic tissue into effective insulin secreting tissue in a pre-clinical large animal model.

The Westran (Westmead transplantation) line is descended from a pair of pigs released on Kangaroo Island, South Australia, in 1803 by the French navigator and explorer Nicholas Baudin. Genetic marker analyses show that the pigs are inbred equivalent to about 16 generations of full-sibling mating and they have been proven to be capable of long-term acceptance of various tissue grafts from other herd members without rejection. Their genetically similar make-up provides an opportunity to develop an isogenic donor herd that would ensure similar treatment effects across a wide range of transplant recipients.

The role of Chris Moran and Reprogen in this major research project is critical and involves the genetic characterisation of the Westran pigs and the analysis of their endogenous retroviruses (PERVs - porcine endogenous retroviruses), considered potential hazards to xenotransplantation.

Knowledge of these infectious agents within the Westran pigs will enable the development of screening procedures for human recipients and strategies to inactivate or delete PERVs within the pigs (in January 2001, the FDA set in place draft guidelines that require any pig tissue used for transplantation into humans to come from a closed herd whose pedigree is fully catalogued and which has a process of health screening in place - the inbred Westran pig colony is of great importance in terms of its genetic homogeneity and identified PERV characterisation).

Following the successful initial characterisation of the viral types and their chromosomal locations with PhD student, Jun-Heon Lee, Associate Professor Moran and new PhD student, Denbigh Simond, are now about to identify the functional PERVs in the Westran line and evaluate a strategy to suppress their expression. If this is successful, PERVs will no longer be an impediment to this important curative therapy for diabetes.

CRYPTOSPORIDIUM RESEARCH AT TUFTS

Above: Bachelor of Science (Veterinary) student Siobhan Mor. Right: Siobhan participating in a gnotobiotic caesarian on a sow.

Current Year 4 veterinary science undergraduate Siobhan Mor's determination to undertake a Bachelor of Science (Veterinary) led her to the renowned Tufts University School of Veterinary Medicine in Massachusetts, USA – and to research projects in a laboratory at the forefront of cryptosporidium research under the supervision of Professor Saul Tzipori (Tufts) and Associate Professor Nick Sangster (Sydney University).

Cryptosporidium parvum is an enteric protozoan parasite causing life-threatening diarrhoeal illness and hepatic disease in immunocompromised humans, specifically HIV infected patients and malnourished children. Cryptosporidiosis in calves affects growth rates, impacting significantly on the farming industry. These animals also pass large numbers of infectious oocysts in their faeces, contaminating the environment. As C. parvum is a zoonotic pathogen readily transmitted in water, this raises serious public health issues. Not surprisingly cryptosporidiosis is most prevalent in undeveloped countries.

Siobhan spent 10 months at Tufts as part of a team of more than 10 scientists and 20 technical staff working to better understand Cryptosporidium. Her specific project focused on the dynamics of single and mixed infection with two genotypes (type 1 and type 2) of C. parvum in gnotobiotic piglets (derived by caesarian section and maintained in germ-free conditions for the duration of the experiments - the Division of Infectious Diseases at Tufts is one of only a handful of research institutions worldwide with the facilities and funds to use this animal model for human disease).

Faecal and intestinal samples from piglets were analysed using light microscopy, PCR-RFLP, in situ hybridisation and transmission electron microscopy. Siobhan demonstrated that type 1 is displaced by type 2 when hosts are infected with both genotypes. This challenges the current understanding of the epidemiology of C. parvum as type 1 is the predominant genotype in regions endemic for human cryptosporidiosis. Her research also indicated that recombination does not occur between the two genotypes, leading to speculation that type 1 and type 2 may be different species. A second project focused on histopathology associated with previously uncharacterised chronic cryptosporidiosis in severe combined immunodeficient (SCID) mice.

Siobhan says the standard of veterinary education and the clinical and laboratory facilities at Tufts are state-of-the-art (with student fees approaching $US30,000 per year there is significant funding for the university). She strongly encourages all vet students at the University of Sydney to fully support the Faculty's work towards achieving crucial American Veterinary Medical Association accreditation.

SAVING THE AFRICAN WILD DOG

Kellie Leigh, 1996 environmental biology graduate from the University of Technology Sydney, has spent 8 months of the year for the past 3 years living in the Lower Zambesi National Park as part of a postgraduate project aimed at saving one of the world's most endangered species – the African Wild Dog.

