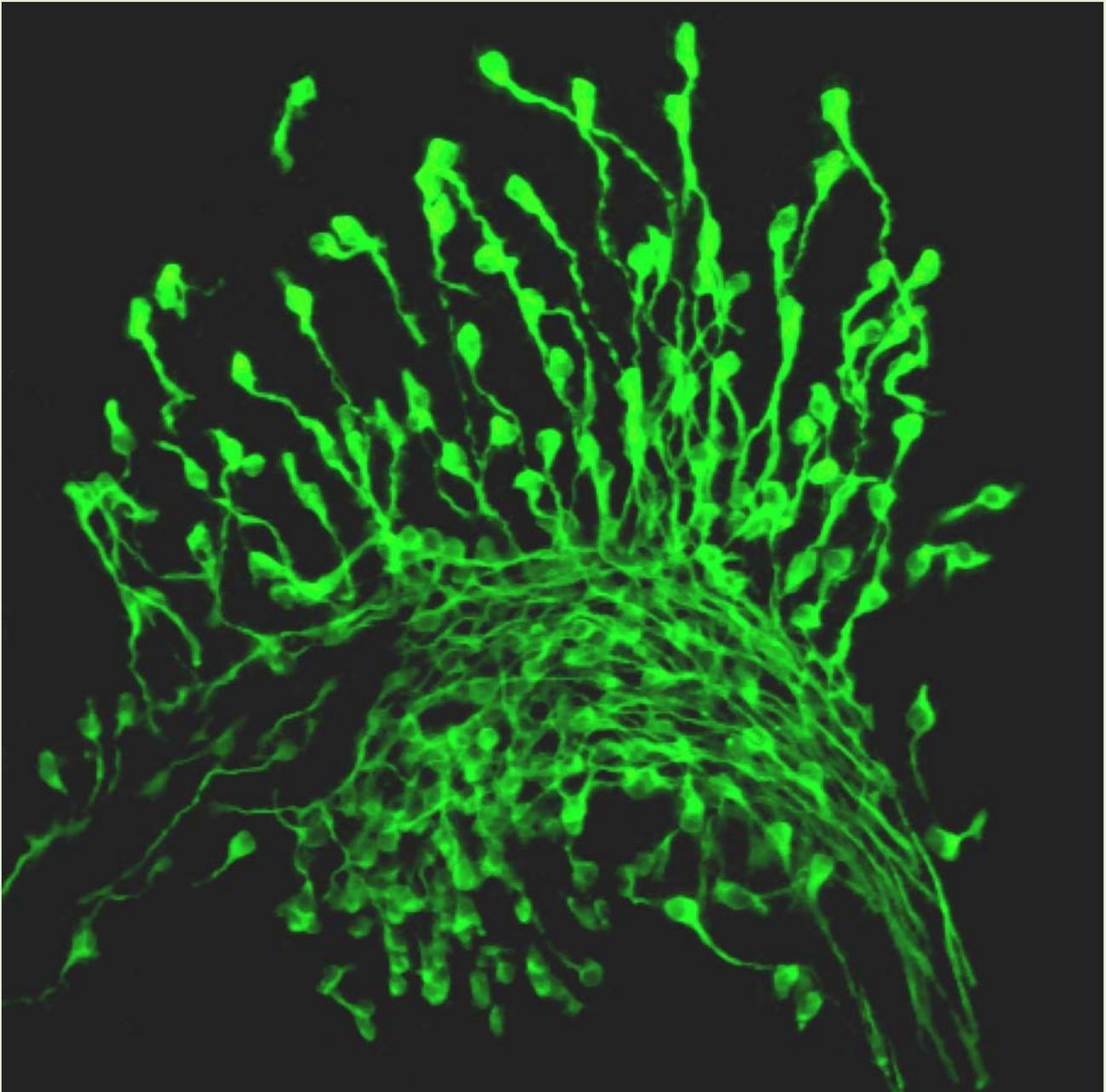


# ANASTOMOSIS



The Anatomical Society of Great Britain and Ireland

**NEWSLETTER**

*January 2009*

# The Anatomical Society of Great Britain and Ireland

## About the Society

The Society acts as a forum for those concerned with research and education in the anatomical sciences, which include topographical anatomy, histology, cell biology, embryology, neuroanatomy, physical anthropology, biomechanics, pathological anatomy and related topics. It principally serves anatomists in the U.K. and Republic of Ireland, but also has Members in many other countries world wide. It has a long history of service to anatomical scientists, having been founded in 1887.

The Society has as its principal object the "promotion, development and advancement of the anatomical and related sciences", both in terms of research and education. This is carried out principally by organising meetings, publishing the *Journal of Anatomy* and the award of grants and prizes.

The Society has links with other societies representing the life science disciplines in the U.K. and Republic of Ireland, and with other anatomical societies internationally. It has especially close ties with the Anatomische Gesellschaft and the Nederlandse Anatomen Vereniging with whom it from time to time holds joint scientific meetings.

The Society is registered as a Charity (number 290469), and as a Company Limited by Guarantee (Registered Number 1848115, Registered Office 221 Shoreditch High Street, London E1 6PP). It also has a wholly-owned subsidiary, The Company of Anatomists Ltd, through which the business of the *Journal of Anatomy* is run.

## Contacts

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Other Officers of the Society have specific responsibilities in relation to finances, membership, meetings, education, grants and the *Journal of Anatomy*.

### Officers and Members of Council

**President** Professor Susan Standring, King's College London

**Vice-President** Dr Lopa Leach, Host, Summer Meeting 2008

**Former President** Professor John Fraher

**Secretary** Professor Diana Lawrence-Watt, Brighton and Sussex Medical School

**Assistant Secretary** Professor Stephen McHanwell, School of Dental Sciences, University of Newcastle

**Treasurer** Professor Darrell Evans, Brighton and Sussex Medical School

**Assistant Treasurer** Dr Tracy Wilkinson, Queen's University Belfast

**Membership Secretary** Professor John Morris, University of Oxford

**Programme Secretary** Professor Arthur Butt, University of Portsmouth

**Education Officer** Professor Bernard Moxham, University of Cardiff

**Newsletter Editor** Dr Lopa Leach, University of Nottingham

**Ordinary members of Council:** Dr William Allen, Queen's University Belfast; Professor Jonathan Bennett, Hull and York Medical School; Dr Phil Bradley, University of Newcastle; Dr Steven Britland, University of Bradford; Dr Sam Cobb, Hull & York Medical School; Dr Ceri Davies, St George's Hospital Medical School, London; Dr Raj Ettarh, University College Dublin; Dr Grenham Ireland, University of Manchester; Dr Ibrahim Inuwa (overseas councillor for Australasia), Sultan Qaboos University, Muscat Sultanate of Oman. Professor Gillian Morriss-Kay, (Editor, *Journal of Anatomy*), University of Oxford; Professor Colin Ockleford, University of Lancaster; Professor Tony Payne, University of Glasgow; Dr Stefan Przyborski, University of Durham; Dr Rob Santer, University of Cardiff; Dr Frank Schubert, University of Portsmouth; Dr William Sellers, University of Manchester; Dr Aideen Sullivan, University College Cork, Ireland; Professor Pierre Sprumont (overseas councillor for continental Europe); Dr Susannah Thorpe, University of Birmingham; Professor Ian Whitmore (overseas councillor for the Americas), University of Stanford, USA; Dr Joanne Wilton, University of Cambridge

### Student member of Council

Ms Farrah Winterbottom, King's College, London

Ms Lyndsay Murray, University of Edinburgh

Information regarding membership of the society, together with an application form can be found on our website: <http://www.anatsoc.org.uk/appform.php>

## The Anatomical Society of Great Britain and Ireland

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**Check the latest news on The Society web server: [www.anatsoc.org.uk](http://www.anatsoc.org.uk)**

### CONTENTS

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<b>President's Matters</b>	<b>4</b>
<b>News and Views</b>	<b>6</b>
<b>Meeting Reports</b>	<b>8</b>
<b>Symposia Matters</b>	<b>13</b>
<b>Grants and Awards</b>	<b>17</b>
<b>History Matters</b>	<b>19</b>
<b>Education Matters</b>	<b>27</b>
<b>Studentship Matters</b>	<b>29</b>
<b>Editorial Comments</b>	<b>33</b>

**Front cover:** "Spring Bouquet" HH14 MLF: The medial longitudinal fascicle (MLF) is the earliest axon tract formed in the embryonic chick brain. Immunofluorescence with a TuJ1 antibody recognising  $\beta$ III-tubulin reveals the MLF neurones at the midbrain-forebrain boundary as they extend their axons into the midbrain of a 22-somite chick embryo. Michelle Ware (Anatomical Society student) and Dr. Frank Schubert (Principal Lecturer), School of Biological Sciences, University of Portsmouth.

# PRESIDENT'S MATTERS

## President's Comments

I must start by thanking John Fraher for his outstanding service as President of ASGBI for the last two years: I am delighted that John will continue to serve on the Committee of Management and Council. It is also a great pleasure to welcome Mary-Anne Piggott, the Society's first Executive Administrator and to thank all the Officers of the Society who have made me so welcome in my first year as President.

Anatomical knowledge is not an "optional extra" for a health care professional: it forms the basis for conducting a clinical examination, interpreting standard diagnostic images and undertaking interventional procedures safely and effectively. One of the key responsibilities of the ASGBI is to champion anatomical teaching and research in the Medical and Dental Schools in the UK. I am therefore delighted that the Society has recently published a core syllabus in Anatomy and has developed a distance learning Training Programme for Anatomists which started this October. I intend that these brief notes will tell you a little more about current ASGBI activities – please contact me if you wish to comment on particular issues (susan.standing@kcl.ac.uk).

