

# The Royal Veterinary College Annual Report 2004-



THE ROYAL VETERINARY COLLEGE  
UNIVERSITY OF LONDON



**Commercialism**  
**Excellence**  
**Opportunity**  
**Evolution**  
**Collaboration**  
**Exploration**  
**Service**  
**Investment**  
**Transparency**  
**Strength**  
**Innovation**  
**Confidence**  
**Growth**  
**Commitment**  
**Dynamism**



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Vibrant education, excellent students, dedicated clinicians and inspired researchers are the lifeblood of the College. They enable a dynamic community which makes a profound contribution to social values and economic prosperity.

## Principal's report

### The year in review



Professor Quintin  
McKellar, Principal

#### Excellence

The Royal Veterinary College now awards 16 degrees, provides 60 Junior and Senior Clinical Training Scholarships and offers an impressive range of Continuing Professional Development courses, making it the major provider of education for the veterinary professions in the UK. Competition for places on the undergraduate and postgraduate degree courses remains intense, and our students are characterised by impressive academic qualifications and excellent motivation.

#### Opportunity

Students who are disadvantaged in their ability to acquire the pre-entry academic qualifications necessary for the veterinary degree (BVetMed) now have an opportunity to undertake our Gateway programme. This foundation year provides an excellent biological training springboard for the veterinary course and is contributing to our efforts to widen access to everyone with the ability and motivation to benefit from our educational programmes. We have also been widening access by disseminating information about our courses through a London-wide health partnership comprising 18 higher education institutions that run medical, nursing, veterinary or related programmes. This partnership has made a real impact on inner-city areas from which we rarely attract students. We look forward to receiving more applications from these areas and to creating a more diverse student body.

#### Evolution

Our courses continue to evolve as we learn about improved educational methodologies. Undergraduate students now receive up to 50 per cent of their education through directed learning provision, which we believe will encourage independent learning, support lifelong development and give them greater confidence in their chosen career. We are refining the clinical assessment of our veterinary students by embracing the Objective Structured Practical Veterinary Examinations, which have proved exceptionally successful.

#### Collaboration

Our partnerships with exemplary veterinary practices like Shepton Mallett, with the Blue Cross clinic and the Dogs Trust provide outstanding intramural access to clinical material. We estimate that BVetMed students will undertake an average of ten closely supervised spay operations each year, thus building confidence in surgery and contributing to their Day One skills. We remain extremely grateful to all the veterinary practices that

#### Commercialism

We have encouraged the development of an entrepreneurial culture in the College with a series of business and entrepreneurship workshops. These have contributed to some 30 potentially patentable ideas in the last year. Our spin-out company, VetCell BioScience Ltd, successfully completed a round of financing, valuing it at £3 million, and will use the new funds to identify and acquire new technologies. Furthermore, completion of the third phase of the London BioScience Innovation Centre (a subsidiary company of the College) added six new laboratories, ten offices and a seminar suite. The space now totals 29,000 square feet, and is designed to house and support start-up and spin-out biotechnology companies. The new building was opened by Lord Patten of Barnes in October, and is evidence of the major contribution the College makes to the economy.

provide extramural study (EMS) experience for RVC students. The feedback we receive from the practices and students confirms the value of this provision. An extensive period of EMS is a unique feature of the UK veterinary profession and demonstrates a real commitment to investing in future generations.

### **Exploration**

Research within the College enriches the educational experience of our undergraduates, enhances the reputation of our staff and contributes to the knowledge base, the economy and society at large. Our research groupings have been restructured to give greater depth in our specialist areas, and to more closely integrate our clinicians and basic scientists.

Particular research highlights include identification of the role of squalenyl pyrophosphate in protection against prion induced neurotoxicity; the role of Steroidogenic Factor 1 as a regulator of feeding behaviour in the VM hypothalamus; demonstration of the mechanism whereby chylomicron remnants become trapped in macrophages; and continued success in elucidating musculoskeletal function, specifically the role of vibration in musculoskeletal injury. The Locomotion Group was particularly successful in the acquisition of a BBSRC Fellowship and a Royal Society Wolfson Merit Award. The learning environment for graduate students has been improved by the use of reflective learning logs. Research funding has been buoyant, with some £6.1m of new grants acquired in 2004.

### **Service**

Clinical services offered by the College continue to grow and we have undertaken a range of initiatives to quantify customer satisfaction, with surveys of clients as well as referring vets. These have been very positive and provide an excellent foundation upon which we are determined to build. We now employ two qualified nurses to support hospital clinical research activities and use an electronic patient record system to capture the caseload material. Both developments will greatly enhance our clinical research.

### **Investment**

Significant improvements have been made to the fabric of the College. The refectory at Camden received a long overdue extension and facelift, providing a bright and convenient place to eat and socialise. The relocation of research offices to the second floor at Camden and an upgrade of the learning resource rooms on the first floor make much better use of the accommodation available. Hawkshead House has been rewired and decorated. The ground floor will become a student and staff social facility and the first floor will be used by staff who have been displaced by various larger building programmes.

### **Transparency**

It has been a very busy year for the Human Resources Department as we have moved towards the National Framework for Employment Conditions. This has required job evaluation of all staff and refinement of the appraisal process. A more transparent system for the reward and promotion of staff will result, contributing to our strategic objective of attracting the most talented veterinarians, bioscientists and support staff.

### **Strength**

During this year the College has created a 2.3 per cent surplus on a turnover of £38.5m in its annual accounts and its net assets grew by £5m.

### **Innovation**

Looking forward, we are faced by some major opportunities and challenges. Educational provision will benefit from the establishment of the Centre for Excellence in Teaching and Learning, the only such centre in a UK veterinary school. I have no doubt that this new facility will make a significant contribution to the learning environment here, and consolidate our position in the vanguard of such activity on the global stage.

### **Confidence**

As we approach the run-up to the next Research Assessment Exercise, the quality, depth and extent of research activity at the College continue to grow. It will be on this research that the scholarship of our staff is judged and this is a challenge we face with relish!

### **Growth**

Our clinical caseload is already second to none in the UK and lest complacency set in we intend to double the size of our referral hospital. Our optimism in this area is supported by the locations of referring veterinary practices, and by the depth of expertise in our staff. There are some 1200 veterinary surgeons practising in Greater London whose clients have 'easy' access to the M25 and thus to the Queen Mother Hospital for Animals. We shall continue to provide the service they want, a service that contributes in large part to the caseload on which our student education and clinical research depends.

### **Commitment**

Education for the veterinary professions does not stop when our students graduate, rather they begin a journey of development that will last their lifetime. We will prepare them for this journey while they study here, and when they leave, provide access to a comprehensive programme of Continuing Professional Development of unrivalled quality and diversity. Courses will be tailored to the customer and novel methods of delivery examined and exploited.

### **Dynamism**

The Royal Veterinary College looks forward to the future with great confidence and enthusiasm. I hope that you can share in our dynamic vision.



Our strategy for research at the RVC is to establish and maintain research activity of international quality in focused areas of practical relevance within the broad disciplines that comprise and underpin veterinary science.

## Research Forging ahead

Dogged approach:  
greyhounds pound the  
ground around a bend.  
Copyright: Nature



### In print

Jim Usherwood and Alan Wilson have had a paper accepted for publication in 'Nature'. The paper, entitled 'No force limit on greyhound sprint speed', studied the way greyhounds sprint around bends and examined the biomechanical constraints on the speeds they can achieve in comparison with human athletes. This is Alan Wilson's third 'Nature' paper in the current RAE assessment period.

### Constant evolution

Following a mock Research Assessment Exercise (RAE), research activity at the RVC has been reorganised into four major themes comprising eight research groups. The reorganisation will facilitate more effective collaboration and interaction between basic and clinical scientists. In addition, the College welcomes Professor Christopher Wathes who joins us to lead a new programme of animal welfare research on the environmental biology and management of pigs and poultry, funded by a £2.8 million programme grant from the Biotechnology and Biological Sciences Research Council (BBSRC). This initiative will establish animal welfare research at the College and make sure it receives greater attention in all our research endeavours.

### Musculoskeletal Biology

Lance Lanyon and Jo Price have been awarded a £1.5 million Wellcome Trust Programme Grant to study the fundamental mechanisms by which bones respond to mechanical loading to achieve, maintain and, if necessary, restore structurally appropriate architecture. This project will specifically explore potential interactions between mechanical loading, the hormonal environment and key signalling pathways in the regulatory control of bone mass. This is Professor Lanyon's fourth consecutive programme grant from the Wellcome Trust, which is an exceptional achievement.

John Hutchinson's work on dinosaurs is currently featured in an exhibition at the American Museum of Natural History. John was a consultant on the exhibit design and helped to design a small-scale robotic T. rex and a computer animation thereof. Details of the exhibition can be found at [www.amnh.org/exhibitions/dinosaurs/theropod/](http://www.amnh.org/exhibitions/dinosaurs/theropod/)

### Infection and Immunity

Janice Bridger's team has identified a new calicivirus that causes bovine enteric disease. The virus was found in calf diarrhoea samples submitted to the VLA centres at Penrith and Starcross in 2000, and may account for the lack of a diagnosis in the approximately 30 per cent of calf diarrhoea submissions.