Kellie's PhD is focused on developing a conservation management plan for the African Wild Dog in Zambia, and she is undertaking this project in the Faculty of Veterinary Science under the supervision of Associate Professor Tony English. The remainder of the year she spends on the Faculty's Camden campus carrying out genetic and laboratory work for her project.

The African Wild Dog (AWD) is unique. A member of the Canid family, it is the only representative of the Lycaon genus, not a part of the Canis genus. Once found throughout sub-Saharan Africa, only three to five thousand of these rare dogs exist – less than the white rhino – and Zambia is one of only 6 African countries left with viable populations. Its decline is the result of loss of protected habitat, persecution by man, local extinctions from domestic dog diseases (rabies and distemper), and attack by natural predators such as lions and hyenas.

By now the dogs in her region of Zambia recognise Kellie – she says they're very smart and curious - and she tracks them using radio collars. This is essential as the dogs are nomadic and each pack, on average 10 dogs, ranges over an enormous 800 square kilometre territory. While the dogs aren't usually aggressive to humans, they do have very sharp teeth and Kellie uses a general anaesthetic to collect blood samples. She is working on a DNA test on faeces that will bypass the need to collect blood and enable park rangers to collect faecal samples for her.

To fund her work, and the training of a Zambian animal scientist to continue the project, Kellie has established her own not-for-profit organisation in Zambia, "AWD Conservation" (see www.afrikeye.net). Funding comes mainly from tourists who have become interested in the dogs' plight.

Kellie has several more years to go to finish her PhD, so Zambia is still home. She says it's politically stable, despite being next door to Zimbabwe, and she is committed to ensuring the survival of this unusual and rare species.

The endangered African Wild Dog (Lycaon pictus) has a uniquely cooperative and endearing social structure.
Photo credit: Yancey Walker.

Kellie Leigh uses radio tracking to follow the African Wild Dogs in her research groups.

CLOSE UP

STUDENT PROFILE
LEANNE CLARK

From marine science to vet science – why the second degree?

I grew up desperately wanting to be a vet, but with a TER just below that required for Vet Science, I took off for a year in Europe before commencing a Bachelor of Science at Sydney University, hoping to transfer at some stage. I soon loved my new direction and majored in Marine Science and Marine Ecology, volunteering with the NSW Marine and Coastal Community Network. When, at the end of my degree, I was offered a Marine Ecology honours project *and* a place in Veterinary Science I found the decision more difficult than I'd imagined!

Has the decision to opt for vet science been the right one?

I soon found I'd made the right choice. I enjoyed studying Veterinary Science and spent my first three years actively involved in Veterinary Society, the International Veterinary Students Association and Wildgroup. But by the end of third year, six years at Sydney University were beginning to take their toll and I really wanted to take time off to contribute to a practical conservation project…somewhere.

Where did this growing passion for conservation lead you?

I ended up in Anakao, a small fishing village on the south west coast of Madagascar, as a Volunteer Research Assistant with 'Frontier', a British-based environmental organisation. I contributed towards an ongoing coral reef baseline biodiversity survey, a study of local fishing practices, and a project assisting local people develop a community managed Marine Protected Area. After three months in Madagascar, I was offered a paid position as Project Development Manager with 'Frontier', this time in Vietnam.

Frontier-Vietnam, a collaboration between 'Frontier' and the Vietnamese Institute of Ecology and Biological Resources at Hanoi, undertakes biodiversity and conservation projects in the tropical forests of Northern Vietnam. I worked with forest communities to develop practical ways to protect the local environment and ensure sustainable use of resources. We focused on environmental education in local schools and projects teaching local farmers sustainable agricultural practices.

How important was it to continue your degree?

After two years away I was more than ready to return to Sydney to complete my vet degree. Developing nations like Madagascar and Vietnam are sorely in need of professionals with the practical skills of a veterinary scientist. Many animals confiscated along the wildlife trade route by Forest Protection officials are badly injured or diseased. With little or no veterinary skills available, animals are often re-released into the wild, or simply euthanased on the spot. My time in Vietnam convinced me that my contribution will be far more valuable once I've completed my degree.

