

## Welcome to the University of Newcastle

Barry Argent



Physiology is alive and well in Newcastle! Many of you will have heard that a major restructuring of the University of Newcastle upon Tyne has taken place over the past couple of years. On 'big bang' day, 1 August 2002, the number of faculties was reduced from seven to three by a process of amalgamation and more than 70 Departments became 28 Schools. The purpose of these changes is to increase the efficiency of the University's operations and to create some financial headroom so that we can invest for the future. The restructuring is core to our declared aim of making Newcastle one of the top 10 research universities in the UK.

As part of the restructuring, the three Biomedical Science departments, including Physiological Sciences, were amalgamated into a new School of Cell & Molecular Biosciences, totalling close to 50 academics. The Epithelial Research Group (Adrian Allen, Barry Argent, Colin Brown, Dianne Ford, Mike Gray, Judith Hall, Barry Hirst, Jeff

Pearson, Nick Simmons, David Thwaites, Andi Werner) and the Cell Signalling Research Group (Tim Cheek, Keith Jones, Alex McDougall, Trevor Jackson, Michael Whitaker), whose laboratories have just undergone a major refurbishment funded by a £750K grant from the Wellcome Trust, are both located within this new School. However, our Sensory Systems Group (Anya Hurlbert, Gary Green, Adrian Rees) have moved on to pastures new in either the School of Neurology, Neurobiology and Psychiatry or the School of Biology. Regrettably, David Sanders

decided to leave the University during the restructuring while Jim Reed has been forced to retire through ill health. Their contributions are sorely missed. Of course, there was a tinge of sadness that such a successful unit as the Department of Physiological Sciences, which had scored 5A in both of the last RAEs and 24/24 in the QAA for its Degree Programme, should have been disbanded. However, when the basket gets shaken up it is inevitable that some of the golden eggs will get broken. We take comfort from the fact that the aim of the restructuring process is to make the whole University work as well as the Department of Physiological Sciences did in the past!

Looking to the future the School of Cell & Molecular Biosciences, which is made up of units graded 5 and 5\* in the 2001 RAE, is one of the strongest research groupings in the University and has a political voice to match. The School has a post-genomic perspective and much of the research activity is directed to the analysis of the function of gene products, i.e. functional genomics. The practical benefits of being in a larger unit are already becoming apparent in terms of increases in the efficiency of teaching and administration. On the research front we look forward to a bright future with the opportunities for interaction and collaborative research with our new colleagues who have expertise in biochemistry, genetics, molecular biology and microbiology being much enhanced.

This Newcastle meeting is a designated meeting on Epithelia and Membrane Transport. Newcastle has a long history of excellence in epithelial research. As well as the 11 academics listed above there are three research fellows, 13 post-doctoral workers and 21 postgraduate students in the Epithelial Research Group. Our aim is to understand epithelial transport

Below The University Quadrangle

Bottom The University Arches



processes at the cellular and molecular level, and how their function and dysfunction relates to the whole organism *in vivo*. Over the past 10 years we have assembled a group of active researchers who can deploy a variety of methodologies ranging from genomics and proteomics, sophisticated electrophysiological techniques through to whole animal physiology, including transgenic mouse models. Our strategy for future development is to capitalise on our collaborative strengths, our shared expertise, and our unique concentration of techniques (from molecular through cellular and tissue to whole organism) to provide added value to our research. We address important physiological and pathophysiological problems related to epithelia, with particular focus in the following areas:

- i) understanding the molecular and cellular mechanisms underlying co-ordinated responses of the intestinal epithelium to changes in diet, with an emphasis on transporter genes involved in protein-nitrogen assimilation and in zinc homeostasis;
- ii) understanding the molecular and cellular regulation of chloride channels in pancreatic and renal function and their dysfunction in cystic fibrosis and renal disease;
- iii) how individual gene products are integrated to produce functional mucus secretions;
- iv) how an inventory of drug transporters already identified at the molecular level act to optimise drug delivery, disposition and excretion.

We have an active seminar programme (partly funded by the Society) and hold an annual two-day research conference. Our research funding comes from the MRC, BBSRC and the major research charities, and there are longstanding industrial links in areas such as mucus secretions and their interactions (Reckitt Benckiser), and intestinal and renal drug transport (AstraZeneca, Glaxo-Wellcome/SmithKline Beecham). Current active grants total almost £2m

and include several major awards in excess of £300k from the research councils.

The centre-pieces of the April meeting will be two symposia, which reflect the interests of the Newcastle Epithelial Research Group. *Transport & Signalling: From Gut to Brain and Back Again* (organised by David Thwaites and Andi Werner) covers signalling in the gut, the transport of nucleosides, drugs and amino acids, and neurotransmitter transport into synaptic vesicles. *Epithelial Electrolyte Transport: Multi-Tasking & Hidden Talents* (organised by David Thwaites and Mike Gray) covers ion channels, bicarbonate transport by SLC26 family transporters and its relationship to cystic fibrosis, and the latest on the regulation of NHE3 by NHERF and the role of NHE3 in congenital diarrhoea. The organisers have assembled an impressive panel of international speakers and these symposia promise to be memorable occasions.