A patent has been granted for Dirk Werling's idea for a novel vaccine delivery tool. This patent was facilitated by the Business Development Unit and initial proof of concept work has been funded by the Heptagon Fund. (<http://www.javelinventures.com/heptagon.htm>)

Dirk Pfeiffer is to be congratulated on the exceptional level of research grant funding he has secured over the last 12 months (more than £3 million) for his team to work with scientists at the Institute of Animal Health, Pirbright and international partners. Together, they will investigate the epidemiology and control of African Swine Fever and peste de petite ruminant in the developing world.

### Reproduction Genes and Development

Within Paul Watson's team working on male reproduction, Abdul Alhaider has established IVM of canine oocytes and successfully matured oocytes to metaphase I. Claire Wathes' team continues to work on the effects of nutrition during pregnancy on fetal and maternal physiology, receiving many invitations over the last year to present papers at international meetings.

Ketan Patel's team has discovered that molecules that control the epithelial-mesenchymal transition in muscle also control the development of the peripheral nervous system.

### Cardiovascular Biology and Inflammation

Charlotte Lawson and colleagues have shown that recipients of cardiac transplants make agonistic anti-ICAM-1 antibodies that can bind to the endothelium, causing activation of pro-inflammatory signalling pathways, which may contribute to cardiac allograft vasculopathy.

Kathy Botham's team, working on the atherogenicity of dietary lipoprotein particles, has shown that lipid from chylomicron remnants taken up by macrophages is resistant to efflux, providing further evidence for the importance of these particles in atheroma development.

**A list of awards for excellence in research can be found at [www.rvc.ac.uk/AnnualReport/](http://www.rvc.ac.uk/AnnualReport/)**

We have worked hard this year to pioneer a variety of new ventures in education. Our renowned BVetMed programme has been made accessible to more students, veterinary and nursing assessment methods have been streamlined, and our commitment to Continuing Professional Development affirmed.

## Teaching and learning

### Breaking new ground



The RVC's first intake of Gateway Programme students with Course Director, Rachel Payne

#### Wider access

Our diversification and expansion continued apace last year, with the admission of the first cohort of biological sciences graduates to our four-year BVetMed programme. We also welcomed the first widening participation cohort to our unique Gateway programme, which prepares students from more diverse backgrounds to join the BVetMed. Another new course, the four-year BVetMed programme includes a specially developed one-year, pre-clinical programme that prepares animal science or cell biology graduates to enter the final three clinical years of the BVetMed degree. We were very pleased to welcome several BSc Veterinary Sciences graduates onto this inaugural four-year BVetMed.

#### Under review

The BVetMed has been under much scrutiny this year, with our own Quinquennial Review in June and the AVMA inspection in November. The former went well, confirming support for proposed revisions to the programme. A report will be submitted by the AVMA in 2006, hopefully leading to accreditation for a further seven years.

#### Curriculum evolution

The next major BVetMed curriculum revision is due for introduction in 2007-08. A well attended staff away-day in March 2005 examined both vertical integration (including essential underpinning science, core clinical knowledge and exciting conceptual science) and clinical tracking. This will establish a 'big picture' agreement for how the course modules and rotations are restructured.

#### Improved assessment methods

We built on our FDTL-4 project-supported introduction of Objective Structured Practical Veterinary Examinations (OSPVEs) – which have now become a key part of Finals. In this way, we can make sure that all graduating students are competent in relation to Day One skills.

Clinical staff have also been working hard on a range of Extended Matching Questions designed to enhance the testing of clinical reasoning in Finals, and create a variety of assessment methods wide enough to test the diverse skill-set of the modern veterinary surgeon.

The BSc (Hons) Veterinary Nursing is run by the RVC, the College of Animal Welfare and Middlesex University. Until now, students have had to take both university-based and RCVS examinations. In order to lighten this double assessment load, the RCVS asked the RVC and Bristol University to pilot a new internal assessment method. In 2005, the BSc (Hons) Veterinary Nursing became the first BSc to achieve this new RCVS accreditation.

#### Continuing Professional Development

Now that the RCVS Council has declared CPD a mandatory requirement of practising veterinary surgeons, opportunities in this area are set to increase. Our CPD provision has been strengthened by the appointment of Dr Jill Maddison to head up the Unit and broaden what it can offer to its customers. Conventional lecture-based CPD is now supplemented by practical workshops and innovative e-CPD programmes in clinical reasoning, small animal medicine and diagnostic imaging.

While the UK veterinary marketplace remains relatively static, we have continued to expand. Forward-planning of staffing levels and facility development has allowed us to maintain a positive financial balance, and ensure that the Queen Mother Hospital for Animals, the Sefton Equine Hospital, the Beaumont Animals' Hospital, the Large Animal Practice and the Diagnostic Laboratories continue to provide outstanding patient care and excellent teaching and learning environments.

## Clinical services

### Facilitating growth

Harry the cat, whose life was saved by open-heart surgery performed by the team at the QMHA



#### QMHA development: final phase

The initial construction of the Queen Mother Hospital for Animals took place in 1986 and Phase Two of its development began in 1997. This year, a business plan for Phase Three was written and approved. Architects were appointed and a project team set up. Our requirements and specifications for the new building and equipment were identified and fund-raising for this £8 million project began. Construction will start early in 2006 and be completed by August 2007. At present the project is on schedule.

#### New staff help meet growing caseload

Every year, we treat over 19,000 small animals and 4,500 horses, and their numbers continue to grow. Many are treated in our primary care and ambulatory practices, giving students invaluable hands-on experience. In response to increasing demand, we have taken on additional veterinary and paraprofessional staff to strengthen veterinary and nursing training.

#### Dogs Trust collaboration

Successful negotiations with the Dogs Trust in 2005 mean that, early in 2006, we will begin providing veterinary care for the Trust's new re-homing centre in Harefield, West London. Up to 1,600 dogs a year will pass through the hands of staff from the Beaumont Animals' Hospital. Students on rotation will examine dogs as they come in, administer prophylactic vaccinations, flea and worm treatments and help with neutering and spaying.

#### New comparative neuromuscular diseases laboratory

This new laboratory combines the skills of staff at the Sefton Equine Hospital with those of experts from the RVC's pathology laboratories and Imperial College London. Together they are investigating the clinical and basic science of animal and human neuromuscular disorders. Their aim is to establish improved methods of diagnosis and treatment by understanding more about disorders affecting striated muscle and the central and peripheral nervous systems.

#### Added physiotherapy expertise

The RVC runs a unique MSc Veterinary Physiotherapy. This year, a veterinary physiotherapist has been appointed to the QMHA to assess and devise treatment programmes for patients that have a sound scientific base. Treatments include manual manipulation and hydrotherapy in the RVC pool.

### Ground-breaking open-heart surgery

This year, a new open-heart surgery programme has combined the expertise of our veterinary staff with that of highly specialised medics. This activity has been made possible by the recent development of the QMHA Intensive Care Unit, and the engagement and training of the veterinary and support staff there. A number of operations have now taken place and the success rate is very high. This project is unique in Europe.

#### Innovative diagnostic tests

Upper Respiratory Tract Disease (URTD) in tortoises (often called Runny Nose Syndrome or RNS) has posed a major diagnostic problem for veterinary surgeons in small animal practice. Several infectious agents were suspected but not clearly associated with the syndrome, and recent research has established the presence of herpesvirus and Mycoplasma species in captive tortoises. Based on the polymerase chain reaction (PCR), we have established a number of molecular tests that detect the presence of these organisms in tortoises, all of which are commercially available through our diagnostic laboratory services.

#### Hands-on farm animal work

It is vital that we provide our students with farm-based, clinical experience so that they feel confident and competent in their first days in practice. To this end, we make maximum use of the College Farm at Bolton's Park. Our collaboration with the Shepton Mallet practice in Somerset goes from strength to strength. A number of our clients allow students to carry out procedures like disbudding and foot trimming, and several farming enterprises allow them to undertake elective programmes. All these relationships are invaluable, and it is wonderful to see the support and encouragement our students receive.

Business development at the RVC focuses on building a culture of commercial awareness and responsiveness to business opportunities, by capitalising on a broadening portfolio of intellectual property. This process enriches the enterprise environment, expands the horizons of staff and students alike, and allows us to play an active role in the commercial enterprise of the London region.

## Business developments

### Creating an enterprising culture



The new LBIC Phase  
Three laboratories  
and offices

#### New LBIC space

In October, Lord Patten of Barnes formally opened Phase Three of the London BioScience Innovation Centre's development at a reception attended by senior members of the London biotech community and hosted by the RVC Chairman, Lord Salisbury. The generous support of the London Development Agency has enabled us to increase laboratory and office space by 50 per cent and build a new seminar suite.

#### Our combined expertise

The Business Development team brings together expertise in technology transfer, contract negotiation and corporate marketing and communications, and is widely regarded as one of the best among the University of London's smaller colleges. It is unique in being able to draw on the resources of other colleges and the Cass Business School through SIMFONEC, one of the country's leading Science Enterprise Centres.

The team is also responsible for managing LBIC, a wholly owned subsidiary of the RVC. LBIC is market leader in London for incubating life science companies, and is currently home to over 20. It provides both close proximity and relationship to venture investors, biotech companies and others in the sector, putting the College at the heart of bioscience research in London and opening the door for research collaboration.

#### VetCell success

The RVC's spin-out company VetCell BioScience Ltd continues to go from strength to strength. It has achieved a fully-subscribed finance round of £500,000, which values the company at almost £3 million. This, in turn, values the College's equity holding at around £250,000. The funding is being used to identify and acquire new technologies to broaden activities. VetCell also achieved runner-up position under the category 'Best New Exporter' at the UK Trade and Industry awards.