### 1. Consensus Document

The need to ensure that all medical students receive a firm foundation in Anatomy has informed a Consensus Document drawn up at a special conference of the European Federation for Experimental Morphology (Bologna, 2007). The document calls for the definition of a core of morphological knowledge, the appropriate training of junior staff, and the recognition and valuing of teaching in a research-driven academic environment. I signed this document on your behalf in September: I am grateful to John Fraher, Bernard Moxham and Pierre Sprumont for their contributions to the formulation of the document.

### 2. ASGBI syllabus

You will doubtless be aware that a core syllabus in Anatomy has been developed over several years by a large group of anatomists and clinicians and was published last year (*McHanwell, S et al (2007) A core syllabus in anatomy for medical students - Adding common sense to need to know. European Journal of Anatomy Suppl.1, 3-18*). It provides guidance on the anatomical knowledge which medical students should know on graduation. This year I used the syllabus as the basis of a highly successful 15 week Core Surgical Anatomy course at the Royal College of Surgeons of England for ~100 ST1/ST2 trainees from the London Deanery. The ASGBI syllabus has attracted considerable interest from regional Schools of Surgery who also want to use it as the basis for their anatomy revision courses.

### 2. Interactions with BACA, IAS and HTA

In an ideal world, I think that we would agree that the anatomical sector should speak with one voice, particularly when dealing with Regulatory Authorities and bodies such as the GMC. I have recently brought together representatives from ASGBI, BACA and IAS to form a Professional Guidelines and Practices (Anatomy) Committee. The group will work with HTA to prepare Guidelines and will also be a forum for discussing and disseminating good practice amongst ourselves in all matters related to the use of cadaveric material in teaching. I believe that this is one way in which ASGBI can demonstrate, clearly, that its aims are for the public benefit (cf Charity Commission and Public Benefit <http://www.charity-commission.gov.uk/publicbenefit/publicbenefit.asp>).

### 3. Meetings – Oxford and Nottingham 2008/Oxford Winter 2009/AAA, New Orleans, 2009

One of the great strengths of ASGBI is its diversity, and nowhere is this exemplified better than by the range of topics of our meetings. This year's meetings, on Forensic Anatomy (Oxford, January) and Placentation (Nottingham, July), were excellent, well attended gatherings. I was especially pleased to see so many younger members defending their posters in Nottingham. We are extremely fortunate that colleagues are willing to give so freely of their time to organise these events, and I thank Sue Black, Lopa Leach and Terry Mayhew and their support staff for their work on our behalf this year. It was a great pleasure to welcome FICAT to our meeting in Nottingham and to attend part of a FICAT meeting where aspects of Terminologia Embryologica were discussed. Our January 2009 meeting, The Art of Anatomy, organised by Gillian Morriss-Kay and John Fraher, was a spectacular start to the New Year. I look forward to the combined meeting with AAA in late Spring (New Orleans, April 2009) and hope that ASGBI will be well represented.

### 4. Training Programme

None of us needs reminding that anatomy teachers are an endangered species! In response to a very pressing need to increase the number of trained teachers of anatomy, ASGBI and the American Association

## PRESIDENT'S MATTERS

of Anatomists have established a formal training programme in anatomy (TPA). The programme has the strong support of the Council of the Royal College of Surgeons of England. It is modular and based on self-directed, mentored, distance learning and is particularly suitable for high calibre bioscientists, trained in allied disciplines, working in postdoctoral or junior academic appointments in Anatomy Departments/units. It has been devised to minimise out-of-lab time: trainees will be able to pace their year's work, according to their varying levels of research activity. One full week out of the lab will be spent at a Summer School in Oxford. We welcome ten trainees onto the course and wish them and their mentors well in their endeavours. While it is always invidious to identify one or two colleagues from the list of those members of ASGBI who have breathed life into this initiative, I am especially grateful to John Fraher and Darrell Evans for their work on the Programme: John continues to Chair the Training Programme Committee.

### 5. Website development

The Council of ASGBI agreed at its meeting in July 2008 that a new, modern, functionally integrated website should be developed for the Society. The website will be a conduit for promoting the Society's Journals and Newsletter, scientific meetings and other activities, and a gateway to the Society's Training Programme and to student and post doctoral activities, events (including job opportunities and careers advice). It will also allow members to register for meetings, submit abstracts etc. After discussion with several potential developers over the summer, favoured supplier status was awarded to Fisher Technology. A Project Board has been appointed and meets for the first time in late January

### 6. Strategic Review

I will continue to review the Society's strategic priorities with Officers and Council. The financial status of the Society must be protected at all times. Planning any new initiative involving a proposed major spend, such as the new website, is not something which we undertake lightly. In the current turbulent financial climate I am therefore particularly grateful for the guidance given to me and other Officers by our Treasurer, Darrell Evans.

### 7. Studentships

Under the direction of our Assistant Secretary, Steve McHanwell, we have sought and received applications for the award. The selection panel have met and awards will be announced after ratification by Council at the January 2009 meeting. Each year, up to 3 fully funded ASGBI Ph.D. studentships are awarded.

### 8. Journals

Two fully funded ASGBI Ph.D studentships were awarded in January 2009.

### 9. Stop press – Changes at the top!

Di Lawrence-Watt, our incomparable Honorary Secretary, retired from BSMS at the end of the last academic year and demitted her post with ASGBI at the recent AGM at the Oxford meeting. Darrell Evans stepped down as Honorary Treasurer at the AGM. On your behalf, I thank Di and Darrell for their tremendous input to the Society and welcome Steve McHanwell as our new Honorary Secretary and Tracey Wilkinson as our new Honorary Treasurer.

Susan Standring  
President (ASGBI)  
King's College, London



**Letters to the Editor**

Dear Editor

*Reclaiming specimens for teaching anatomy in the future*

The Institute of Anatomical Sciences (IAS) is responsible for a pot reclamation scheme. The scheme has been running for many years and involves the collection and storage of potted specimens from institutions looking to either downsize or dispose of their collections. Recent activity has resulted in a considerable increase in the number of pots being stored at sites around the UK (notably Nottingham and Oswestry). This increase may be in response to the enactment of the Human Tissue Act, 2004 in September 2006, with Medical Schools reviewing their holdings of retained material.

The individuals involved in the scheme do so voluntarily and have rightly asked – do we need to be doing this?

I would contend that the answer is 'yes' and that current Anatomists should be viewed as curators of this material, keeping it safe to be handed onto the next generation. Whilst current medical education may have a tendency to ignore and neglect these specimens, there may be others who will benefit from them in years to come. To be more provocative, I would argue that to be complicit in their disposal would be a negation of the responsibility to future generations.

There is a corollary to the earlier question – what would be the public's view of this reclamation scheme. The events at Alder Hey and the Bristol Royal Infirmary, when violations of the Human Tissue Act 1961 were discovered, led to widespread media coverage and three government-initiated enquiries. Most public concern stemmed from the removal, storage and use of organs and tissues from adults and children without appropriate consent. The majority of the specimens collected by the IAS are old and estimated to be at least 40 years old, but many are over 100 years old. They were collected prior to the enactment of the Human Tissue Act 1961 and were anonymous, but whatever information associated with the specimens provided at the time of collection, has been kept by the IAS. What would the public view be of the retention of material which has provenance, for the purposes of teaching medical, dental and paramedical students, as well as educating the public itself?

If this question is raised, two issues need to be addressed. Firstly the scheme needs a less ambiguous title - "the pot reclamation scheme" suggests that it is the pot that is being reclaimed and not the material within it. The word 'pot' conjures up something that sits under the bed and used in the small hours.

The second issue is the need to triage both the material already being stored and material that is being offered to the Institute under this scheme. To do this, experts will need to convene at the sites to assess the value or otherwise, of the pot contents.

The purpose of this letter to *Anastomosis* is to raise awareness of the scheme and to see what interest there might be in helping out with the scheme.

Professor Dave Wilson  
Vice-President, Institute of Anatomical Sciences  
Cardiff University  
E-mail: WilsonDJ2@cardiff.ac.uk

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Dear Editor

I received the autumn issue of *Anastomosis* (2007) from Messrs Avon Solutions and Logistics on 17 01 08. I went through the obituaries of Professor Rea Johnson and Prof. Ronald William Fearnhead. Very sad to hear they are no more. I looked up in my diary of a study tour of U.K. in July 1961, with records of visits to Anatomy departments in the UK. I reproduce herewith notings in the diary: 20-07-1961: London Hospital Medical College--I was ten minutes late (as I missed one train) even though I took a taxi from Liverpool street. Professor Harrison was away attending to a selection committee meeting. Dr Johnson, who was to go on holiday that afternoon, took me round. I saw a vagotomy operation done on a seal. Professor Harrison is working on the seal. I saw a tooth cutting machine and also had a chat with Mr. Linder, technical staff on decalcification and staining for nerves etc. I met Professor Harrison at the end in his room and chatted with him and took photographs before leaving.

Subsequently, I distinctly remember having lunch with Dr. Fearnhead and spending quite some time with him after lunch and even taking photographs. I have with me the reprints of his papers which he was kind enough to send me. Comparative observations on the ultra structure of the inorganic and organic components of dental enamel, The temporo mandibular joint of shrews, Preparation of ultra thin section of mineralized human enamel, Mineralisation of rat enamel, Secretory products of ameloblasts. I am looking for the photographs. I have the photograph of the front view of London Hospital

## NEWS AND VIEWS

Medical College as of many of the institutions I visited in U.K. Please convey my condolences to the near and dear of the late professors.