Has the return to study been a positive experience?

Returning to Sydney and full-time study after two years away hasn't been easy, but I'm now loving the challenge of fourth year and the chance to apply knowledge developed over the first three years. Every day in the clinic there is something new, and I am really looking forward to my first clinical placements.

What does the future hold?

While my aim is to end up back in the wilds of Vietnam, I believe it is very important to get a range of experience with domestic animals in a mixed practice first. Consolidating the surgery and medicine skills I've learned here at Sydney University in a supportive mixed practice in Australia will be the first step towards achieving my goal. Actually, make that the second, the first will be to finally finish my degree!

UNDERGRADUATE ACTIVITIES

Australian wildlife attracts international students

Dr David McLelland

2001 graduate and chair of the symposium organising committee

Veterinary students from the University of Sydney organised the first International Symposium On Wildlife Management held in Australia in January 2002. Twenty-eight veterinary students and new graduates from Finland, Denmark, Greece, Portugal, Croatia, Austria, USA, Canada and Argentina flew to Sydney despite the threat of bushfires and the aftermath of September 11.

Delegates were given the once-in-a-lifetime opportunity to travel around NSW with like-minded veterinary students to learn about wildlife health and conservation in Australia through lectures, workshops, field activities, sight seeing (and socialising!). The symposium started with a bang - a harbour cruise on New Year's Eve – with recovery on Bondi Beach the next day.

Delegates to the wildlife symposium.

The formal program included Taronga Zoo, Sydney Aquarium, Western Plains Zoo in Dubbo, the Blue Mountains, the Faculty's Sydney and Camden campuses, the University property Arthursleigh near Marulan, and the University of Canberra Field Station at Jervis Bay.

Highlights included catching a wild platypus at Arthursleigh, seeing the Gordon flying fox colony take flight, sampling kangaroo steaks, a bush dance in the Arthursleigh woolshed, dart rifle target practice, the Jervis Bay beaches, witnessing the extent of the bushfires in and around Sydney which threatened to disrupt the program at every turn, and the forging of lasting friendships with future wildlife veterinarians from all corners of the globe.

Our international students

Three of the Faculty's first year international students from left: Anupam Sharma (India), elected as Year 1 student representative, Livia Henderson (Scotland) and Nadia Al Maskary (United Arab Emirates).

The introduction of international as well as Australian fee-paying students into the Faculty has done far more than provide much-needed income. Our overseas students bring enormous cultural diversity and varied experience to the student body (of the 560 undergraduates in the Faculty around 100 are international).

The 2002 first year intake of 120 students includes 28 internationals from across the globe – United Kingdom (10), USA (1), Germany (2), Japan (2), India (1), South Korea (1), Malaysia (2), Philippines (1), Singapore (3), Slovenia (1), Sweden (1), Hong Kong (1), the United Arab Emirates (1), and Canada (1).

A number of international students are breaking new ground. First year student Livia Henderson, from Scotland, is engaging in the challenge of a veterinary career despite a hearing disability. Nadia Al Maskary, from the United Arab Emirates, will be one of the first – if not the first – UAE female veterinarian.

Final year student Diana Roberts will be one of two first Faulkland Island-born veterinarians when she graduates at the end of 2002. And another final year student, Mbatshi Mazwiduma, will be the first student from Botswana to gain a Bachelor of Veterinary Science from Sydney University.

Vet student's contribution to equal opportunity

Denise Popovic

Avril Baird, Lino Nastasi and one of Lino's charges from the Sydney clinic.

Avril Baird wanted nothing more than to become a practising vet. Now a fourth year Sydney University veterinary student, she completed a Bachelor of Science Agriculture and a Master of Science in Veterinary Science to effect the transfer to veterinary science.

Her diverse career has given Avril other links to the Faculty, and through her work with the TAFE NSW Intellectual Disabilities Unit the Sydney University Veterinary Centre is at the forefront of equal opportunity employment.

Avril manages both her studies and a role as Teacher/Coordinator of the Animal Attending Access course for the ID Unit at TAFE's Ultimo campus. She was instrumental in developing a working relationship between the University Veterinary Centre and the Intellectual Disabilities Unit in 1990.