#### Pfizer deals

Two substantial collaboration agreements have been negotiated with Pfizer Animal Health, providing research income of over £0.6m, plus options to license underlying technology for further milestone payments of up to \$1.4m, plus royalties on sales. These form part of a burgeoning programme of activities with Pfizer, including sponsored studentships, contract work and trials.

#### Business development team expansion

Paula Glason has joined us as Marketing Manager to focus on developing and implementing LBIC's marketing strategy, and on the commercial activities of the College.

#### Commercial awareness and enterprise training

An annual programme to support development of the RVC's enterprise culture reaches every part of the College and comprises:

- > Two short seminars for academic staff
- > A two-day course for postgraduate students and post-docs
- > A module for the second year BSc Veterinary Sciences course
- > An entrepreneurship elective for final year BVetMed undergraduates
- > A business plan competition
- > Contributions to induction courses and Research Group seminar days throughout the year
- > A commercial seminar series targeted at LBIC clients that also encourages networking with RVC staff

From 2006, we will reinforce the support offered by the RVC to professionals working in veterinary practice by contributing to the provision of CPD training in business skills.

#### Funding for technology development

Access to a £2.8m fund for developing ideas with commercial potential (financed by the Higher Education Innovation Fund and the London Development Agency) has proved hugely valuable. The College has received around £160,000 of research income so far, to help advance projects to a stage at which they will interest a commercial partner.

#### Expanding LBIC horizons

As well as targeting London-based companies, LBIC has commissioned market research in Finland and is exploring opportunities to develop its proposition in the US, where companies are seeking to develop markets for their products and services in the UK and mainland Europe.

2005 saw the start of a further period of major capital expenditure on developments at the RVC. By building on the work already completed, we will continue to achieve excellence in veterinary and paraveterinary education, research and provision of clinical services.

## Capital developments

### Investing for the future

Newly-refurbished Directed Learning Rooms (top) and Refectory (bottom) at the London Campus



#### SRIF funded developments

The College has successfully secured further funds to enable the development of new facilities to further research and scholarly activity; this includes the refurbishment and development of new laboratories.

#### Centre for Excellence in Teaching and Learning

Building work has commenced on a new LIVE Centre for Excellence in Lifelong and Independent Veterinary Education thanks to the HEFCE Teaching and Learning funding initiative. The centre will be completed for the academic year 2006-07 and will provide state-of-the-art facilities for students.

#### Controlled Environment Facility

Funded by the Biotechnology and Biological Sciences Research Council (BBSRC), work has begun on a valuable new facility for the study of animals that is due for completion in 2006.

#### Queen Mother Hospital for Animals Phase Three

Design work is underway for further development of the Queen Mother Hospital for Animals. Among other things, we aim to build additional consulting and operating rooms and a new diagnostic suite, including an MRI facility. Construction will start in 2006, so that Phase Three is complete in time for the 2007-08 academic year.

#### London Campus improvements

The refectory has been completely refurbished and extended to include a deli area for casual dining. More recently, agreement has been reached to create a new teaching laboratory, enhance and relocate the Anatomy Museum, relocate and improve the student union facilities and to build some innovative new social learning spaces. The work at Camden will be completed by summer 2006.

In the last year, our special initiatives were as innovative as they were collaborative. Taken together, they demonstrate the growing influence of the RVC at local, national and international level in arenas as diverse as education, research and commerce.

## Special initiatives

### Making connections



#### Preserved for posterity

The Eclipse building on the Hertfordshire Campus now houses a fascinating museum. Among the exhibits is the skeleton of the famous racehorse, Eclipse whose two hundred-year-old bones are currently being examined in order to find out, 'what makes a racehorse great'. The Japanese Racing Association recently filmed Eclipse's skeleton and consulted our historical archives for a project commemorating great racehorses. A collaboration with Ipswich Museum enabled us to conserve Eclipse's leg so that his genetic legacy will continue to intrigue and inform for many years to come.

#### Corporate collaboration

The RVC has developed strong links with many companies and is committed to supporting the UK economy through these 'third stream' activities. The alliance forged last year with Pfizer has already facilitated scientific discovery in antigen delivery, canine respiratory disease, bovine viral diarrhoea and antimicrobial therapy in cats with renal insufficiency. Pfizer has supported BBSRC/CASE studentships, residencies and CPD courses, and is working with the Department of Veterinary Clinical Sciences to establish the first Veterinary Phase II Clinical Trials Unit in Europe. These initiatives will make a significant contribution to the health and welfare of animals and support the RVC mission.

#### Drama and medical ethics

Last year, the RVC and Kings College London supported a creative attempt to bring issues relating to the use of animal organs for human transplantation to the attention of young people. A Theatre in Education company, Y-Touring, presented a play entitled 'Pig in the Middle' to 3,000 Year 10 students in Haringey, Newham, Tower Hamlets and Waltham Forest, who then took part in follow-up debates on the ethical issues raised. The initiative was praised by teachers for making complex subject matter accessible and interesting. There will be follow-up work with the schools in 2006.

#### Virtual learning

The RVC is a founding member of the Bloomsbury Learning Environment (BLE) group, which also includes the London School of Hygiene and Tropical Medicine, the School of Oriental and African Studies and the Institute of Education. A common virtual learning environment, the Blackboard Academic Suite, allows us to share expertise economically. This is the first collaboration of its kind in the UK, and demonstrates the potential for Bloomsbury institutions to work more closely together.

#### Meeting PhD needs

With the support of funds from the Research Councils, the RVC Graduate School is responding to the changing needs of PhD students nationwide. In 2004-05, an anonymous, online survey revealed that PhD students require more help with developing key skills and with creating an environment in which their full potential can be realised. In response, the Graduate School designed new courses, and a personal log book in which PhD students can plan their studies and record their needs and achievements in academic, discipline-specific and key skills.

#### Saturday Schools

During the 2005 Easter and Summer terms, the RVC hosted four Saturday Schools for young people from African-Caribbean backgrounds as part of a wider programme to encourage school students into the health professions. Staff introduced the participants to basic concepts of chemistry, biology and physics through practical laboratory work. 54 Year 10 students from Hackney, Lambeth, Wandsworth and Newham attended. On completion, they were presented with certificates by Deputy Principal, Professor Stephen May. A similar venture is planned for 2006.

#### Pioneering pathology course renewed

The BSc (Hons) Veterinary Pathology was conceived by Professor Joe Brownlie in collaboration with the Wellcome Trust. Driven by cutting-edge research, its emphasis is on the mechanisms of infectious disease and their pathological consequences. The Wellcome Trust generously provides ten scholarships per year, and the course has attracted an excellent cadre of students from England, Scotland, Ireland and Sweden. Much of their research has been published in peer-reviewed journals, and they demonstrate a far higher rate of return to postgraduate studies than non-intercalating students. For research project information, please visit [www.rvc.ac.uk/vetpathbsc](http://www.rvc.ac.uk/vetpathbsc)

A veterinarian wearing a blue surgical cap and mask is focused on a procedure in an operating room. The horse is draped in a teal sterile cloth, with only its legs and lower body visible. The room is filled with medical equipment, including a large overhead light fixture and various tubes and monitors. The scene is brightly lit, emphasizing the clinical and sterile environment.

Operation being performed at the Sefton Equine Hospital



The Royal Veterinary College Alumnus Association is a self-funded association of graduates, staff and supporters of the RVC. The RVCAA raises funds for the Students' Union Society and the Animal Care Trust, supports education and maintains links between members and the RVC.

## People

# Alumnus Association

Miss Mary Brancker  
at the opening of the  
new student residence,  
Mary Brancker House



### In recognition

In the autumn of 2005, a distinguished RVC alumna, Mary Brancker, was the recipient of the British Veterinary Association's Chiron Award, in recognition of her outstanding contributions to the profession and its work. Mary graduated from the RVC in the 1930s and worked for many years in a mixed practice in the Midlands. In 1967 she was elected the first ever female President of the British Veterinary Association and until last year remained the only woman ever elected to this prestigious office. Her dedication to the profession has been celebrated throughout her career, notably by an OBE which was awarded in 1969 and a CBE which followed in 2000. Her contributions to the Royal Veterinary College were also recognised in September 2005 when she opened the new hall of residence in Kentish Town that bears her name.

### Wellington's legacy

In February, Peter Lane organised a successful visit to Apsley House at Hyde Park Corner, the home of the first Duke of Wellington and now a museum in his name. A tour of the house and its many beautiful and interesting artefacts was followed by a dinner at the Farmers Club in London. Continuing the military theme, Colonel Brian Thompson, late of the RAVC, was guest speaker.

### En France

On a very hot Saturday in June we visited L' Ecole Veterinaire Alfort, Paris for a fascinating tour of the Musée Fragonard which is sited on the veterinary school campus. On the following Sunday, we went to the Living Museum of the Horse at Chantilly.

### Future funding

Next year, the Alumnus Association will fund the purchase of furniture and equipment for the Students' Union, which will be located in the partially refurbished Hawkshead House.

### RVCAA Membership

For more information about the Alumnus Association please visit the website: [www.rvc.ac.uk/AboutUs/Alumni](http://www.rvc.ac.uk/AboutUs/Alumni)

For membership enquiries, please contact:

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2004-05 was another active year for the RVC student body, both within and beyond College boundaries. Graduation Day in July 2005 saw the successful introduction of two ceremonies, which included the first cohort of graduating BSc Veterinary Sciences students.