With regards as warm as ever.

Dr.S.Ramaswamy  
India

*Editor's note: On January 5<sup>th</sup>, 2009 Professor Ramaswamy will be completing 60 years of teaching in Anatomy. He joined the Department of Anatomy, Madras Medical College Chennai on 6 January 1949. He was awarded his chair 1959.*

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### News and Views

#### Dr. Britland goes back to school.

I recently volunteered to represent the Society as a judge at the Leeds/Bradford regional heats of the Institute of Ideas Debating Matters national competition, sponsored by the ESRC and Pfizer. This competition is aimed at 16-18 year olds, 6th formers then in old money. Before long though I began to think, oh no, what have I let myself in for? Not long after I started waking up in cold sweats at the prospect of being 'sorted out' by hordes of pimply yobbo's behind the bike sheds at some inner city comprehensive. Remember Please sir? Well yes; so do I!

Nevertheless a promise is a promise so, to broaden my educational horizons you understand, I did indeed go back to school - for one night only.

The event took place on the 20th November and was hosted by Bradford Girls' Grammar School. Bradford Girls' were joined on the night by teams from Woodhouse Grove School, Royds School and Guiseley School Technical College. The participants were clearly motivated to represent their schools in the best possible light, and did so with aplomb. I first suspected that my preconceptions were somewhat awry when the anticipated barrage of tittering didn't materialise when the judge's resumes were read out at the start of proceeding. You know the kind of thing; Dr. Britland, Boffin, Bradford University. Wrong-footing me from the outset they took it all in their stride, pesky kids.

Briefly, the teams comprised two pupils charged with either supporting or making a case against the topics under debate. Those were; 1) The London congestion charge model should be adopted by all major cities. 2) Man not machines should explore space. 3) The media should be prevented by law from intruding into the private lives of public figures.

The debates were well organised and very challenging with each lasting around 1 hour. The speakers were mostly excellent orators and coped well when their arguments were scrutinised by their opponents, the three judges and from the 'floor'. It having been over 30 years since I was at school I was fully expecting the proceedings to rapidly descend into St. Trinianesque anarchy. Far from it, these were motivated, disciplined and confident performers who could easily rip through a typical undergraduate tutorial session without blinking.

The teams were judged on their debating prowess, that is, researching the topic, style of delivery, and their ability of deal with questioning. Guiseley won on the night pipping Woodhouse grove by the most slender of margins. Expect to see either of the two lads on the winning teams on a podium some day with a prime minister badge stuck to his chest.

The quality of schooling in this country is increasingly being called into question, dumbing down being the slogan of the era, but on the basis of what I observed during this debating competition somebody in those schools has definitely been doing something right. If colleagues should ever get the opportunity to take part in one of these debating evening as a judge, I would urge you to do so because it not only fun but also gives an interesting insight into how capable and pleasant young people of today can be. Oh, by the way, it's not true that there's no such thing as a free lunch. There is if you agree judge one of these competitions. That is so long as you are partial to tuna sandwiches on unbuttered ever so slightly chewy bread, cheese and pickle, and budget orange squash. Full marks for the cup of tea though. You, tea teacher, go to the top of the class.

Dr. Stephen Britland.  
Head of Pharmacology, School of Pharmacy, University of Bradford.

## MEETING REPORTS

### MEETINGS REPORTS

#### Muscle Cell Development Meeting Report

##### Muscular Dystrophy Campaign

The beginning of July 2008 saw the very first British Muscle Cell Development meeting dedicated to provide PhD students and Postdocs with a national forum to present their work and promote collaboration between researchers.

This one-day meeting was held in one of London's oldest Universities, King's College, was attended by over 60 scientists and consisted of 17 short talks, 2 keynote lectures and 3 poster sessions.

The atmosphere of this meeting was friendly and relaxed with plenty of opportunities for stimulating discussions throughout the day and with a terrific setting – the Gordon museum within King's College which houses an extraordinary and diverse collection of historic specimens and medical artefacts. Talks took place surrounded by the Lam Qua painting collection – a series of portraits of Chinese patients with large tumours and major deformities while poster sessions and social times were set amongst original specimens, historic surgical instruments and by the impressive Joseph Towne wax model collection of intricate human anatomy and horrid skin diseases. Altogether, a somewhat gruesome yet mesmerizing setting and an excellent venue for the occasion.

The first session of the day was on the theme of Muscle Cytoskeleton. Of particular mention is the work of PhD student Zacharias Orfanos who very lucidly presented his work on the dynamics of sarcomere assembly in the *Drosophila* flight muscle. Using GFP-tagged salinimus and Myosin Heavy Chain (MyHC) he was able to follow sarcomere assembly *in vivo* and show how two different MyHC isoforms are used before and after lateral Z-disc extension. Another fascinating talk in this session was the work of Dr. Manuela Lahne who showed how her team has established a technique to manipulate intracellular calcium levels in intact zebrafish embryos to enable the study of the role of calcium signalling during muscle development. This was followed by Dr. Tim Geach who presented his commendable work on the study of the dicky ticker (*dit*), a *Xenopus tropicalis* mutant that lacks heart-beat and is paralysed. Using forward genetics he was able to identify the locus responsible for the dicky ticker mutant and has narrowed down the potential gene responsible for its phenotype to three candidate genes.

Lunch followed with plenty of time to socialise and look at the posters. The meeting resumed with a Keynote Lecture by Prof. Margaret Buckingham who spoke on the role of *Pax3/7* orchestration of myogenic progenitor cells. Her talk highlighted how PAX3 and SIX proteins directly bind to a 145bp *myf5* enhancer element located between -58 and -57Kb upstream of the translational start site, and activate this gene in limbs and mature somites to trigger entry into the myogenic program. Mutation of this SIX binding site is sufficient to result in the loss of most myogenic expression. Using multiple *Pax3* mutant mice including the gain-of-function allele *Pax3:FoxO1* and the partial loss of function *Pax3-Engrailed* she identified other *Pax3* targets including *FgfR4* which was further confirmed as a direct target using chip-on-chip. Manipulations of other *Pax3* targets, of the *Sprouty* family, revealed their role in modulating the choice between progenitor cell renewal and committed myoblasts. Therefore, *Pax3* and *Pax7* have a dual role in both stem cell survival and entry into the myogenic program.

PhD student Daniel Osborn opened the second session on the theme of Transcriptional Regulation of Muscle. He showed how Hedgehog cooperates with *cdkn1c* to promote Myogenic Regulatory Factor (MRF) activity and drive slow muscle terminal differentiation in zebrafish using knockdown of several MRFs in the *smo* & *syu* fish mutants.

Another noteworthy talk in this session was by Dr. Ricardo Ribas who presented his extensive work on the transcriptional regulation of the *myf5/mrf4* locus and showed how he identified several evolutionary conserved regions responsible for *myf5* expression in the hypaxial somite.

Some very interesting talks in the last session, under the theme of Muscle Tissue Assembly included the work of Dr. Lisha Ma who convincingly showed how *Drosophila* larvae can prove a useful model for human Dilated Cardiomyopathy and how the human phenotype is mimicked in the fly upon integrin depletion. Dr. Peleg Hasson followed with a captivating talk on limb muscle patterning and showed how depletion of the genes *Tbx4* and *Tbx5* affects muscle patterning in the hind- and fore-limbs, respectively. This session was closed by Dr. Cedric Soler with his work on the mechanisms controlling muscle remodelling during *Drosophila* metamorphosis and showed how the recently identified Him inhibitor downregulates *Mef2* to maintain muscle precursors undifferentiated until remodelling ensues.

## MEETING REPORTS

The final lecture of the day was given by Prof. Phil Ingham on the complex transcriptional repression network underlying muscle fibre type specification in zebrafish. Slow muscle fibres derive from adaxial progenitor cells, however, in the U-boot (*ubo*) zebrafish mutants, adaxial progenitors switch cell fate and result in a fish that lacks slow muscle fibres, proving that the *Ubo* gene is necessary to maintain the slow muscle fibre phenotype. The *Ubo* gene encodes the transcription repressor Blimp1/Prdm1 and using chip-on-chip Ingham's group identified Prdm1 targets including the repressor SOX6 that is required for normal fibre differentiation and is expressed in fast muscle progenitors. SOX6 is able to induce fast muscle by repressing slow fibre genes such as slow troponin and slow Myosin Heavy Chain 1 (sMyHC1). Therefore, one of the mechanisms that Prdm1 uses to induce slow muscle specification is by repressing the repression of slow fibre genes.

The day finished with a casual drinks reception and the announcement of the prizes for poster and talk presentations. The poster prize went to PhD student Binyam Mogessie who is investigating the molecular mechanisms behind the increased microtubule stability seen during muscle differentiation by studying the role of microtubule-associated proteins mMAP4, uMAP4 and oMAP4 in microtubule organization, stability and cell morphology. I was ecstatic to receive the talk prize for my presentation on how areas of the *FoxO1* gene containing transcriptional regulatory elements might play a role in the expression of the fusion gene *Pax3:FoxO1* which is a hallmark of the paediatric tumour Alveolar Rhabdomyosarcoma. Luckily for me, the talk prize came with a bonus - the opportunity to write this meeting report for the Anatomical Society of Great Britain and Ireland (ASGBI).

This was a very enjoyable meeting, a great opportunity to present your scientific achievements and an overall great success. This could not have been possible without the efforts of the organizers from King's College London and The Institute of Cancer Research (ICR) and the invaluable contributions of the sponsors Peqlab, Zeiss, MYORES, ASGBI, ICR, The Muscular Dystrophy Association and The Company of Biologists.