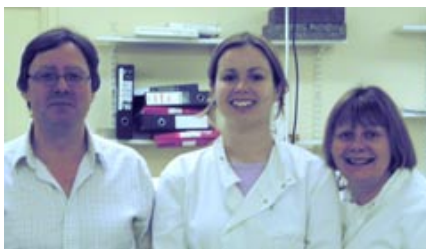
In addition, we are privileged to host a number of the Society's Lectures during the meeting including the A.A. Harper Lecture (Michael Schemann, Freising-Weihenstephan, Germany), the Biller Prize Lecture (Louise Robson, Sheffield, UK), the GI Tract Designated



Entrance to the Medical School



Epithelial Research Group and guest speakers at our 2002 conference. Newcastle symposia organisers are in the back row: Andi Werner (fourth from left), Mike Gray (10th from left) and David Thwaites (11th from left)



Top Barry Argent, Peter Hegyi (fellow) and Bernard Verdon (post-doc)

Centre Barry Hirst, Georgina Carr (PhD student) and Maxine Geggie (technician)

Above Amy Windass (PhD student) and Colin Brown

Below Andi Werner, Keziah Preston-Fayers (PhD student) and Chris Graham (post-doc)

Bottom Ralph Bridgett and Bill Saint who run the School workshop



Lecture (Gary Shull, Cincinnati, USA), the Epithelia & Membrane Transport Designated Lecture (Shmuel Muallem, Dallas, USA), and the Renal Physiology Designated Lecture (Edward Weinman, Baltimore, USA). A meeting not to be missed if you are interested in Epithelia and Membrane Transport!

Now that the Department of Physiological Sciences has gone, the main focus for the discipline of physiology in Newcastle has become our Physiological Sciences Degree Programme. Despite our dispersal to different Schools we remain committed to the provision of high quality teaching in physiology (QAA 24), medicine (QAA 24) and dentistry (QAA 23). We also contribute to other degree programmes within the School of Cell & Molecular Biosciences (all QAA 24), including our new Biomedical Sciences Degree. Recruitment into the popular Physiological Sciences Degree Programme is being maintained and the growing reputation of Newcastle University means that the quality of our entrants is improving. Currently we have a final year of 45 students, made up of 40 physiologists and five intercalating medical students. Perhaps the major benefit to arise so far from the merger of the old Biomedical Sciences Departments is improved efficiency of our teaching. Indeed, teaching in the first half of all our three-year degree programmes, to the 200 plus students within the School, is now common. While this has inevitably resulted in a reduction in the physiology content for students studying the subject at single honours, this is compensated for by their wider exposure to the molecular biology and immunology that underpins modern physiology. Moreover, this restructured teaching has had the added benefit of increasing the exposure of students on other degree programmes, such as biochemistry, genetics, microbiology and immunology, to more advanced physiology teaching. For the last 18 months of their study, the students divide up into the smaller degree specific groupings. Physiologists

in Newcastle also intend to maintain their contribution to the wider promotion of physiology, in particular by active participation in the varied functions of the Physiological Society. Currently, David Thwaites is the convenor of the GI Special Interest Group, while Mike Gray is on the Editorial Board of *Experimental Physiology*.

As well as the organisational restructuring of the University, those of you who have not visited Newcastle recently will notice that a physical restructuring has also been taking place in both the University and the City. The architecturally uninspiring entrance to the Medical School has been converted into a space age structure by construction of a new 400 seat lecture theatre and a new research building, the Henry Wellcome Building, which houses our psychologists. The City itself has also changed following massive investment by both



Top Medical student lecture in the new, 400 seat, David Shaw lecture theatre

Above A medical physiology practical



Above The Sage Gateshead Music Centre (currently under construction) with the Tyne Bridge in the background

Below Angel of the North

Newcastle and Gateshead Councils. The most spectacular results of this investment are the Gateshead Millennium Bridge, the Sage Gateshead (a magnificent music centre) and the Baltic (a modern art gallery) where we shall have the meeting dinner. And, of course, Antony Gormley's masterpiece, Angel of the North, stands sentinel on our southern approaches. Newcastle has always been famous for its nightlife (as some of you will know from previous Society Meetings!), but we are now becoming a major cultural centre as well. These recent developments and much more underpin the Newcastle-Gateshead bid to become the European Capital of Culture in 2008. But fear not, in the midst of this cultural onslaught we have not forgotten our roots and we still boast about our excellent beer and our above average football team! Geordies the world over have a reputation for hospitality and we extend a warm welcome to the Physiological Society.

### Barry Argent

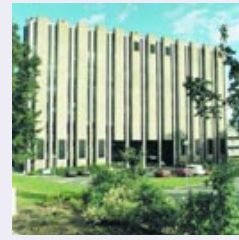
*School of Cell and Molecular Biosciences  
University of Newcastle upon Tyne*

## Memories of Leeds...

*Right* The Worsley Building

*Far right* Stewart Sage, Chair of the Editorial Board of *The Journal of Physiology*

*Below* Melanie Rees, Meetings Secretary's Assistant and Chris Fry, Chairman of the Executive Committee and, *below right*, Mark Dunne, Meetings Secretary, acknowledge the Society's appreciation as they come to the end of their terms of office



*Right* Ann Silver (left) and Melanie Rees

*Below* Staff from the Department of Physiology in Leeds whose efforts helped to ensure a successful meeting

*Bottom left* John Sulston (left) and Colin Blakemore

*Bottom right* Melanie Rees, Bill Winlow and new Meetings Secretary Bridget Lumb