## People Students



Top and bottom right:  
Graduation Day 2005  
at Guildhall  
Bottom left: RVC Riding  
Team, winners of the  
BUSA Championship

### Champion riders

Huge credit must go to the riding team who won the national BUSA championship. Team captain, Cajsja Isgren, did especially well. Having won her individual event, she was offered a chance to compete internationally.

### Biggest ever intake

Our largest student intake to date made Freshers' Week a huge undertaking, successfully managed by Oli Viner. Later in the term, Oli also organised our biggest ever Christmas Ball which was attended by over 700 people, a really impressive figure given our size.

### Combined effort

The collective achievements of our sports teams culminated in the RVC winning the Small Colleges' Cup for the second year running. We are all very grateful to Rosie Akroyd, our Sports Officer, for overseeing and managing our participation throughout those two years.

### Proud moments

292 undergraduate and postgraduate students, as well as several student and staff prizewinners were celebrated at two exciting graduation ceremonies which took place at Guildhall in July. With one ceremony in the morning and one in the afternoon this new format for the day happily accommodated all of our undergraduate and postgraduate graduands, their families and RVC staff.

The Opening Ceremony in October launched the RVC's new Corporate Plan and included a fascinating talk by Mr Pedro Lichtinger, President of Pfizer Animal Health.

To see a list of all student prizes in 2004-05, please go to [www.rvc.ac.uk/AnnualReport/](http://www.rvc.ac.uk/AnnualReport/)

### Pull!

Our biggest society last year was the rowing club, which competed at Henly as a combined crew with University Hospitals – only to win the Novice Men's event in the UH competition. Four crews entered the Women's Head of the River race. All were well placed.

### Lacrosse legend

Rachel Kircheimer showed her calibre by competing with the English national team in the Lacrosse World Cup, which was hosted by the USA last summer. Rachel's efforts in midfield helped secure a bronze medal for the team.

### In the limelight

In February, we staged a production of *The Importance of Being Earnest* in Potters Bar. The cast performed to full houses and universal praise. Particularly pleasing was the fact that Director, Lucy Howard, got in touch with alumni who had staged the same play exactly 50 years earlier, and that two of the original cast were able to attend.

### Annual ball

In May, a large circus big top going up in the grounds of the Hertfordshire Campus couldn't fail to attract attention. After months of careful planning by the annual ball committee, headed up by President Mark Gill, the scene was set for a memorable event that went down well with staff and students alike.

### Good causes

RAG (Raise and Give) week in February was organised by Alice Frankum and a second-year committee. We raised money for four charities, among them the Animal Care Trust, through a variety of events. These included fancy dress collections around London, carol singing outside Harrods, and a host of parties.

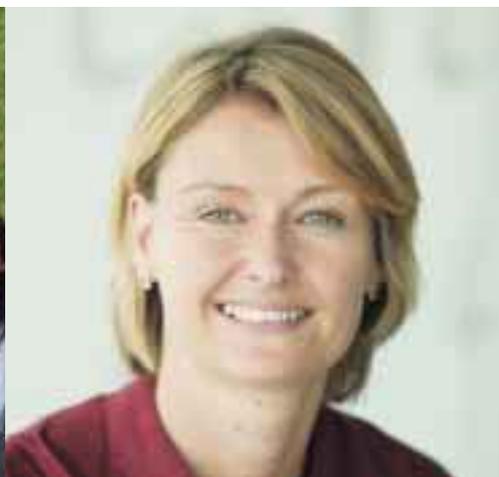
### Project Africa

The Undergraduate Research Team has been busy preparing for its project in Africa next year. It is entitled *Cattle Farming in Swaziland: factors and diseases affecting productivity*, and next year we hope to be able to provide a full report.

### Join the club

The Student Union's impressive array of clubs expanded this year with the addition of the Overseas Development Society and the Countryside Sports and Rural Affairs clubs. Both the men's and women's rugby teams did particularly well in their leagues, and the women were named RVC team of the year at July's Sports Dinner.

# People Starters



## Animal Welfare Group

The new RVC Animal Welfare Group was established in October 2005, following the award of a major programme grant by BBSRC (£2.8 million over five years) to Professor Christopher Wathes and his colleagues (please see below). The group's main interest is in environmental biology underpinning the welfare and management of farm, laboratory and other animals. It currently numbers eight academic and technical staff and expects several postgraduate students to join in the autumn.

A new animal house is currently being built on the Hertfordshire Campus to accommodate pigs, poultry and other farm animals; it offers unrivalled control over an animal's physical and social environment with full automation of feeding, weighing and environmental monitoring. The multi-disciplinary group includes ethologists, engineers, biophysicists and other animal scientists, and expects to develop close links with both scientists and clinicians in collaborative studies on animal welfare.

## Members of the Animal Welfare Group

Christopher Wathes, Professor of Animal Welfare  
Siobhan Abeyesinghe, Research Fellow in Social Behaviour  
Theo Demmens, Senior Research Fellow  
John Jarvis, Senior Research Fellow in Psychophysics  
John Lowe, Research Engineer  
Morven McLeman, Research Fellow in Social Behaviour  
Claire McMahon, Welfare Biology Technician  
Rachel Owen, Welfare Biology Technician

## Paula Glason

Paula joined the RVC in Spring 2005. She is Marketing Manager for the College and its incubator, the London BioScience Innovation Centre (LBIC), and a member of the RVC's LBIC-based Business Development team.

Paula came to us from the Association of MBAs (AMBA), where she was Director of Communications. AMBA is an internal membership organisation promoting the MBA qualification and its benefits to individuals and organisations. Prior to that, she gained experience working in business development and marketing roles at Warwick Business School and within local government.

Paula has a first degree from the University of Durham and a master's degree from the University of Surrey. She is a member of the Chartered Institute of Marketing and a Fellow of the Royal Society for the Arts.

## Other starters 2004-05

Clare Blackett, Head Veterinary Surgeon, BAH  
Paul Charlesworth, Examinations Officer  
Oliver Garden, Senior Lecturer  
Richard Piercy, Senior Lecturer  
Birgit Pirkelbauer, LIVE Centre Manager  
Carol Rose, Facilities Manager  
Emma Wilson, Practice Manager, QMHA

## Jill Maddison

Jill graduated from the University of Sydney in 1978. She completed an internship there in 1979, spent 18 months in full-time private practice, then completed a residency in small animal medicine at the University of Guelph, Canada. She returned to Australia to study for a PhD at the University of Sydney, where she was subsequently appointed Senior Tutor and Clinician in the Department of Veterinary Clinical Sciences and Senior Lecturer in the Department of Pharmacology. She also worked in general and specialist veterinary practice and was a consultant for a veterinary clinical pathology lab. In 2000 she became Director of the University of Sydney's Veterinary Science Foundation.

Jill moved to the UK with her family in April 2001. In 2002, she became a veterinary clinician and tutor at the RVC and a Fellow at Girton College, Cambridge where she tutored in pharmacology. In September 2005 she was appointed Director of Professional Development and head of the CPD Unit at the RVC.

# People Movers



**Jonathan Elliott**  
**Vice-Principal for Research**

Jonathan graduated from Cambridge University Veterinary School in 1985. Subsequently he completed an internship at Veterinary Hospital University of Pennsylvania and a PhD in vascular biology and amine oxidases at the University of Cambridge. In 1990, he gained an RCVS Certificate in Small Animal Cardiology and a lectureship at the RVC, where he is now Professor in Veterinary Clinical Pharmacology and Vice Principal for Research.

In 1998 Jonathan won the Pfizer Academic Award for his research contributions to companion animal medicine, particularly to the pharmacology of equine digital blood vessels implicated in the pathophysiology of laminitis. He was the 2001 recipient of the BSAVA Amoroso award for outstanding contributions to small animal studies in the area of feline chronic renal failure. He is a Diplomate of the European College of Veterinary Pharmacology and Toxicology and a member of the Veterinary Products Committee, which advises the UK Government on the authorisation of veterinary medicinal products. In 2005 he was appointed to serve on the BBSRC Fellowships and Studentships Panel. His research interests encompass the pathophysiology of renal, cardiac and vascular diseases of companion animals.

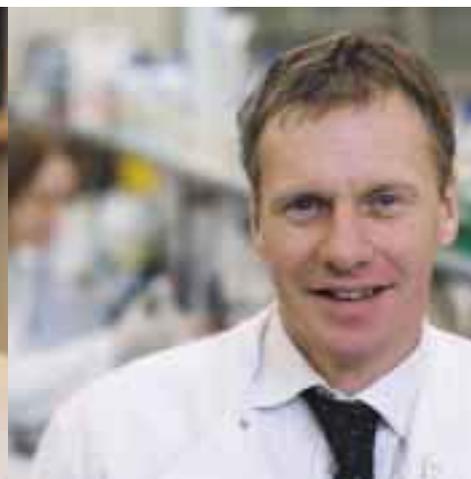


**Jo Price**  
**Head of Department**  
**Veterinary Basic Sciences**

Jo's degree in veterinary surgery is from Bristol University. She qualified in 1983 and worked in the UK and Singapore in equine and small animal practice, before returning to Bristol as Lecturer in Veterinary Anatomy. While there, she participated in Professor Allen Goodship's equine orthopaedic research and was awarded a five-year research training fellowship by the Wellcome Trust. She completed a PhD at Sheffield University and initiated a research programme into biochemical markers of bone cell activity in horses.