Barabara Villarejo  
Institute of Cancer Research London

### **Euro Evo Devo 2008**

*The second meeting of the European Society for Evolutionary Developmental Biology took place in Ghent, Belgium, July 29<sup>th</sup>-August 1<sup>st</sup>, 2008.*

The Rijksuniversiteit Gent is a typical modern European university in that it is an entirely utilitarian building on a large scale, but its dull architecture is mitigated by its setting within very pleasant botanical gardens. The weather for the three days of the meeting was better than anything experienced in England more than fleetingly so far this summer, encouraging informal conversations outdoors in the tea/coffee/meal breaks. The organisation of the meeting was based on inviting a number of people in different fields to invite speakers to contribute to mini-symposia. Unfortunately, the availability of five large lecture theatres offered the organisers the opportunity to run five parallel sessions - being restricted to three would have imposed a welcome discipline on the selection of oral presentations - inevitably there were clashes of talks one wanted to attend, and sessions that were uneven in quality. I was looking forward to learning about the evolution and development of flowering plants, but the meeting organisation was against me, and I was in the end well enough occupied with sessions that were closer to my own interests. The session I thought I would be most interested in was on mesenchymal development and evolution of the vertebrate head, but as with most topics one knows about already, I got more enjoyment from the talks I went to out of sheer curiosity. I was, for instance, amazed how much material has become available for studying the histogenesis of dinosaur bones and what this work has revealed about dinosaur growth patterns and weight-bearing (the children's favourite, *Diplodocus*, featured large here).

Vertebrate evolution has been an interest of mine since my days as a zoology undergraduate, and I enjoyed a talk that deepened my understanding of Placoderms. They are an important but puzzlingly diverse group of early jawed vertebrates; new fossil finds have increased the number of examples (though they are still very disparate), and for one Australian species, *Cowralepis mclachlani*, a series of growth stages has been discovered. Putting together the information from this talk and one from the limb evolutionary biologist Michael Coates in a different session, I learnt that paired fins (pectorals first) narrowly predated jaws, and that their developmental mechanism is similar but not identical to that of the evolutionarily much older dorsal fin.

The session I contributed to was on human evo-devo. The subject matter of this mini-symposium was quite eclectic, ranging from molecular developmental biology to anthropology. I was fascinated by a talk by Virki Lummaa, who has used the detailed records of a rural Finnish population over two centuries (18<sup>th</sup> and 19<sup>th</sup>) to study the effects of both the prenatal and postnatal environment on human reproductive success. This

## MEETING REPORTS

may sound far-fetched as an idea for investigation, but it is based on the fact that female twins with a male sibling are exposed to significant levels of male hormones in utero. Female twins of a male-female pair, even those whose sibling was stillborn, had fewer offspring than females from female-female pairs. These observations were correlated with data from the whole period on death rates suggestive of variation in general health/illness as well as agricultural productivity during the childhood years – poor crop yields during childhood affected later female reproductive performance, but the effect of having shared a uterus with a male sibling was more important than any other variant.

Apart from the talks, I was delighted to see *Journal of Anatomy* prominently on display at the Wiley-Blackwell exhibition table. All the free copies were taken on the first day, and more were sent over – these, too, were taken by the end of the meeting.

Gillian Morriss-Kay  
University of Oxford

### **BSDB and BSCB joint meeting at the University of Warwick from 31st March to 3rd April 2008**

The 2008 spring meeting of the British Society of Developmental Biology (BSDB) and the British Society of Cell Biology in Warwick was a great success. A jam packed schedule meant there was a plethora of high quality talks to attend each day and lots to discuss at each coffee break. The conference kicked off with two excellent plenary lectures by Prof. Leonard Guarente and Prof. Sean Carroll. Prof. Leonard Guarente gave an excellent talk about sirtuins and their possible use as a pharmacological target and how they are involved in age related diseases ranging from cardiovascular disease to osteoporosis. Prof. Sean Carroll followed with a highly interesting and animated talk that looked at how form evolves. He talked about explaining “the complex visible with a simple invisible”. He discussed how seemingly complex pigmentation patterns that are seen on some arthropod wings can be explained using the idea that in the course of evolution cis-regulatory elements that control pigment and other developmental patterns have linked to allow the invisible complex gene patterns to be seen through pigmentation patterns.

The second day of the conference, although it was April’s Fool Day, went without a hitch. There was an extremely useful workshop on “How to get your paper published” at lunchtime and the talks ended with the highlight of the BSCB Hooke Medal talk. The Hooke Medal is awarded annually to an emerging leader in cell biology who normally has less than 10 years of independent research. This year it was awarded to Dr. Ben Nichols who went on to talk about mammalian endocytic pathways and the role of Flotillin-1 in clathrin independent endocytosis.

The third day which was again full of interesting talks and caused plenty of head scratching as people tried to decide which of the talks to attend. At lunch there was a student workshop which allowed students to discuss career options with a panel of people from academia, publishing and industry. The day of talks ended with the BSDB Beddington Medal talk and the BSDB Waddington Medal talk. The Beddington Medal is awarded to a promising young biologist for the best PhD thesis in developmental biology submitted the previous year. This year it was awarded to Dr. Paul Tesar who worked in Prof Sir Richard Gardner’s lab at Oxford and Prof. Ronald McKay’s lab at National Institutes for Health in America. He gave an interesting talk on the work he carried out during his PhD on mouse and human embryonic stem cells. The final talk of the day was momentarily postponed for a plea regarding the Human Tissue and Embryo Bill which in May will be voted on in the House of Commons. Prof. Matthew Freeman, Chairman of the BSDB, asked everyone to write to their local MP to show support for the bill to try to increase the likelihood of the bill being passed. Without further a due he then went on to award the Waddington Medal, which is awarded to an outstanding individual for major contributions to any aspect of developmental biology, to the very modest Prof Patricia Simpson. Prof Patricia Simpson talked about her work into understanding sensory bristle pattern in insects. She has worked towards an understanding of the development and evolution of sensory bristles in *Drosophila* and whether the mechanisms involved are conserved in other species, such as *Diptera*.

Overall the conference was a great success and one which I personally highly enjoyed and I look forward to attending many more BSDB & BSCD meetings throughout my career.

Sophie Ainsworth  
University of Sussex

## MEETING REPORTS

### Report on AMEE 2008, Prague, Czech Republic 30 August to 3 September 2008

The annual Association for Medical Education in Europe Conference for 2008 was held in Prague, arguably one of the most beautiful cities in the world. More than 2 100 delegates from 70 countries attended the 5 day conference. The programme contained a wide range of sessions including 33 pre-conference workshops, 5 courses (ESME, RESME, FAME, ESME Assessment and ESTEME), 7 plenary presentations, 12 symposia and large group sessions, 450 short communications, 600 posters and 56 conference workshops. A total of 45 commercial and academic exhibitions were included and at times the sheer number of parallel sessions led to some difficult choices to be made. Fortunately for new participants, an informative Orientation session was instructive on how you could make the most of your participation in the Conference. Staff at the Registration desk was very helpful with any questions about the sessions and also offered assistance with accommodation, tours and social events. A vast amount of reading material was provided including the programme booklet of 150 pages, the abstract booklet of 330 pages and a delegate list of 80 pages.

The topics covered in the short communications and the poster sessions were varied and too numerous to list. The programme and abstract booklet is available electronically on the AMEE webpage at: <http://www.amee.org/index.asp?tm=51>

A few recurrent themes however include Clinical teaching, Assessment, Postgraduate medical education, Staff development, Professionalism, Students, International medical education. Most of these were also covered in the poster sessions and it was notable that a full poster session was dedicated to Basic medical sciences and a full short communication session was dedicated to Anatomy in the medical curriculum.

As my interest lay with Anatomy as well as Professionalism, I attempted to attend most of those sessions, although some sessions running in parallel made for difficult choices.

In terms of Professionalism, it was clear that although its measurement remains difficult, students can conceptualise what they deem a professional to be and indeed move towards their ideal self. It remains important that it is explicitly taught as the students' personal experiences will help define their perception of medical professionalism. **Patricia Sexton** (AT Still University of Health Sciences, USA) presented results on the impact of a faculty development program to improve school culture and found that faculty noted significant improvement in understanding the need to model and teach professionalism explicitly. Students noted changes in the faculty including decreased perceived use of derogatory language about colleagues and institutional policies. Creating a medical school culture of professionalism requires not only student focus, but faculty focus as well. **Jayne Garner** (University of Liverpool, UK) studied student attitudes to assessing professionalism of peers in the UK, and although the respondents were positive overall about assessing their peer's professionalism, and how it could help them reflect on their practice, they had concerns about how assessment information would be used and how it would impact on student relationships. They requested further training in peer assessments and expressed the opinion that without clear guidelines on its impact assessment on professionalism should best be left to academic staff or tutors. **K Meer Mustafa Hussain** (The Tamilnadu Dr. MGR Medical University, India) reported on a survey to analyse the learning experience regarding medical ethics in order to facilitate the planning of formal curriculum in ethics and the importance of "hidden curriculum" in instilling professionalism. It was informative in that it showed some problems encountered that often had a cultural basis.