Lino Nastasi, now the Supervising Kennel Nurse at the Sydney Clinic, is one of Avril's many success stories. Lino came to the University Veterinary Centre for work experience in 1992 and stayed. He now supervises two new staff members – Mitchell Burns and Renee Seery - both graduates from the same TAFE course.

More than thirty graduates from the course have completed work experience at the University Veterinary Centre. According to Avril, "Through the Veterinary Centre, the University of Sydney is at the forefront of creating opportunities for people with an intellectual disability. It means they have a career pathway which would otherwise not be open to them".

Avril would be pleased for other veterinary clinics to become involved in the TAFE program, and can be contacted on avrilbaird@optusnet.com.au.

SYDNEY UNIVERSITY VETERINARY CENTRE

TRIM

The University Veterinary Centre at Sydney is proudly sponsoring Trim, the black and white feline companion of the Windeward Bound crew, during the commemorative Matthew Flinders Circumnavigation which is currently tracing Flinders' epic 1802 voyage around Australia. Matthew Flinders' journals contain many fond references to his intrepid companion, the original Trim.

Director of the Clinic, Associate Professor Max Zuber, Trim's personal physician during the voyage, gave Trim a full health check, vaccination and worming, and provided a travelling veterinary kit before the ship left Sydney in March.

MARKETING SURVEY

Bayer is generously sponsoring a marketing survey of the Sydney Clinic's pet owning clients and an internet-based survey of referring veterinarians, both designed to enable the clinic to assess and improve current services.

HEALTHY PETS = HEALTHY SENIORS

Glynn, a Welsh Springer Spaniel, visited the clinic during Seniors Week with his owner Mr Fowler for a free health check by fourth year students Deepa Gopinath and Keiran Beattie.

More than 30 pets of seniors were given free pet health checks at the Sydney Clinic during Seniors Week, 17 to 24 March, an activity that emphasised the health benefits for seniors of owning pets. Fourth year veterinary students, under the supervision of clinicians, undertook the consultations with seniors and their pets.

OLDEST CAT AND DOG

Agatha, the 24-year old ginger female owned by the Holz family of Camden, won the search for the oldest cat. Agatha is pictured with adoring next door neighbour Erin Benad. Photo credit: Robert Pozo, Macarthur Chronicle.

To further strengthen the link with Seniors Week, the clinic staff helped organise a search for NSW's oldest cat and dog, a competition that attracted a great deal of media attention. The winning pets and their owners received a Pet-O-Gram from the Dean and a basket of pet products suitable for ageing pets.

EDUCATION SUPPORT PRACTICES

Professional Practice lecturer and organiser Dr Henry Collins.

The Professional Practice program, introduced into the BVSc curriculum in 2000 and organised by Senior Lecturer Dr Henry Collins, is designed to introduce students early in their degree to some of the non-medical aspects of veterinary practice - including practice management, business skills, communication and marketing. Education Support Practices (ESPs) play a pivotal role in providing the opportunity for students to study and practice these skills first hand.

More than 60 practices in the Sydney region have entered a working partnership with the Faculty of Veterinary Science by enrolling as ESPs. These practices are visited at scheduled times by pairs of Year 1 and 2 students. The students complete assignments, as objective observers, based on evaluating certain aspects of their ESPs – for example, assessing the practice newsletter, website or shopfront, or reporting on how a practice maintains and develops the knowledge and skills of its staff. The reports, which are confidential and available only to the principal of the ESP, are expected to include suggestions for improvement.

ESPs also provide the opportunity for exercises in communication. These include an analysis of the dialogue and body language of a vet and client during a consultation and an evaluation by one student of their partner's communication style. The practice is invited to schedule a presentation to clinic staff by the students at the end of their visits.

Henry believes student motivation is raised and sustained by contact with professional practice early in the curriculum and the experience provides a context for their learning in the basic sciences. The practices involved in the program report they also value the opportunity to make contact with students. Many of the current Year 2 students are now employed in their ESP as receptionists on weekends, or as after hours emergency staff during the week.

Educational Support Practices are making an enormous contribution to the education of future veterinarians and the Faculty acknowledges and appreciates their significant support. Any practice less than an hour's travel time from the Faculty is welcome to become involved. Please contact the Faculty Office on (02) 9351 2441 or Dr Henry Collins on (02) 9351 3102.