She then joined Professor Lance Lanyon's group at the RVC, working on the mechanisms by which mechanical loading influences bone cell function. A Wellcome Trust Career Development Fellowship took her to the Department of Medicine at University College London. Four years later, she returned to the RVC to research the molecular mechanisms of deer antler regeneration.

Jo was appointed Senior Lecturer in the Department of Veterinary Basic Sciences in 2000, and Professor in 2005. Her main research interests are in bone biology and include ongoing investigations into the pathways used by bone cells to respond to sex steroids and mechanical loading; the molecular mechanisms that underlie deer antler regeneration; the mechanisms by which training influences the equine musculoskeletal system; and the development of biochemical, physical and genetic methods for non-invasively monitoring equine musculoskeletal function in health and disease.



**Martin Sheldon**  
**Professor of Veterinary Reproduction**

After 15 years in veterinary practice Martin completed a PhD at the RVC, where he was also awarded two postgraduate diplomas and RCVS Specialist status. He is now Professor of Veterinary Reproduction in the Department of Clinical Sciences here, and Visiting Professor at Bologna University and Cornell University.

His research group is exploring the effect of microbial disease on reproduction in mammals, funded by the BBSRC and the Wellcome Trust. Infection of the reproductive tract is important in domestic animals because it leads to infertility, abortion, pain and suffering. The research is focusing on cattle because infection is ubiquitous after parturition, and uterine disease is the most costly cause of infertility in the dairy industry. The group has developed a system for the evaluation of uterine infection by veterinarians, and established definitions for uterine disease that can be used by researchers and vets throughout the world.

The cow is also proving a good model to study the interaction between reproduction and immunity, and the mechanisms for recognition of infection by uterine cells have been characterised. Martin's aim is to identify how the immune and reproductive systems are integrated at the cellular and molecular level. These studies should lead to better treatments for uterine disease and infertility.

#### **Other movers 2004-05**

Elaine Acaster, Secretary to Council and Assistant Principal  
Stephen May, Deputy Principal and Vice-Principal (Teaching)

# People Leavers



## Diana Bonner

Diana joined the College in 1991 as Personal Assistant to Professor Lees, then Head of Department of VBS. She arrived with excellent credentials and what, at interview, seemed to be a very pleasing personality; self-confidence without a trace of arrogance.

Little did we know then what an impact she would have on the College's internal administrative systems. When she left some 14 years later, to pursue her interests in golf, gardening, badminton, travel and family affairs, it emphasised what a powerful force for good she had been.

For many years, Diana's principal role was to work alongside Professor Lees, first as Head of Department, then Vice-Principal for Teaching and later as Deputy Principal. They made a good team, often as a consequence of Diana's understanding of the nature of problems, and her ability to provide best solutions. She was the most 'can do' person employed by the RVC, and the Betts Prize, awarded to Diana in October 2005, was a fitting recognition of her outstanding gifts and contributions.

Diana's humour and natural charm disarmed us all, and she will be greatly missed in the College. We wish her well in her retirement, which is sure to be filled with activity and friends, made all the richer and happier by their contact with her.

## Other leavers 2004-05

Linda Hall  
Gail Healey  
Michael McGowan  
Peter Mitchell  
Beryl Quilter



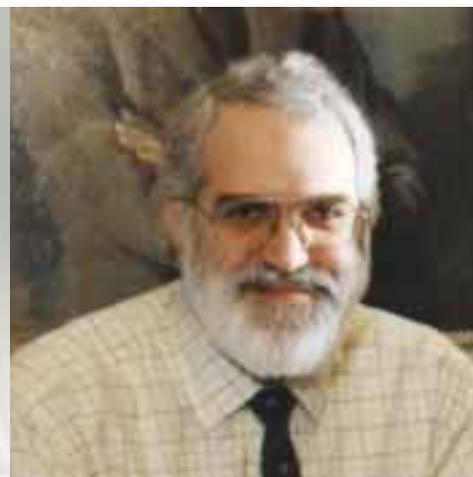
## Andrew Madel

Andrew has made a huge contribution to the veterinary profession, especially in relation to teaching in the art and science of veterinary medicine. He was very much a practical veterinary surgeon, and for many years gave tireless service as the backbone of the Sheep Veterinary Society.

As a teacher, Andrew adopted a friendly approach to individuals and groups of students. However, he left them in no doubt that he expected a high standard from future graduates as members of the veterinary profession, and that above all they should use their common sense.

After graduating from Cambridge, Andrew went into general practice in Herefordshire and travelled to Australia. Having completed an Animal Health Diploma here at the RVC, he joined the Department of Animal Husbandry. From that time until retirement he served across a number of departments, delivering animal husbandry and farm animal medicine teaching and farm animal clinical service. He was also heavily involved in a radical review of our curriculum and teaching methods – a review that resulted in the excellent standards maintained at the RVC today.

Andrew became a friend and mentor to hundreds of graduates and is sorely missed by the animal husbandry and clinical teaching teams here.



## Alan Smith

Derbyshire born and bred, imbued with a practical, down-to-earth character, Alan retired in 2005 having devoted 13 years to the College as Secretary and Registrar.

The foundation for a long career in university administration was laid at St Edmund's Hall, Oxford, where he read Modern History, and the University of Newcastle upon Tyne, where he studied Town and Country Planning. He worked in specialist biomedical institutions prior to taking up post at the RVC. As Clerk to the Council and Head of the Administration Department, Alan rose to a daunting and challenging remit in an organisation that was constantly developing and expanding.

In his committee work, Alan demonstrated a flair for contending with what some regard as a minefield, and for drafting reports and minutes with tremendous fluency. As Secretary to the Committee of Heads of Veterinary Schools, an active member of the Veterinary School Administrators Group, and of the Executive of the Association of Heads of University Administrators, Alan's knowledge of the higher education sector proved invaluable. Always happy to provide advice and generous with his time, he earned the respect and affection of colleagues from a very wide circle.

Alan is also blessed with formidable powers of recall, which enable him to bring to mind long-buried items of fact and procedure – a talent we still call upon today. In the meantime, he is relishing his retirement, taking on consultancy work, fulfilling his commitments as a lay preacher, and satisfying his passions for book and record collecting, wood turning, walking, real ale and good conversation.



The Royal Veterinary College Animal Care Trust raises funds to facilitate the work of the College's clinical services by supporting clinical staff, providing equipment and building new hospitals.

## Animal Care Trust

£1.5 million raised – £3.5 million to go



Mango recovering with his mother. Money raised by the ACT paid for the Foal Unit which saved Mango's life.

### Donors help save lives

ACT's generous donors helped us to raise funds over the last year to buy several crucial pieces of equipment for the RVC hospitals. These include the Foal Unit, an operating microscope which is used for brain surgery, and other high-tech equipment which our clinicians use everyday to save animals' lives. The ACT relies on the generosity of the public to keep us moving forward. Every donation we receive, small or large, makes the work of our hospitals that little bit more possible. Help us save more lives!

#### Paws for a Cause

The Animal Care Trust has now raised £1.5 million of its target of £5 million for the development of the Queen Mother Hospital for Animals. The appeal is called 'Paws for a Cause' and is chaired by Dame Pauline Harris. The appeal had a prestigious launch at St James's Palace. HRH The Duke of Edinburgh, the College's Patron, hosted a reception and lunch in the impressive surroundings of the palace.

#### Animal Care Trust Patron

The Royal Veterinary College Animal Care Trust has been honoured by HRH The Duchess of Cornwall agreeing to be its Patron.

#### Paw Trail

Clients, staff and supporters have participated in the Paws for a Cause Paw Trail. Over 1,000 named paw prints adorn the reception and corridors of the hospital and the total raised exceeds £12,500.

#### Marathons and Dog Walks

Hill's Pet Nutrition generously sponsored the Animal Care Trust's teams who took part in this year's London Marathon, Great North Run and in our new sponsored dog walks. Every pound raised has gone to the College's hospitals to buy much needed equipment, or to the Paws for a Cause Appeal.

The first sponsored dog walk was held at the College's Hertfordshire Campus, and the second in London's Regents Park. Celebrities supporting these events included David Grant (an alumnus who appeared regularly on BBC1's Animal Hospital), John McCrerrick and Jenny Seagrove. More walks are scheduled for 2005-06, details are on our website.

#### Sponsored horse ride

This year our Sponsored Horse Ride was held at Watton-at-Stone. We are most grateful to Mr and Mrs Ralph Abel Smith for giving us access to such a beautiful setting for this well supported event.

#### Windsor winners

In the summer we went to the races again at Windsor Racecourse. Four of the six sponsored races were supported by Slough Estates plc, the Tote, Terza Carpets and Gallagher UK Ltd. Generous guests sponsored tables for the auction dinner, which raised a net income of £35,000.

#### With thanks

The Trust and its staff are enormously grateful to the Charitable Trusts, companies and supporters who have bought from our catalogue, made contributions and donated to our annual National Raffle, the Paw Trail and the Paws for a Cause Appeal. We could not achieve as much as we do without your help.

#### Stars of the small screen

The Trust is thrilled that BBC1 has been filming the patients and veterinary teams at our Hertfordshire Campus, and our MSc students at the Zoological Society of London. The ten-week series Super Vets, will be broadcast from January 2006 on BBC1. Full details are available on [www.supervets.rvc.ac.uk](http://www.supervets.rvc.ac.uk)

#### You can help too

For more information on the work of the Animal Care Trust, to get involved in any of our fundraising activities or to enquire about making a donation or leaving a legacy please contact Virginia Fisher on 01707 666237, or email [vfisher@rvc.ac.uk](mailto:vfisher@rvc.ac.uk)

Alternatively, please visit our website on [www.rvc.ac.uk/act](http://www.rvc.ac.uk/act)

Registered charity number 281571



2005 has been an exciting first year for LIVE, the Centre for Excellence in Lifelong and Independent Veterinary Education. Kick-started by an HEFCE award of £4.5 million, the project has a simple objective: to ensure that veterinary education meets the needs of capable, committed, independent learners, from induction to retirement.