The session on Anatomy was particular interesting. **Esther Bergman** (Universiteit Maastricht, Netherlands) investigated nine frequently mentioned arguments concerning negative influences on students' anatomy knowledge and whether there is empirical evidence to support these arguments. The conclusion was that the current literature does not provide enough information on why anatomy knowledge of students may be poor. During the Q & A session several of those attended pointed out that poor anatomy knowledge may just be a perception, and one should accept that we are training doctors, not radiologists or surgeons. Further detailed anatomy should be embedded at a later stage of specialised training. In the other presentations the importance of anatomy teaching was recognised and promoted to continue to play a major part in the medical curriculum, suggestions made for the integration between traditional anatomy teaching for medical students and the use of recent technologies in a highly innovative human anatomy laboratory, and a strong call made for more consideration for the role of dissection on professional development before further closures of dissection rooms. A final presentation by **Keh-Min Liu** (Kaohsiung Medical University, Taiwan) highlighted the steps incorporated in their dissection room experience in order to alleviate the potentially stressful experience of human dissection. It was apparent that across the countries represented by the attendees there are several different ceremonies included in the process of dissection, many of which were based on the culture of that country. Human dissection provides an opportunity to learn professional values from the most altruistic of teachers. The session ended with a call for papers by **Wojciech Pawlina** (Mayo Clinic College of Medicine) in his capacity as co-editor of the newly founded journal Anatomical Sciences Education.

## MEETING REPORTS

Several of the posters were dedicated to Professionalism. **Fred Tromp** and colleagues (Nijmegen, Netherlands) reported on the Nijmegen Professionalism Scale which they believe is a reliable and valid tool for assessing professional behaviour and that it might enhance the provision on feedback about professional behaviour. The scale consists of 4 separate domains: professional behaviour 1) towards patients, 2) towards other professionals, 3) towards society and 4) towards oneself. **O De Condappa** and colleagues (University of Liverpool, UK) developed a document that will enable students to monitor, assess and reflect on their professional development. It featured structured professionalism dimensions further specified into distinct competencies, and can be adapted to other disciplines.

A modern and innovative learning tool that matches closely with the "digital" generation of students was presented by **Alien Riedstra** et al. (Leiden University Medical Centre, Netherlands). They reported on the opening of a new Anatomical Museum in 2007, a two floor facility with more than 800 specimens of the human body. In several cabinets one panel will show healthy specimens and seven panels show pathology. Touch screen provide further information about the specimens. In order to compensate for the rise in integrated and patient orientated education with the subsequent reduction in basic sciences and pathology, they integrate the specimens in their museum into the curriculum by developing educational audio tours. An audio tour is an individual tour through the museum based on digitally recorded audio files. Students visit the museum in small groups and use their own MP3 device to listen to comments on specimens that were carefully selected by the course director. The authors experimented with two different formats: a purely informative audio tour with comments on the specimens only and an activating one with built-in assignments. Students were found to prefer informative tours over activating ones. Staff refers to the specimens in their lectures and was also enthusiastic about this innovative educational method. The audio tour is a cheap and easy way to increase attention to basic sciences by integrating an existing collection of specimens in the curriculum.

Other posters reported on the measuring of professional attributes, reduction in professional attitude scores during medical education, emotional intelligence, gender and professionalism, physician empathy, how professionalism is defined by students and reflective professionalism.

**Yvonne Steinert** and colleagues presented one of the pre-conference workshops entitled "From Scholarly Activity to Scholarship: Making the Most of what we do in Medical Education". Apart from the discussions around defining the terms and semantic interpretations of such definitions, she also highlighted the benefits of scholarship to the teachers, learners, institutions and profession. Several challenges were identified including institutional and personal barriers. Finally some strategies to maximise existing opportunities were discussed and most delegated left this workshop with renewed energy and practical suggestions to apply.

**William McGaghie** and colleagues hosted a workshop on "Preparing Medical Education Manuscripts for Journal Publication". This was very hands-on and several examples of professional writing were critiqued and *Instructions to Authors* from several medical educational journals were reviewed. The manuscript submission process was discussed as well as common problems with submitted manuscripts.

For obvious reasons it has not been possible to detail every presentation and poster. I do however hope that this report will provide a tempting overview of some of the topics dealt with at the annual AMEE conference and elicit interest with readers as it was a valuable and enlightening experience to attend AMEE 2008. I gratefully acknowledge the funding award received from the Anatomical Society of Great Britain and Ireland. Only with the support of sponsors was attending this conference made possible, creating an opportunity for exposure to an educational conference from which valuable information was gleaned that can be incorporated in curriculum development and its delivery. It will also nurture an exiting interest in medical educational research, which is increasingly receiving more recognition as an important informant on our teaching.

Marise Heyns  
Anatomy, Queen's University Belfast

## SYMPOSIA MATTERS

### Summer 2008 Meeting of ASGBI

University of Nottingham (2-4 July, 2008)

Organisers: Lopa Leach & Terry Mayhew.

The main theme of the 2008 summer meeting of the Anatomical Society of Great Britain and Ireland was 'Intra-Uterine environment and Placentation' and was organised by Professors Leach & Mayhew. The meeting also included an educational symposium on 'Core skills in teaching anatomy' which was organised by Professor Moxham. On the eve of the meeting, Day one for us, there were frenetic activities: compilation of registration desk, putting up signage, hauling of poster boards and calming down to meet and greet many of the delegates and invited speakers. The evening also hosted the ASGBI Council Meeting.

The scientific symposium started on Day Two, with Professor Susan Fisher and Professor John Alpin giving key lectures on placental development and implantation in the first session entitled Implantation: Deciphering the molecular cross talk. The implantation theme continued with Professor Huppertz and Professor Whitley sharing their research into trophoblast invasion and remodelling of the uterine and spiral arteries. Following the invited speakers, several oral communications were presented on topics varying from VEGF, fetoplacental blood flow, trophoblast proliferation and the role of angiostatin in fetal growth restriction. Following the oral presentations, the poster viewing session was held and it provided an excellent opportunity for networking and discussion of research. After a mind expanding day, the evening started with a civic reception by the Lord Mayor of Nottingham at the impressive Council House and then a BBQ and welcome party at the University of Nottingham. Thankfully the rain managed to stay away and everyone got into the serious business of listening to, and then dancing to Dr Jazz and the Rhythm Method (directed by Nottingham's own Professor James).

Day three of the conference began with a breakfast meeting of the ASGBI students with ASGBI president Professor Standing and continued with a symposium on post implantation remodelling of the intra-uterine environment and included talks by Professors Cross and Burton. These were followed by a fetal programming session with very complimentary talks given by Professors Langley-Evans and Fleming. The effects of diabetes on the placenta and its vascular system were investigated by Professors Desoye and Leach and Professor Mayhew shared a stereological prospective on placental morphology in normal and complicated pregnancies.

An important part of the ASGBI is the effort put into funding research and enabling young scientists to carry out this research and therefore in the second oral communication session the ASGBI studentship holders were invited to give presentations on their work. This they did impressively, with some very good science being show-cased. The theme of encouraging and enabling students was continued with a Junior Scientist's forum organised by Flavia Sciota (ASBGI funded PhD student, supervised by Dr Leach). Professors Standing and Fisher kindly agreed to discuss their paths into academia and the audience were therefore informed about both American and British career possibilities. The take home message from both Susans was that determination and hard work are the key qualities for success, regardless of which side of the pond one strives in!

The evening drinks reception and dinner were held at the exquisite Newark Hall (complete with a stunning peacock roaming the grounds) and everyone (in their finery) was treated to a wonderful evening of food, discussion and an award ceremony. The weather behaved and overseas delegates were enchanted by how clement an English summer evening can be. The Cave Award (best poster prize for young investigators) was given to Miss Winterbottom, the Anastomosis Best image prize was given to Professor Andy Chirlescu. The conference organisers, local assistants and all involved with making the meeting such a success, were thanked by the ASGBI president.

The final day of the conference started with free communications on topics ranging from neuroscience to anatomy research and teaching. The final session of the meeting was the education symposium. The participants were treated to informative and interactive talks and discussions from Professor Moxham, Dr Heyns, Dr Wilkinson and Professor Evans and covered essential topics such as core skills required for teaching anatomy, professional attributes in the dissection room, learning the language of anatomy and communication of anatomy.

Over 135 people attended the meeting that contained 33 oral presentations, 45 posters and attracted participants from not only Great Britain and Ireland but also from Austria, USA, Canada, Romania, Arab Emirates, South Africa, Switzerland, China, and France. We were also delighted to be joined by the FICAT members who had convened from around the world for their meeting and joined us for social occasions and

## SYMPOSIA MATTERS

even managed to find some time to investigate the research being presented. It was great to meet venerable Professors whose textbooks are thumbed often by medical students and teachers.

I would like to thank the conference organisers Professors Leach and Mayhew, the ASGBI, invited speakers, sponsors, conference helpers and attendees for a fantastic meeting filled with exciting and innovative research from around the world. The social events were thoroughly enjoyable and enabled free discussion of the research associated with placentation, fetal programming, anatomy and teaching.

### Roberts Funding Initiative

The Anatomical Society of Great Britain and Ireland has always encouraged young scientists by funding studentships, providing funding for members to present at meetings, giving awards for outstanding research and providing training - to name just a few of the activities undertaken by the society. As a member who supports these values I was invited to write a grant to a researcher led initiative (The Roberts Fund) - a government funded grant which is available to students and post-doctoral researchers to help with the costs of career development training. This funding gives young researchers the chance to write a grant, manage career development training and is available to universities throughout the UK.

In this instance, the grant paid for a pre-conference training and networking session (attended by 10 students, 2 post-docs and their supervisors). The ASGBI summer conference organisers (Professors Leach and Mayhew) were also invited to attend and the young scientists found their advice and guidance invaluable. The funding then paid for six students and two post-doctoral researchers to attend the meeting and conference dinner and following the meeting we all had a chance to reflect on the research over lunch. I would like to thank the funding coordinators Cathy Gibbons and Josephine Hill, the conference organisers for their support throughout the process and also the participants and their supervisors for their enthusiasm and commitment.