VALE HUGH MCLEOD GORDON

Associate Professor Nick Sangster

The late Dr Hugh McLeod Gordon in January 2002. Photo: Anne Quain.

One of our oldest graduates, Dr Hugh McLeod Gordon, died on 22 April at 93 years of age.

On Australia Day 1927, on the New England sheep property where he grew up, Hugh reputedly read a letter in the Sydney Morning Herald by Professor in Veterinary Science, J D Stewart, that convinced him to take up veterinary science. He graduated in the class of 1934 with just 3 others, joining CSIR (later CSIRO) McMaster Laboratory as an Assistant Parasitologist under Ian Clunies Ross.

Dr Gordon retired in 1974 – a distinguished graduate of the Faculty and one of the most prominent veterinary parasitologists of his time.

Hugh's work was seminal in understanding the epidemiology of sheep endoparasites. He trialled many of the new anthelmintics of his era and established the principles of tactical and strategic drenching for parasite control. Hugh was also instrumental in establishing the Pastoral Research Laboratory in Armidale.

His contributions to the profession and his chosen field were broad. Hugh was AVA President and Gilruth Prize recipient in 1965. He was a founder, Fellow and President of the Australian Society for Parasitology, and a Fellow and President of the Australian College of Veterinary Scientists. A prolific writer, he penned numerous book reviews and commentaries for the AVJ, many containing original or borrowed poems. His awards include a DVSc in 1968 and an AM in 1986.

During his time with CSIRO Hugh taught parasitology in the Sydney Veterinary Faculty. Starting in 1937 as a long-term, part-time activity, he continued to demonstrate in Parasitology classes in retirement, chalking up almost sixty years of teaching. Hugh continued his role as honorary AVA librarian and maintained an elaborate indexing card system in the McMaster library, the forerunner of the computerised literature search. One day an undergraduate asked Hugh about a sick galah. Hugh was not only able to name the parasite but located the critical paper within twenty minutes. I think his greatest pleasure was to teach parasitology to 3 generations from one family as well as to his own grandson.

Above all Hugh was a wonderful human being. His knowledge was legendary and his reading omnivorous. He was a great enthusiast and mentor to generations of veterinary students, and is still acknowledged at international conferences. Hugh also had a huge fund of stories, jokes and aphorisms and was a perennial after-conference dinner speaker - a true "character" with a great sense of fun.

Those who knew Huey will miss him greatly. His family will miss him too, but I hope they take comfort in the knowledge that he was loved and admired during his lifetime.

Professor Donal Walsh and Professor Reuben Rose at the Veterinary Graduate Attributes workshop hosted by the Faculty for Australasian Veterinary Schools. Photo: Anne Quain.

VETERINARY GRADUATE ATTRIBUTES

Professor Donal Walsh, Editor of the Journal of Veterinary Medical Education and a Professor in the Department of Medicine and Epidemiology at the School of Veterinary Medicine, University of California Davis, joined representatives from Australasian Veterinary Schools at a January 2002 workshop hosted by the Faculty at Sydney University. Participants included delegates from the Universities of Massey (NZ), Melbourne, James Cook, Charles Sturt, Queensland and Sydney, the Australian Veterinary Association, NSW Board of Veterinary Surgeons and the Post Graduate Foundation in Veterinary Science.

The primary aim of the workshop was to achieve a consensus on a set of basic attributes appropriate for Australasian graduates in veterinary science. A secondary aim was to explore the use of graduate attributes in registration, accreditation, international benchmarking, recognition of overseas degrees and provisional registration of final year students. Sets of attributes supplied by Massey, Melbourne, Sydney, The Royal College of Veterinary Surgeons, UK and UC Davis provided the basis for discussion.

The outcome of the workshop was a draft list of attributes that is being further refined by the Australasian schools before a new draft is circulated for comment to the profession, veterinary employers, and public groups and organisations that make use of veterinary services.

FIFTY-YEAR REUNION

In December 2001, a fifty-year reunion for graduates of the Sydney University Veterinary Science Faculty attracted twenty-three alumni, many with partners. The reunion, for final year 1951 alumni, was organised by Dr Heather Gibson – the only female to graduate in that year – and Dr John Aubrey. Professor Reuben Rose provided an overview of the Faculty, in the original Clunies Ross lecture theatre, followed by a tour of the Faculty and Veterinary Clinic before the graduates and their partners attended a dinner at St Andrew's College.