## Moving forward

### A flying start



Top: LIVE Centre construction site, Hertfordshire Campus  
Bottom right: Birgit Pirkelbauer, LIVE Centre Manager



#### New build

We expect completion of the LIVE Centre in September 2006. Two new clinical skills laboratories are planned. The only facilities of their kind in the UK, they will be of great benefit to RVC students, to other vet schools, and to any national body or educational institution that requires support like this. The Centre will also house three communication skills rooms and state-of-the-art multimedia and IT equipment designed to facilitate LIVE's sponsorship of innovative educational approaches.

#### Recruiting expertise

To add variety and depth to our work, we have three Fellows exploring different aspects of teaching and learning development. Jane Tomlin is looking into ways of improving the assessment of 'clinical reasoning' in the final examination for the BVetMed by the addition of Extended Matching Questions (EMQ). Perdi Welsh is investigating the mapping of Day One skills and competences, with a view to developing appropriate and effective learning opportunities. Anne Tynan, Director of DIVERSE, will be helping LIVE address issues relating to the learning and teaching of disabled students.

#### In collaboration

Carol Gray, the communications lecturer at the University of Liverpool, has also been collaborating with us. Her efforts to improve veterinary student communication skills have been very well received, and LIVE is pleased to support Carol in her work.

#### Stronger systems

We are currently in the process of introducing Personal Development Profiles (PDP) to students and staff. By linking the e-portfolio to our university systems, we will be able to provide online Extra Mural Studies (EMS) records and feedback while students are away on rotation. This in turn will lead to better student support and management of information flow. We also plan to convert many of our Directed Learning classes into computer-aided learning packages. These will be made available through the College's virtual learning environment.

#### Managing change

Other important considerations include developing a new curriculum by 2007 and preparing students and staff for change. One major feature will be a push towards 'reflective decision-making'.

#### The road ahead

In 2006, we plan to have the first meeting of our steering group, host several educational events, develop a combined teaching strategy with other vet schools in the UK and overseas, and work on publications with our Fellows. There will be many opportunities to publish in veterinary and medical education journals, and none will be missed. We will continue rising to the challenge of advancing the pedagogical aspects of veterinary education at the RVC. We may even appoint the first Professor of Veterinary Education! Whatever it takes to make sure LIVE becomes one of the nation's best Centres for Excellence in Teaching and Learning.

# Research grants

## Highlights



### Battling bird flu

Outbreaks of avian influenza of the H5N1 subtype are on the increase. Given its zoonotic potential, the World Health Organization believes we are closer to an influenza pandemic than we have been since 1968. Last year, in response to requests from the Food and Agriculture Organization of the United Nations (FAO) and the European Food Safety Authority (EFSA), our Epidemiology Division undertook a spatial analysis of the outbreaks in Vietnam, China and Indonesia; provided training in spatial analysis and disease surveillance to over 30 veterinarians from 19 Asian countries; assessed the risk of viral incursion into the EU25 member states; and prioritized the assistance given to Asian countries in their efforts to control the disease.

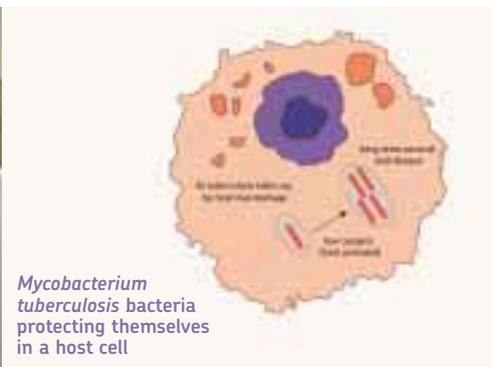
In 2006, an FAO-funded collaboration with the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) will focus on the provision of emergency assistance to African and Middle Eastern countries. Also funded by the FAO, a second collaboration, this time with the University of California, Berkeley, will involve the epidemiological modelling of outbreaks in Vietnam. Funded by DEFRA, we also plan to partner the London School of Hygiene and Tropical Medicine (LSHTM) and Imperial College, in an attempt to model the spread of disease should the virus reach the UK.



### Tracing the genetics of racehorses

The Horserace Betting Levy Board has funded two years of research which will allow Matthew Binns and colleagues to study the genetic variation of DNA in the Thoroughbred horse. This work will inform future disease mapping studies as well as research on improved soundness in racehorses. There are approximately half a million Thoroughbred horses in the world and most of them can be traced back to just three stallions and about 60 mares whose records can be found in a Stud Book established at the end of the 18th century. Part of the research project will involve examining the accuracy of the Stud Book by tracing back maternal mitochondrial DNA lines.

The genetic makeup of Thoroughbreds will include studying the DNA of some of history's greatest racehorses such as Hermit, who died more than 100 years ago, or Eclipse, whose 200 year-old skeleton forms part of the RVC's historical collection. This work will be done in collaboration with the Natural History Museum and the McDonald Institute for Archaeological Research in Cambridge.



### How the tuberculosis bacterium detects its host

Tuberculosis is a major public health problem in humans and in cattle, caused by very similar organisms – *Mycobacterium tuberculosis* and *M. bovis* respectively. One of the remarkable features of its lifecycle is its ability to survive in macrophages – the very cells that are designed to kill invading bacteria.

We have been investigating how the bacteria adapt to the hostile environment inside these killing cells, so that they can survive and even thrive. We know that like any other organism, bacteria continuously sense their environment, and in the face of a threat, can alter their growth patterns.

It has long been thought that one of the important signals to which *M. tuberculosis* responds is low oxygen. We have been investigating a protein, DosS, that somehow senses low oxygen, and have activated a regulatory protein, DosR, that activates about 50 genes in what has been called a 'dormancy programme'. We have been collaborating with Dr Snezana Djordjevic's group at UCL, and have shown that the DosS protein contains a haem molecule. This means that rather like haemoglobin, DosS has the ability to directly bind molecular oxygen, and is the first indication as to how this mechanism operates at a detailed level. We hope this research will lead to the development of antibiotics that work in a completely novel way. A paper has recently been published on this work in the Journal of Molecular Biology.

# Research grants awarded 2004-05

## Veterinary Basic Sciences

Funding body	Grant holder	Project title	Sum awarded (£)
Home of Rest for Horses	Professor J Elliott, M Bowen, Dr C Wheeler-Jones, Dr C Marr, M Patteson	Cardiac fibrosis pathogenesis of progressive aortic insufficiency	62,727
Petplan	Dr S Bailey, Professor J Elliott	Validation of small vessel myography for use on tissues obtained from veterinary patients	5,250
Pfizer	Professor P Lees, Professor Q McKellar	BBSRC Case Studentship award for Miss Brentnall	30,000
Ceva Sante Animale	Professor J Elliott	Consultancy 2004	12,000
Pfizer	Professor J Elliott, Dr A Rycroft	A retrospective study of bacteria isolated from the urine of cats	8,000
BBSRC	Dr K Patel, Dr M J Dunn	A proteomic approach to investigate the mechanism underlying skeletal muscle growth	21,888
Wellcome Trust	Dr K Botham	Dietary fats and atherosclerosis role of sterol regulatory element binding proteins in the modulation of hepatic very low density lipoprotein secretion by dietary fats carried in chylomicron remnants	180,382
Novartis Animal Health	Professor J Elliott	Sponsorship for International Renal Pathology Study Group	8,400
Wellcome Trust	Professor L Lanyon, Professor J Price	Adaptive control of bone strength common pathways for the effects of loading estrogen and PTH	1,560,959
University of London Central Research Fund	Dr S Bailey	Immunogold labelling of G-Protein coupled receptors in arterioles: investigating dynamic interactions with membrane caveolae	4,792
OrthoLogic Corporation	Professor A Goodship	Consultancy agreement	3,182
University of London Central Research Fund	Dr R Fowkes	cGMP-dependent gene transcription in the pituitary	6,075
BBSRC	Dr J Hutchinson	Elephant speed and gait, the locomotor biomechanics of the largest land animals	236,966
Kennel Club Charitable Trust	Professor M Binns	Development of genetic screening tests for canine von willebrands disease	22,994
University of London Central Research Fund	Dr J Hutchinson	Three dimensional imaging of Asian Elephant foot anatomy	2,000
ARC	Dr C Chenu, Professor L Lanyon	Regulation of bone cell function by the sympathetic nervous system a new pathway in bone metabolism that contributes to the bone response to mechanical loading	175,089
ARC	Dr A Pitsillides	Regulating UGDH to control glycosaminoglycan synthesis	155,813
Royal Society	Dr R Fowkes	Travel grant	720
Royal Society	Dr L Thurston	Travel grant	1,296
Boehringer Ingelheim Ltd	Professor J Elliott	Consultancy	5,000
British Heart Foundation	Dr G Baxter	Roles of mechanisms of action of the L-cysteine cystathionine Y lyase hydrogen sulphide pathway in the heart	78,850
RCVS Trust	J Burford, Dr A Wilson, K Parsons	An objective method for evaluating equine lameness using surface mounted strain gauges	2,670
Royal Society	Dr J Wakeling	Travel grant	1,040
Royal Society	Dr J Hutchinson	Conference travel grant	1,715
HBLB	Dr F Cunningham, Ms B Dunkel	Research Training Scholarship - Ms Bettina Dunkel	25,500
Society for Reproduction and Fertility	Dr L Thurston	Summer Scholarship for Vicky Sharp	1,155
Royal Society	Dr J Wakeling	The role of the longissimus dorsi muscle in stabilising the equine back and the adaptation of its function to saddles and riders	15,000
HBLB	Professor M Binns	Characterising genetic variation in the thoroughbred horse	121,468
Teagasc	Professor N Stickland, Dr P Lawlor	Feeding and management of sows during gestation and its effect muscle fibre, fat level, growth rate and carcass quality	31,155
Cartela	Dr A Pitsillides, R Collinson	BBSRC CASE: The role of mechanical loading and alpha10 and alpha11 integrins in osteochondral function	24,000
BBSRC	Dr A Wilson	Research development fellowship: Mechanics of animal locomotion	93,076
Royal Society	Dr A Wilson	Research Merit Award	135,000
HBLB	Dr A Wilson, T Pfau	Relationship between surface properties and factors predisposing to injury in the racehorse	213,622
Heptagon	Dr A Pitsillides	New treatment for osteoporosis with novel quinines	93,678
Waltham Centre for Pet Nutrition	Professor J Elliott, Dr H Syme	Hypertension and renal insufficiency in cats, protocol for studies to determine optimal diagnosis and to evaluate the impact of flavanols on renal and endothelial function, hypertension and progression of renal failure (extension to existing grant)	20,410
Waltham Centre for Pet Nutrition	Professor J Elliott, Dr H Syme	Canine endothelial cell dysfunction (extension to existing grant)	12,200
Waltham Centre for Pet Nutrition	Professor J Elliott, Dr H Syme	Canine endothelial cell dysfunction (extension to existing grant)	43,166