Dr Catrin Rutland,  
University of Nottingham.

### Prizes Awarded at the meeting



Miss Winterbottom, Winner of the Cave Award (Best Poster Prize for Young Investigators).



Professor Andy Chirlescu, Winner of Anastomosis Best Image Prize (2008, 1)

# SYMPOSIA MATTERS



**SUMMER 2008.  
NOTTINGHAM**

## SYMPOSIA MATTERS

### **ASGBI Winter Meeting**

Winter Meeting included a symposium on 'The Art of Anatomy' Tuesday 6 January 2009 - Thursday 8 January 2009

**Location:** St Anne's College, Oxford

Details of this meeting will be published in the next issue of Anastomosis.

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### Forthcoming Meetings

### **ASGBI Meeting 2009**

Saturday 18 April 2009 - Wednesday 22 April 2009

**Location:** New Orleans, USA

The ASGBI is pleased to announce that it will be a guest society of the American Association of Anatomists (AAA) at the Experimental Biology 2009 meeting in New Orleans (April 18-22nd). This large, annual multi-society meeting will have many different research orientated symposia, some of which will be sponsored by the ASGBI (e.g. one on stem cells and another on morphological diversity). There will also be a number of educational sessions available and which ASGBI is contributing to. The Society will be providing some enhanced bursaries from the Symington Fund to help with travel and accommodation expenses etc. Please contact the Treasurer, Professor Evans for details.

### **OTHER RELATED MEETINGS**



### **17<sup>th</sup> Congress of the International Federation of Associations of Anatomists**

Hosted by the Anatomical Society of Southern Africa  
16-20 August 2009  
at the  
Cape Town International Convention Centre  
Cape Town, Republic of South Africa

On behalf of the International Federation of Associations of Anatomists (IFAA), we would like to invite you to attend the 17<sup>th</sup> IFAA Congress which will be held in South Africa. This is the first time that the Congress will be hosted on the African Continent. We would be delighted if you would participate in this Congress and contribute to a stimulating and inspiring scientific programme.

Professor Beverley Kramer  
President, IFAA Congress 2009

For further information contact:  
Professor G. Louw: Chairman, Organising Committee  
[Graham.Louw@uct.ac.za](mailto:Graham.Louw@uct.ac.za)  
Mrs D. Raubenheimer: [Deidre.Raubenheimer@uct.ac.za](mailto:Deidre.Raubenheimer@uct.ac.za)



For updates on the Congress visit:  
<http://web.uct.ac.za/depts/humanbiology/ASSA/ASSA.IFAA.Conf.htm>  
[www.cmc.uct.ac.za](http://www.cmc.uct.ac.za)

## GRANTS AND AWARDS

### Report from a Symington Award

A grant was awarded from the Symington fund to allow Siobhan Moyes and Kate Carr to undertake a collaborative project in France. The project, funded by the Radiation Protection Research Programme of the Department of Health was initiated to explore the uptake of radioactive material through a cultured layer of epithelial cells. Initial pilot work in relation to the project has already been the subject of several presentations to the Anatomical Society, two papers in the Journal of Anatomy and a Society Symposium in 1995. These presentations and publications covered aspects of microparticle uptake which are applicable not only for environmental applications but also for drug delivery and multiple organ dysfunction syndrome.

The trigger for the project was the Chernobyl nuclear accident (1986), since it was important to establish whether large radioactive particles could penetrate the epithelium of the alimentary tract and move to the internal organs, where they could form potentially damaging foci. However, most of the relevant parameters for the process had initially been worked out using inert insoluble material such as iron or latex, the latter forming an adaptable model and allowing the identification of the effect of age and species. Pilot work also unexpectedly showed that most of the uptake in the *in vivo in situ* model used, selected to be most like the Chernobyl situation, occurred not at Peyer's patch M cells but through villous epithelium.

The pilot work led to the postulation that tight junction (TJ) unzipping could be involved in microparticle uptake. This hypothesis could be tested using an *in vitro* model of Caco-2 epithelial cells, that spontaneously differentiate into a small intestinal enterocytic phenotype despite their colonic origins and therefore allow *in vitro in vivo* comparisons. Caco-2 cells are grown to confluence on polyester Transwells® with 3µm pores, when TJ function can be explored using measurement of transepithelial resistance (TER). The extent of microparticle uptake can be assessed using fluorescence or confocal scanning laser microscopy to count the numbers of particles on, within or deep to the epithelial membrane and also those that have passed through entirely into the lower well.

Although this *in vitro* model is easier to adapt to the use of radioactive particles, since the safety aspects can more easily be controlled, the handling of such material requires specialist facilities. This is where the recently established collaboration with Dr Isabelle Dublineau, head of the Laboratoire de Radiotoxicologie Experimentale at the Institut de Radioprotection et de Surete Nucleaire (IRSN) at Fontenay-aux-Roses, Paris was so very important. Dr Dublineau has long-standing experience of the effects of radiation on intestinal and other tissues and of the uptake of soluble uranium. The Anatomical Society provided funds through the Symington Bequest Fund to establish this crucial collaboration.

The hypothesis currently being tested is that the addition of radioactive particles would have a similar effect to that of adding latex particles to Caco-2 cells previously subjected to external irradiation. The effects of insoluble and soluble uranium on TJs and uptake are also being compared. The tasks include; establishment of the 2µm latex microparticle/Caco-2 model in the Paris laboratory; exposure of Caco-2 cells to ethanol and lower temperatures, to produce respectively opening and closing of TJs; re-introduction of a longer time-frame after microparticle addition; establishment of delivery methods for two different concentrations of insoluble uranium 2µm microparticles; and exploration of the appropriate conditions for producing soluble uranium.

The Oxford group's responsibilities included; establishment of the Caco-2 model; cell plating out three weeks before the experiment; addition of microparticles and sham materials; recording of TER data and analysis for discussion the day after the experiment; and sample processing and removal of non-radioactive samples to Oxford for particle counting or morphological analysis. The IRSN group's responsibilities included; provision of laboratory facilities appropriate for the handling and disposal of radioactive material; maintenance of cells in culture; provision of uranium in insoluble and soluble form; supervision of radiation safety; and quantitative analysis of the radioactive particles.

As for all science, there have been some set-backs, including initial problems with cell culture due to unsuccessful transport arrangements, routine culture failure or damage by pilot microparticle vehicle fluids. However, these have all been addressed and successes have included satisfactory correlation between IRSN and Oxford latex data; collection of TER data following addition of both insoluble and soluble uranium; and collection of samples for quantitative analysis by the IRSN group. All the tasks listed above have been carried out, but the work is continuing, with further questions still to be addressed.

K.E. Carr; S.M. Moyes: University of Oxford

I. Dublineau; J. Stefani: Institut de Radioprotection et de Surete Nucleaire

## GRANTS AND AWARDS

**The Anatomical Society offers a number of grants and prizes, as part of its object of promoting research in the anatomical sciences. These are summarised below:**

### **Anatomical Society Training Programme in Anatomy**

The Society has launched a new distance learning training programme in Anatomy starting 1st October 2008. Bursaries are available for Anatomical Society members towards the cost of the programme.

### **Anatomical Society Research Studentships**

Up to four Research Studentships are awarded annually by competition based on proposed projects from prospective supervisors. The closing date for applications is usually early October, and is advertised publicly during August in the Journal of Anatomy.

### **Anatomical Society Senior Visiting Fellowship**

This may be awarded annually in parallel with the Research Studentships. It contributes towards the travel and living expenses of a senior overseas scientist with an established reputation in the anatomical sciences making a visit to the U.K. or Ireland to engage in collaborative research.

### **Departmental Seminar Grants**

The Society has introduced a scheme to provide financial help to Departments in the funding of visiting speakers for seminars. Applications for up to £600 should be made in April for the subsequent academic year, and be supported by the signatures of five members of the Society in the applying University.

### **The Symington Bequest**

The Trustees of the Symington Bequest Fund can make grants to Society Members towards costs associated with anatomical research. These may be for specific purposes - for example the setting up of the Human Embryo Database developed out of initial grants from the Symington Fund - or more commonly for a contribution to the costs of travel to scientific meetings.

### **The Barclay-Smith Travelling Fund**

This may be used to assist Members who are studying for a higher degree (or are in the early years of their career) to attend meetings of the Society.

### **The Symington Memorial Prize**

This is the Society's premier prize, originally established in 1920 by the Queen's University of Belfast in commemoration of Professor Johnson Symington. Applicants must be Members below the rank of Professor, and it is awarded on the basis of a coherent research programme over several years.

### **The Anatomical Society Prize**

This is awarded biennially to the author whose papers over a two year period, which must include at least one in the Journal of Anatomy, are considered to be of the highest standard. Application is restricted to Members of post-doctoral or junior lecturer status.

### **Undergraduate Prize**

This is awarded annually at the Winter Meeting of the Society to the best communication by a candidate who must have carried out the work described while an undergraduate.

### **Poster Prize**

This is awarded for the best poster presented by a Member of the Society, normally of relatively junior status, at the Spring/Summer Meeting (unless this meeting is held jointly with another society).

## HISTORY MATTERS

### Wilfrid Le Gros Clark, Dr Lee's Professor of Anatomy, Oxford, 1934-1962

by Laurence Garey

e-mail: [l.garey@sunrise.ch](mailto:l.garey@sunrise.ch)

In the Winter 2006 edition of *Anastomosis* I wrote a short piece about my memories of Sir Wilfrid Le Gros Clark, prompted by the naming of the home of the former Department of Human Anatomy of Oxford University the *Le Gros Clark Building* (1). It was suggested to me that I submit another article on the life of this inspirational anatomist whom I had the privilege to know both as a teacher, when he was my Professor of Anatomy from 1960 to 1963, and later as a colleague, for that is what he made each of us junior researchers and demonstrators feel (Figure 1).