FACULTY STAFF NEWS

Dr Michelle Hyde, Sub Dean Agriculture Teaching, at the Australian Universities Teaching Committee conference where she was one of three finalists in the science category of the 2001 Australian Awards for University Teaching. Michelle also produced her third child in April.

Dr Paul McGreevy, with Professor Christine Nichol of Bristol University, was awarded the prestigious 2001 Prince Laurent Foundation Prize for his work on stereotypic behaviours in horses (crib biting). This international prize is awarded every 2 years for fundamental scientific research undertaken for the benefit of animal welfare.

After forty years service to the Faculty and its clients, **Dr Phil Davis** has retired. Phil's wide-ranging career encompassed lecturing, research, and a strong involvement in the greyhound and thoroughbred industries.

A number of new lecturers have been appointed to the Faculty: **Dr Kate Bosward** (Veterinary Pathobiology), **Dr Jacqui Norris** (Veterinary Microbiology), **Dr Merran Govendir** (Veterinary Pharmacology), **Dr Wendy Muir** (Intensive Animal Industries), and **Drs Jan Williamson** and **Jane Stevenson** (Veterinary Anatomy).

Professor David Hodgson has been appointed Director of Clinical Teaching (New Curriculum) to facilitate cohesive implementation of the new clinical curriculum. Associate Professor of Veterinary Clinical Practice, **Dr Bob Ratcliffe**, will oversee the integration of the partner practice program, a key component of the new curriculum.

The Sydney Clinic has taken on new staff in a number of areas: Veterinary Registrars in Small Animal Medicine **Dr Sandra Macheroux** and **Dr Arieh Ende**, **Dr Karen Plimmer** is the new Veterinary Registrar in Anaesthesia, and **Dr Craig Bailey** a Resident in Small Animal Surgery.

Recent promotions include **Dr Geraldine Hunt** to Associate Professor, recognising her international stature in the field of small animal surgery. **Dr Gareth Evans** and **Dr Frank Nicholas**, internationally renowned scholars in the fields of animal reproduction and genetics respectively, have been promoted to Professor.

The 2001 Graduation celebrations also acknowledged Faculty staff: **Dr Rosanne Taylor** and **Associate Professor Paul Canfield** (*Pfizer Teaching Awards*); **Dr Sanaa Zaki** (*Dean's Award for Excellence in Clinical Teaching*); **Dr Rosanne Taylor** (*Grace Mary Mitchell Award for outstanding contribution to teaching and learning*) and **Mr Keith Ellis** (*Grace Mary Mitchell Award for dedicated support of Faculty staff and the Sydney Clinic*). **Professor Grahame Feletti** and **Associate Professor Michael Prosser** (Institute for Teaching and Learning) were recognised for their work improving the quality of teaching and learning in the Faculty, and **Mr Philip Pogson**, Leading Partnership strategist, for his longstanding contribution to Faculty planning and direction.

THE MONGOLIAN CONNECTION

Right: Professor Doloonjin Orgil, Dean of the Mongolian Veterinary School, and Faculty Masters student Dr Enkhtuvshin Lunden, also from Mongolia.

Further links between the Faculties of Veterinary Science in Sydney and Ulaanbaatar were forged following the visit of Professor Doloonjin Orgil, Dean of the Mongolian Veterinary School, through a Sydney University Good Neighbourhood Grant. Sydney staff have already undertaken research and conservation projects in Mongolia, and a graduate of the Mongolian school, Dr Enkhtuvshin (Tuvshee) Lunden, is currently in Sydney studying for her Masters in clinical pathology.

Professor Orgil, a specialist camel surgeon, began his career in practice in the Gobi Desert before joining the University in 1979. During his visit he observed the contrasting teaching styles between Australia and Mongolia, believing our student-focused teaching and learning, combined with practical experience throughout the curriculum, is a more effective system. Professor Orgil's future objectives include establishing a teaching hospital and adapting the traditional learning culture to the expectations of students in an increasingly democratic nation – a challenge given the Mongolian government covers only basic costs such as telephone and electricity and all other income is derived from tuition fees from the 420 undergraduates.