## Veterinary Clinical Sciences

Funding body	Grant holder	Project title	Sum awarded (£)
Masterfoods	Dr A Hendricks, N Fretwell (Masterfoods)	Genetics of Canine Skin Disease	924
VLA	Professor D Pfeiffer	Provision of qualitative risk assessment of the introduction and establishment of bluetongue virus in UK livestock	10,500
Petplan	R Elders, Dr B Catchpole	A molecular and immunological study of canine mast cell tumours	3,425
Petplan	Dr M Khalid, Professor D Church, Mr S Ponglowhapan	Gene expression and immunohistochemical localisation of luteinizing hormone (LH) and follicle stimulation hormone receptors in the normal canine lower urinary tract	6,000
Petplan	Dr M Khalid, Professor D Church, S Neissen	Establishing a reference range for feline growth hormone (fGH) in normal health cats	5,400
FAO	Dr J Guitian, Professor D Pfeiffer	Emergency assistance for the control of avian influenza	5,277
VLA	Professor D Pfeiffer	Provision of consultancy on epidemiology for scrapie research projects	9,000
DEFRA	Dr A Silva-Fletcher, Professor D Pfeiffer, Professor A M Johnston	Import control of products of animal origin at border inspection posts (BIP's)	24,280
VLA	K Stevens	Provision of consultancy on epidemiology for scrapie research project	1,000
RCVS Trust	Dr R Bond, Dr M Collins, M Hutchinson	Assessment of therapeutic efficacy in feline giardiasis	2,657
University of London Central Research Fund	Professor M Sheldon	Integration of immunity and reproduction	6,931
Pfizer	Professor M Sheldon	Expert report on product effect on reproduction	5,000
Wellcome Trust	Professor D Pfeiffer, Dr J Guitian	African swine fever virus; development of vaccines and epidemiological investigation	2,200,000
FAO	Dr A Silva-Fletcher, Professor D Pfeiffer, Dr J Guitian	A workshop diagnostic laboratory and surveillance network coordination for control and prevention of avian influenza	17,645
BBSRC	Professor D Pfeiffer, Professor A Goodship, Professor N Gregory	Advancing animal welfare science: welfare assessment and early life programming	606,184
BBSRC	Professor C M Wathes	Welfare of farm animals, environmental perception, cognition, interaction and management	2,792,964
RCVS Trust	Professor D Church, W Boardman	Residency in Zoo and Wildlife Medicine	42,000
RCVS Trust	Professor A M Johnston	Portable skid resistance tests	4,653
Wellcome Trust	Professor D Pfeiffer, Dr T Barrett (IAH)	Peste des petits ruminants PPR a serious and emerging plague of small ruminants in developing countries: Epidemiology transmission host range and pathogenicity of the virus in West Africa	836,408
Dogs Trust	Dr T Martinez, Professor D Church	Consequences of early versus late spay of bitches	48,733
Husse Ltd	Dr A Stedman	Consultancy on Pet Food	3,000
EU	Professor D Pfeiffer	Development of marker vaccines, companion diagnostic tests and improvement of peste des petits ruminants viruses	33,480
DEFRA	Professor N Gregory	Welfare assessment of animals moving through markets	134,896
Merial	Dr R Bond	Flea Survey 2005	15,474
VETXX	Dr R Bond	Contact plate surface pyoderma pilot study	2,860
HBLB	Professor R Smith	Regenerating equine tendon using autologous mesenchymal stem cells	141,721
American Kennel Club	Dr K Chandler	Canine Idiopathic Familial Epilepsies are associated with Ion Channel Mutations	5,759
University of Helsinki	Professor D Pfeiffer	Consultancy - delivery of epidemiology in applied bio sciences research school course	2,296
British Veterinary Association	N Menzies-Gow, Professor D Pfeiffer	Practice-based study on the factors affecting return to soundness on acute pasture associated laminitis	20,000
Home of Rest for Horses	N Menzies-Gow, Dr S Bailey	Clinical Training Scholarship in equine internal medicine and clinical pharmacology	70,000
DEFRA	Professor N Gregory	Metal surfaces for sheep and cattle	345,461
Intervet	Dr R Bond	Sponsorship towards costs of treating feline giardiasis	1,000
Bayer	Dr R Bond	International flea susceptibility monitoring: year 5	32,334

## Pathology and Infectious Diseases

Funding body	Grant holder	Project title	Sum awarded (£)
Serotec Ltd	Dr D Werling	Recombinant bovine proteins	2,500
DEFRA	Professor J Brownlie, Professor S Alexandersen (IAH)	FMD Characterise pathogenesis and persistence of FMDV in pregnant livestock and offspring	615,045
Heptagon	Dr D Werling	Novel marker vaccine delivery system	66,500
Royal Society	Dr D Werling, G Langley	Role of TGF in transformation bovine B cells by Theileria	3,982
EU	Professor N Stoker	Molecular markers of M tuberculosis early interactions with host phagocytes	95,913
DEFRA	Professor J Brownlie, Dr M Collins, Dr D Werling	BVDV Determination of molecular and cellular mechanisms of virulence in field and emerging viruses	1,306,949
Cytopath	Dr J Patterson-Kane	Consultancy	6,500
Masterfoods	Dr B Catchpole	Funding for UK canine diabetes database and archive 2005	5,000
RCVS Trust	Dr J Patterson-Kane	Gap Junction expression in equine tendons, Blue Sky Research Programme 2005	7,650
Royal Society	Dr K Erles	Travel grant for Nido 2005 conference	900
Masterfoods	Professor A Williams	Consultancy	500
Imperial College Innovations	Dr A Rycroft, P Langford	Actinobacillus Vaccine	6,000

2004-05 was another successful year. We generated a return on surplus of 2.4% against a target of 1.5%. There has been significant growth in the College's main activities reflected in the increased turnover. We are particularly pleased by the increase in income from Research Grants and Contracts (10%). Turnover has increased by £4.4m (13%).

## Financial highlights

### 2004-05



**Other operating expenses** have increased by £1.3m (11%) primarily as a result of the following:

- > Additional RVC scholarships awarded to PhD students
- > Increased costs of utilities (32%) and maintenance (11%)
- > Increased professional fees (26%)
- > Increased training, conference and travel expenses (16%)

**Expenditure on additions and improvements to the estates** has been £4.1m. Major projects include additional laboratory and office space at the London Campus funded in part by the Funding Council's Science Research Investment Fund (SRIF) and Phase 3 of LBIC.

**A net cash inflow** of £1.9m from operating activities has improved the College's cash position with an increase in cash for the year of £0.7m.

**Legacies** of £0.4m (£1.4m, 2003-04) have been received by the College and the Animal Care Trust during the year. After taking account of appreciation of and expenditure against endowments, the overall value of the fund has increased by £1.7m (20%) (2003-04, £1.6m (22%)).

**The College's investment portfolio** is managed by Merrill Lynch Investment Managers Limited. The market value of the College's Endowment Asset Investments has increased by £1.7m (20%).