A search for documents illustrating his career proved rather frustrating. In the Bodleian Library in Oxford are some papers dealing with the Le Gros Clark family donated by Lady Violet Le Gros Clark. But a note in the National Archives (2) states:

*Very little manuscript material remains from Sir Wilfrid's long career in anatomy. All attempts to locate additional material in either departments or private hands have been unsuccessful.*

However, several laudatory (some even perhaps over-laudatory) mini-biographies were published at the time of his retirement and later, and in his obituaries, from which we can piece together some elements of his life (3, 4), as well as from personal recollections, both published (5,6) and not. He also left an autobiographical account of himself (7).

Wilfrid Edward Le Gros Clark was born in Hemel Hempstead in 1895, the son of a clergyman. Both his grandfathers had been surgeons at St Thomas's Hospital, London: indeed, one had been President of the Royal College of Surgeons of England. Le Gros, as I always remember him, qualified in medicine in 1916, also at St Thomas's, having begun his studies there precociously in 1912. He became a Medical Officer in the army in France for the rest of the First World War. He then became an anatomy demonstrator at St Thomas's while studying for the Fellowship of the Royal College of Surgeons (FRCS, which he got in 1919), but soon realised that this line was not for him, although during this time he published his first research paper, on Pacchionian bodies, in the *Journal of Anatomy* (8). It is remarkable that he seems to have been turned off anatomy at this early stage, only to more than make up for this passing negative feeling a bit later. But it did lead him to the other aspect of his career for which he is especially remembered. As he described in his autobiography *Chant of Pleasant Exploration*, published in 1968 (7):

*It was in such a mood of moral perplexity that I was overcome with an intense longing to escape from the artificialities of civilization by losing myself awhile in one of the remoter parts of the world.*

So after a visit to the Sarawak Government Office in Millbank he was appointed Principal Medical Officer in Kuching in 1920. He stayed for three years and became an excellent practitioner, much appreciated by the Dyaks, who honoured him with a tattoo on his shoulder. His elder brother, Cyril, joined the Sarawak Civil Service in 1925 two years after Wilfrid returned to England. In 1945 Cyril, by then Chief Secretary, was tragically executed by the Japanese. While in Sarawak Wilfrid had the opportunity to study the brains of tree shrews and tarsiers, and not only their brains but their more general anatomy too, and the scene was set for his renowned contributions to both neuroanatomy and anthropology.

After his return to England, in 1924, he became Reader and head of the Department of Anatomy at St Bartholomew's Hospital in London, and was promoted to Professor in 1927. His work developed two related themes, the detailed structure of the nervous system and primate evolution. In particular his research covered the cerebral cortex and the thalamus. He combined the anatomist's macroscopic analysis with the microscopist's insight into detail. But in both he applied a rigid scientific approach to which he remained faithful throughout his career. His earliest contributions on the tree shrew appeared in a series of papers in the *Proceedings of the Zoological Society* (9).

He was soon recognised as a pioneer of experimental neuroanatomy. In 1929 he returned to the Chair of Anatomy at St Thomas's. There he enhanced his reputation in the domains of structural neuroanatomy, primatology and human evolution. Near the end of his tenure at St Thomas's he published *Early Forerunners of Man* (10) which summarised his views on primate evolution and anatomy. Furthermore, much of what we now recognise as the modern foundation of our knowledge of thalamocortical relations and primate visual systems stems from Le Gros' work at that time (11).

In 1934 he was appointed Dr Lee's Professor of Anatomy and Fellow of Hertford College, Oxford, where

## HISTORY MATTERS

he remained until retiring in 1962, and where I, as a neophyte medical student, first met him in 1960. Le Gros was appreciated as a teacher and a distinguished scientist. As an undergraduate I well remember his lectures, often not easy to follow as he had a slight lisp, but greatly inspiring.

For the time, his approach to the teaching of anatomy to medical students was rather progressive. He attempted to raise anatomy from its perceived rather lowly status to that of a modern pedagogic and scientific discipline. He believed that part of the problem on the teaching side was too much emphasis on topographical minutiae and I certainly enjoyed the benefits of his striving to instil upon us what he believed was essential, and useful. He employed everyone in the department who could conceivably be so employed to teach in one or other of the anatomical disciplines, including dissection. Graduate students were heavily involved in neuroanatomy, embryology and dissecting session, and there were always a couple of FRCS candidates to drive fear into our hearts in the dissecting room. Later, when I became a graduate student myself, largely due to the inspiration I had felt from Le Gros himself and from his disciple and my college tutor Tom Powell, I derived great benefit from having to muck in with so much teaching. On the research side, he lived to see the day when anatomy departments widely were becoming active centres for the study of cell biology and, notably, neuroscience.

His contributions to the field of experimental neurology included the connections of the thalamus and hypothalamus and sensory inputs to the central nervous system, particularly the connectivity of the visual system, including the lateral geniculate body and visual cortex (12-18) in collaboration notably with Sydney Sunderland and Paul Glees.

He also contributed some early work on regeneration in the central nervous system, that was, and still is, of topical importance (19,20). Some idea of Le Gros as an extremely sensitive man can be glimpsed from the story, related to me by Ray Guillery, about whom more later, that he had been seriously hurt by the criticism by Gordon Walls in his book in 1951 (21) to the effect that Le Gros had been wrong in his functional interpretation of the famous "layers" of the lateral geniculate body being associated with distinct pathways for colour vision to the visual cortex. Not that he was angry at Walls, for he probably recognised [the strength of the case made by the latter](#).

Le Gros is also remembered for his contributions to physical anthropology (5,6). When Raymond Dart ("father" of the 1925 australopithecine Taung Child) and Robert Broom were unearthing fossil primate remains in South Africa, Le Gros visited them there in 1947. Dart's Taung Child had not been well received in paleoanthropological circles. This was partly because it conflicted with the then widely accepted "Piltdown Man", the purported "missing link" skull unearthed in a Sussex quarry between 1908 and 1912, and only proved to be a faked mixture of orang-utan, chimpanzee, and modern human remains in 1953 (22,23). The unmasking of the fraud was a milestone in anthropology and Le Gros was one of the leading lights responsible for the truth coming out. In 1955 he published *The Fossil Evidence for Human Evolution* (24) followed by *History of the Primates* (25). In 1960, after the famous fossil discoveries at in East Africa by Louis Leakey, with whom he also worked, he published *The Antecedents of Man* (26).

Some of Le Gros' work brought him into conflict with Solly Zuckerman. Zuckerman was a demonstrator in Oxford under Le Gros in 1934, and was later appointed to the Anatomy Chair in Birmingham in 1939, although war work at the Ministry of Home Security prevented him taking it up until 1946. During the war he was back at Oxford on ministerial duty, so he and Le Gros had plenty of opportunity to see each other. A conflict grew up between the two anatomists, Le Gros being convinced that australopithecines, including the Taung Child, were in the human lineage, based on the shape and function of their teeth and jaws, while Zuckerman accepted them as apes (27,28).

At the outbreak of the Second World War, Le Gros organised a team to work in his department on problems of human ergonomics, of direct importance to the war effort. After the war, as the department grew in strength and reputation, it began to outgrow its physical volume, and its Victorian infrastructure began to show signs of tiredness. So Le Gros put forward plans to rebuild, incorporating modern laboratory and workshop facilities. The new building opened in 1958, and that occasion was marked by the presentation by his old and new colleagues of a bust of himself by Sir Jacob Epstein. It remains on display in the entrance hall of what is now the Le Gros Clark Building (Figure 2).

Le Gros received many formal honours, of which just a few suffice to recognise his national and international stature. In 1935 he was elected a Fellow of the Royal Society. He was editor of the *Journal of Anatomy* from 1939 to 1945. The first post-war International Congress of Anatomy was held in Oxford under his Presidency in 1950: it was a great success and marked the beginning of a new era for anatomy. Between 1951 and 1953 he was President of the Anatomical Society. He became Master of the Salters' Company in 1954, a position in which he took great pride. He was knighted in 1955. In his

## HISTORY MATTERS

Ferrier Lecture to the Royal Society in 1957 he related his ground-breaking research on the olfactory system, about which there had been much misconception in the past (28). In 1961 he was President of the British Association for the Advancement of Science and was awarded the Royal Medal of the Royal Society. He served on the Medical Research Council and was a member of many foreign societies, including the Norwegian Academy of Art and Sciences, the Royal Society of New Zealand, the American Philosophical Society and the National Academy of Science in Washington.

In Oxford he made frequent rounds of the department, visiting staff and students alike, encouraging them and urging them to ever greater efforts. It was during such visits that he displayed his wide range of knowledge and breadth of vision. He was responsible for the inspiration and training of a number of students who went on to careers in many countries (29).