The Mongolian Veterinary School was established in 1942, and for the first sixty years graduated only large animal veterinarians. With growing pet ownership, a recent phenomenon amongst the 750,000 people of Ulaanbaatar, small animal medicine and surgery was introduced into the five-year curriculum in September 2001.

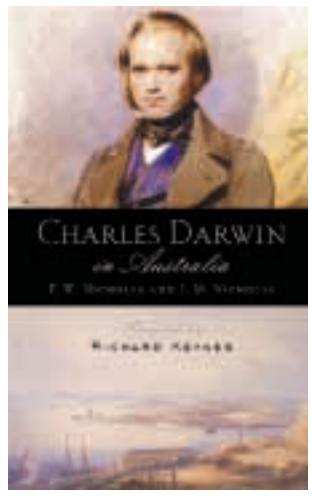
Despite the traditional focus on large animals, Mongolian veterinary education has mirrored the worldwide gender trend and 60% of graduates are women. Practice has also changed. Between 1946 and 1996, all veterinarians and veterinary services were government funded. Today, although the work is still primarily herd-based, veterinary practice is privatised with individual clinics.

Mongolia has a population of 2.2 million, with 180,000 family-based nomadic herders sharing thirty-two million farm animals. Professor Orgil says another key challenge is tackling the problems of low productivity and poor herd management systems, the result of traditional farming methods combined with Mongolia's harsh climate.

Diseases such as brucellosis are still of major concern in Mongolia and Professor Orgil also met with staff of EMAI (Elizabeth McArthur Agriculture Institute) with the objective of developing mutual projects and exchange programs with Australian and Mongolian veterinary scientists and students.

Tuvshee, who acted as Professor Orgil's interpreter during his visit, intends returning to Mongolia at the conclusion of her Masters. Her ambition is to teach at the Vet School and to establish the first-ever private veterinary clinical pathology laboratory in Ulaanbaatar.

CHARLES DARWIN IN AUSTRALIA



Faculty geneticist Professor Frank Nicholas and his wife Jan Nicholas, a librarian, have more than a passing interest in Charles Darwin and his work. In April 2002, Cambridge University Press released a paperback edition of Charles Darwin in Australia, a book Frank and Jan co-authored on Darwin's 1836 visit to Australia.

The book, which won the C J Dennis Award from the Fellowship of Australian Writers, is an account of Darwin's two-month visit to Australia during his voyage around the world on the Beagle and is based on the Australian section of Darwin's diaries. It was launched in May by Professor Judith Kinnear, Deputy Vice-Chancellor (Academic and International), following a lecture on Darwin by Professor Nicholas at the Faculty of Veterinary Science.

"(Charles) Darwin in Australia manages to be both an invaluable reference work and a good read, and you can't do much better than that." Gavin Gatenby, Australian Natural History.

Charles Darwin in Australia – F W Nicholas and J M Nicholas, Cambridge University Press, paperback $29.95, ISBN 0521 017025. Available from the University Co-operative Bookshop on (02) 9351 3705, or your local bookshop.

VEIN

www.library.usyd.edu.au/VEIN/

The Veterinary Education and Information Network (VEIN) website has expanded to over 800 unique pages – and its use by University of Sydney staff and students, the veterinary profession, animal scientists and related organisations is growing steadily. Since its launch in May 2001, the site has had more than 200,000 page accesses, and VEIN members are recognising the significant benefits of article and book delivery and research services.

The popular VEIN links pages (www.library.usyd.edu.au/VEIN/links/) point to excellent sites on a range of topics, and new pages include anthrax, marine mammals, dentistry, emus and veterinary history.

The dedicated VEIN staff are keen to see the network continue to expand and provide a quality service. They already receive many accolades: "As one of the early members of VEIN ……I am thrilled to have access to the resource. The library staff have been extremely helpful, prompt and courteous and the article copy service is wonderful".

VEIN, a partnership between the Sydney University Library, Post Graduate Foundation in Veterinary Science, and the Veterinary Science Faculty and Foundation, is the leading information service for veterinarians and animal scientists in Australasia. For further information about VEIN, contact Su Hanfling, Coordinator Library Services (Life Sciences), on (02) 9351 5426 or email S.Hanfling@library.usyd.edu.au.