**Income from Funding Council grants has increased by £3.1m and represents 50% of total income (46%, 2003-04)**

**Income from Research Grants and Contracts has increased by £0.4m (10%) mainly as a result of increased funding from UK government bodies and the EU.**

**Income from clinical services has increased by £0.6m (7%) primarily as a result of increased activity in the Queen Mother Hospital for Animals.**

**Staff costs have increased by £1.9m (10%) as a result of additional recruitment to support increased activity, particularly increased teaching.**

# Financial activity for the year ended 31 July 2005

## Royal Veterinary College consolidated income and expenditure account

	2005 £000	2004 £000
INCOME		
Funding council grants	18,874	15,794
Academic fees and support grants	3,572	3,448
Research grants and contracts	4,781	4,337
Other operating income	10,469	9,855
Endowment income and investment income	893	762
<b>TOTAL INCOME</b>	<b>38,589</b>	<b>34,196</b>
EXPENDITURE		
Staff costs	21,250	19,337
Other operating expenses	13,258	11,882
Depreciation	2,811	2,648
Interest payable	486	721
<b>TOTAL EXPENDITURE</b>	<b>37,805</b>	<b>34,588</b>
(DEFICIT)/SURPLUS on continuing operations	784	(392)
Profit/(loss) on disposal of assets	-	646
Surplus before transfer from/(to) specific endowments	784	254
Transfer from/(to) specific endowments	122	124
<b>SURPLUS RETAINED WITHIN GENERAL RESERVES</b>	<b>906</b>	<b>378</b>

## Royal Veterinary College consolidated balance sheet

	2005 £000	2004 £000
Fixed assets	41,530	39,017
Endowment asset investments	10,174	8,495
Current assets	4,992	3,674
Creditors - amounts falling due within one year	(6,242)	(6,913)
Total assets less current liabilities	50,454	44,273
Creditors - amounts falling due after more than one year	(7,983)	(7,392)
Provisions for liabilities and charges	-	-
<b>NET ASSETS</b>	<b>42,471</b>	<b>36,881</b>
Deferred capital grants	19,007	16,002
Endowments	10,174	8,495
General reserve	13,290	12,384
<b>TOTAL FUNDS</b>	<b>42,471</b>	<b>36,881</b>

# Financial activity for the year ended 31 July 2005

## Royal Veterinary College Animal Care Trust statement of financial activities

	Funds General £000	Funds Restricted £000	Total 2005 £000	Total 2004 £000
<b>INCOMING RESOURCES</b>				
Donations and gifts	160	329	<b>489</b>	244
Legacies	240	-	<b>240</b>	507
Investment income	-	40	<b>40</b>	30
Other income	37	-	<b>37</b>	40
<b>TOTAL INCOMING RESOURCES</b>	<b>437</b>	<b>369</b>	<b>806</b>	<b>821</b>
<b>COST OF GENERATING FUNDS</b>				
Fundraising and publicity	134	-	<b>134</b>	74
<b>CHARITABLE EXPENDITURE</b>				
Buildings and academic support	-	60	<b>60</b>	249
Support for College activities	35	150	<b>185</b>	314
Management and administration	137	-	<b>137</b>	93
<b>TOTAL RESOURCES EXPENDED</b>	<b>306</b>	<b>210</b>	<b>516</b>	<b>730</b>
<b>NET INCOMING RESOURCES for the year</b>	<b>131</b>	<b>159</b>	<b>290</b>	<b>91</b>
<b>OPENING BALANCES of total funds</b>	<b>743</b>	<b>1,150</b>	<b>1,893</b>	<b>1,802</b>
<b>CLOSING BALANCES of total funds</b>	<b>874</b>	<b>1,309</b>	<b>2,183</b>	<b>1,893</b>

All activities derive from continuing operations.

# Governance

## Patron

His Royal Highness The Duke of Edinburgh KG KT

## The Council

(as at 1 October 2005)

## The Officers of the Council

### Chairman

The Most Hon The Marquess of Salisbury PC DL

### Vice-Chairman

Professor P M Biggs CBE FRS DSc  
DVM FRCVS FRCPATH FIBiol

### Hon Treasurer

J H Chatfeild-Roberts BA

## Members appointed by organisations

### Privy Council

The Rt Hon Frank Dobson MP

### Secretary of State for Environment, Food & Rural Affairs

J C Milne BVetMed MRCVS

### Secretary of State for Health

Dr A Wight MBBS MSc FRCPATH

### Secretary of State for International Development

(Vacancy)

### Royal Society

Professor P M Biggs CBE FRS DSc  
DVM FRCVS FRCPATH FIBiol

### Royal Agricultural Society of England

J W Stanley FRAGS

### Royal College of Veterinary Surgeons

Professor C J Gaskell BVSc PhD DVR MRCVS

R Green BVetMed MRCVS

### Council of the University of London

Professor M G J Farthing DSc(Med)  
MD FRCP FMedSci

(Vacancy)

### Corporation of London

I Luder BSc(Econ) FCA FTII FRSA

### British Veterinary Association

E A Chandler BVetMed FRCVS

### Academic Board of the College

Professor D Church BVSc PhD MACVSc MRCVS

Professor A M Johnston OBE BVM&S  
DVM FRSH DipECVPH HonFRCVS

Professor S May MA VetMB PhD DVR DEO  
FRCVS DipECVS

Professor N Stickland BSc PhD DSc

Professor D C Wathes BSc PhD DSc

Professor A Williams BVMS PhD MRCVS  
DipECVP

### Members co-opted by the Council

The Most Hon The Marquess of Salisbury  
PC DL

J H Chatfeild-Roberts BA

I B Flanagan FRICS

Professor D Noakes BVetMed PhD DSc  
DVR Rep DipECAR FRCVS

S Patterson

Dr G Schild CBE DSc

## Ex-Officio

Professor Q A McKellar BVMS PhD DVM  
DipECVPT CBiol FIBiol FRAGS MRCVS FRSE  
(Principal)

## Secretary of the Council

Mrs E C Acaster

## Fellows of the Royal Veterinary College

Her Royal Highness The Princess Royal  
GCV0 (1987)

Professor P M Biggs CBE FRS DSc DVM  
FRCVS FRCPATH FIBiol (1983)

W Plowright CMG FRS DVSc FRCVS (1987)

Miss W M Brancker CBE FRCVS (1989)

Professor A O Betts BSc MA PhD MRCVS (1991)\*

Professor L C Vaughan DSc FRCVS DVR (1995)

The Right Hon The Earl Cadogan (1997)

The Right Hon Lord Prior PC (1999)

Professor L E Lanyon CBE BVSc PhD  
DSc MRCVS FMedSci (2005)

## Honorary Fellows

Edmund Vestey TD DL (1994)

Mrs Jean Sainsbury (1994)

George H R Ward FCA (1994)

Sir Gordon Shattock MRCVS (1994)

Dame Bridget M Ogilvie ScD FIBiol  
FRCPATH (1994)

John K Pool (1994)

Tony Veal (1994)

Robert Luff CBE OSTJ (1994)

Mrs Jessie Nye (1994)

The Rt Hon Lord Wolfson of Marylebone (1994)

Dame Pauline Harris DBE (1994)

Patsy Bloom (1997)

Professor Leo Jeffcott MA BVetMed PhD  
DVSc FRCVS (1997)

Sir Brian Fender CMG (2001)

Professor Ken Goulding BSc PhD HonDSc  
CBiol FIBiol (2001)

Christopher Sporborg (2001)

Richard Carden (2003)

Brigadier Andrew Parker Bowles (2003)

\* Died – November 2005

# Corporate governance

## Year ended 31 July 2005

- 1 The purpose of this statement is to enable readers of the College's Report and Accounts to obtain a better understanding of the governance and legal structure of the College.
- 2 The College endeavours to conduct its business in accordance with the seven Principles identified by the Committee on Standards in Public Life, namely selflessness, integrity, objectivity, accountability, openness, honesty and leadership. It also acts in accordance with the guidance provided by the Committee of University Chairmen in its Guide for Members of Governing Bodies of Universities and Colleges in England, Wales and Northern Ireland, in a manner appropriate to the circumstances of the College.
- 3 The College is an independent corporation, whose legal status derives from a Royal Charter granted in 1956, although the College can trace its history as a corporate body back to 1791. Its objects, powers and framework of governance are set out in the Charter and its supporting Statutes.
- 4 The Charter and Statutes require that the government of the College shall be vested in the Council, which has management and control of the College and administers all its property and income. The Council has a majority of members from outside the College (known as lay members) from whom the Chairman, Vice-Chairman and Treasurer are by custom elected. None of the lay members receive any payment for the work they do for the College, apart from the reimbursement of expenses.
- 5 The Statutes also require that there shall be an Academic Board, members of which are the Professors of the College and representatives of the teaching staff, and of which the Principal is Chairman. The Board advises the Council on all academic matters.
- 6 The principal academic and administrative officer of the College is the Principal who, under the Statutes, is responsible for the conduct of the College. Under the terms of the formal Financial Memorandum between the College and the Higher Education Funding Council for England, the Principal is the designated officer of the College and in that capacity can be summoned to appear before the Public Accounts Committee of the House of Commons.
- 7 Although the Council ordinarily meets three times a year, much of its detailed work is initially discussed in Committees, in particular the Finance Committee, the Audit Committee, the Nominations Committee and the Senior Staff Remuneration Committee. All Council Committees are formally constituted with terms of reference and specified membership. Many include a significant proportion of lay members. All Committees report formally to the Council.
- 8 As Chief Executive of the College the Principal exercises considerable influence on the development of institutional strategy, the identification and planning of new developments and the shaping of institutional ethos. Senior academic and administrative officers all contribute in various ways to these aspects of the College's affairs but the Principal remains responsible for the conduct of the College.
- 9 The College maintains a register of interests of members of the Council.
- 10 The Statutes specify that the Secretary of the College shall be Secretary to the Council. Any enquiries about the constitution and governance of the College should be addressed to the Secretary.

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[www.rvc.ac.uk](http://www.rvc.ac.uk)

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