On his retirement in 1962 John Dixon Boyd and Frank Goldby wrote an appreciation in the *Journal of Anatomy* (3). They remarked

*If anatomy is more 'alive' than it has ever been, if anatomical research is more active and the attraction it exerts on able minds so much the stronger, we owe this more to Le Gros than to any other single person in this country.*

He retained a room in the Oxford Anatomy Department after his retirement, where he produced a new edition of his well-known anatomical best-seller *The Tissues of the Body*, first published in 1939 (30), completed a number of scientific papers and wrote his autobiography *Chant of Pleasant Exploration*, published in 1968 (6). He appreciated this gesture by his successor, Geoffrey Harris, for it enabled him to keep close to anatomy, to his colleagues, and to young research workers, like me. I related previously (1):

*he had a little office cum lab up in the Victorian roof of the old part of Anatomy, and I used to visit him there. There was a big window at ceiling level, and it made me think of a Parisian artist's studio. Not that I was familiar with Parisian artists' studios, but I imagined them to be light, airy and with a view of the sky.*

*He was preparing yet another edition of *The Tissues of the Body*, of which he had completed the sixth in 1970, and asked me to look at some drafts..... He asked me to collect and process some squirrel brains for him. ....*

*I used to see Le Gros in the library just about every Saturday after his retirement until a couple of days before his death, in 1971.*

His first wife, Freda Constance Giddey, whom he married in 1923, died in 1963. They had two daughters. In 1964 he married Violet, widow of Dr Leonard Browne, who had been a lifelong friend.

Interesting glimpses of a more intimate side of Le Gros can be seen in some recollections of him by Ray Guillery (31), a master of neuroanatomy in his own right in a career that has spanned London, Chicago, Madison, Oxford and now Istanbul, and which he kindly shared with me recently. Ray was born in Germany from where he moved to Switzerland in 1938 and finally to school in Oxford in 1940 "*still finding my feet in a new environment and learning a new language*". Mrs Le Gros Clark was on the Oxford refugee committee and there was space in their home. As his sister's name was on the list of refugees needing a home she was welcomed to the Le Gros Clarks' house in North Oxford in autumn of 1940. Ray was at a boarding school in Banbury, and in the holidays spent time with his sister in the Le Gros Clark home.

One of Ray's recollections is of large shiny dishes on week-end mornings keeping the Professor's breakfast hot for him. That and the very English garden are among his clearest memories of their comfortable house. Ray did not see a great deal of "The Professor", as everyone including his wife called him, although they did go on trips at week-ends, mostly by bicycle, sometimes by train, and he remembers him being home for tea time occasionally. Ray recalls that he was not a talkative person, often silent and seemingly distant, but he was always kind and considerate, and remarkably patient with an eleven-year-old boy and his slightly older sister! On a few occasions he took Ray into the Anatomy Department letting him help develop photographs of their outings, and showing him the monkeys in the animal quarters. Ray still has a photograph of a small sketch that Le Gros made in his sister's autograph album in 1940 (Figure 3). He writes:

*She had asked Le Gros to write something for her, and I can imagine him scratching his head and wondering what on earth he could write or draw that might interest a 13 year old girl. He produced a fine sketch of a brain, labeled it "a Human Brain" and signed the page W.E. Le Gros Clark Nov 1st 1940. That was it. Oddly, the brain had proportions that made it look like a mix of features from a macaque*

## HISTORY MATTERS

and a human brain. Perhaps he had spent the day with some monkey brains.

Several years later Le Gros wrote to Ray offering him a job in the Oxford Anatomy Department, but he already had a job at University College, London, was married and had children, and moving to Oxford would have meant a lower salary. Little did either realise that in 1984 Ray would be appointed Dr Lee's Professor of Anatomy in the footsteps of Le Gros.

Sir Wilfrid Le Gros Clark died aged 76 on June 28 1971 after being taken ill over the weekend. Many eloquent obituaries were published, including those in the *Lancet* and *Nature* (32-34). Even Solly Zuckerman praised him, albeit rather condescendingly in the opinion of some, in the biographical series of Fellows of the Royal Society in 1973: *WILFRID LE GROS CLARK was the leading figure of British anatomy for all of thirty years.* (35). Graham Weddell, an old friend and colleague wrote of him in his obituary in the *Journal of Anatomy* (4): *with his death a chapter closes in the history of Anatomy. Sir Wilfrid was probably the last of the great men capable of carrying out fundamental research in several different branches of his chosen subject – capable of surveying in his time the whole field of anatomical knowledge – and also capable of introducing a new and reformed approach to the teaching and practice of anatomy.*

### Figure legends

Figure 1: Sir Wilfrid Le Gros Clark, from reference 3

Figure 2: Bronze bust of Sir Wilfrid Le Gros Clark by Jacob Epstein in the Le Gros Clark Building, Oxford. [http://pc74.anat.ucl.ac.uk/history/LeGrosClark\\_files/image003.jpg](http://pc74.anat.ucl.ac.uk/history/LeGrosClark_files/image003.jpg)

Figure 3: The sketch of a "Human Brain" made by Wilfrid Le Gros Clark for Evamaria Guillery, November 1940. Photograph kindly supplied by Ray Guillery.

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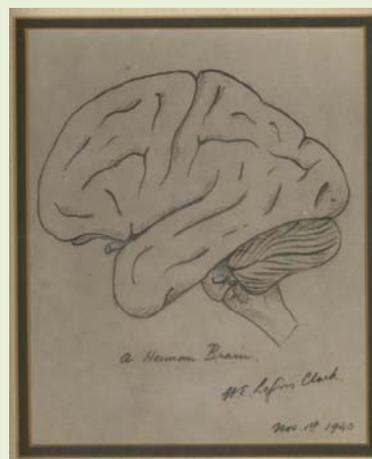
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### Thanks:

To Ray Guillery for sharing his memories, to Gillian Morriss-Kay for her much appreciated advice, and to Andrea Pillmann for providing access to a couple of invaluable documents.



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### The Badge of the President of the Anatomical Society: a rebirth

When a new President takes over the reins of the Anatomical Society, one expects certain changes, for better or for worse. Since Susan Standing has been at the helm, there is one unavoidable change: she wears her Presidential Badge of Office, in the form of a gold medal on a bright red ribbon, rather more frequently than most of her predecessors. At the Summer Meeting in Nottingham in July 2008, I persuaded her to let me photograph this medal, that I had only ever seen briefly before as it changed hands between old and new Presidents. She told me that so far it had been insured at an extravagant cost, only to reside in some safe place. She was determined that it see the light of day. How to transport it around safely when not *on duty*: "Under my shirt"!

As you can see from Figure 1, on the obverse of the medal is inscribed:

**PRESIDENT  
ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND  
1887**

and on the reverse:

**Sir Arthur Keith  
1866-1955  
President 1918-20  
Donor**

with around the border: **DESIGNED BY A NICOL SMITH. MADE BY WILLIAM FRASER, ABERDEEN**

There is also a mark which may be a hall mark. The design on the obverse is a representation of the arms of the Anatomical Society, with a stylised plant for each constituent country (rose, leek, thistle and shamrock). In spite of some gentle irreverence this does not refer to a society of vegetable growers!

## HISTORY MATTERS



Figure 1: The Badge of the President of the Anatomical Society of Great Britain and Ireland

In the catalogue of the Archives of the University of Aberdeen are the Robert Douglas Lockhart papers (1). RD Lockhart (1894-1987) was a medical student in Aberdeen, and later Professor of Anatomy in Birmingham from 1931 to 1938, when he returned to the chair in Aberdeen. He is known, among other things, for his textbook on *Living Anatomy* of 1948 (2, Figure 2) that thrilled generations of medical students over the years. He was President of the Anatomical Society from 1955 to 1957.

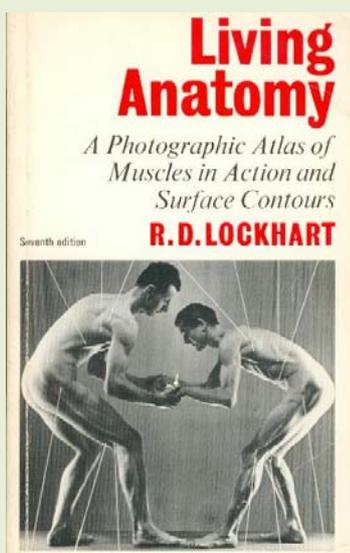


Figure 2: *Living Anatomy* by RD Lockhart

We learn from his obituary by his colleague and fellow author FW Fyfe in the *Journal of Anatomy* in 1987 (3) that he was instrumental in earmarking for the production of a Presidential Medal the sum of one hundred pounds bequeathed to the Anatomical Society by Sir Arthur Keith.

Indeed, among Lockhart's papers (1) is a "Letter from Lockhart to William Veitch, of Aberdeen Journals Ltd, informing him of 100 (pounds) bequest left by Sir Arthur Keith to the Anatomical and Anthropological Society of Great Britain and Ireland, which was used to commission a presidential badge for the Society, designed by Mr A. Nicol Smith and made by Mr William Fraser, 6 December 1956."

Arthur Keith was born in Aberdeen in 1866 and obtained a degree in medicine at the University of Aberdeen in 1888. He later specialised in anatomy at University College London and at Aberdeen. In 1908 he became Conservator of the Hunterian Museum of the Royal College of Surgeons. That same



year he instituted the tradition of serving tea for Committee meetings of the Anatomical Society in his rooms at the College, a tradition that continued for at least 30 years, and perhaps more, as I described in my article on the early days of the Anatomical Society in *Anastomosis* of Winter 2006 (4).

Figure 4: Portrait of RD Lockhart from the *Journal of Anatomy* (3)

Keith launched into a study of human evolution, publishing a number of books ranging from *An Introduction to the Study of the Anthropoid Apes* in 1897 (5) to *A New Theory of Human Evolution* in 1948 (6). He emphasised the evolutionary pressure of cultural differences and factors like patriotism, revenge, morality, nationalism, and race, leading to "in-groups" and "out-groups". His works dealt, among many other things, with the "Jewish

## HISTORY MATTERS

Question" and the "German Fuhrer". Although anti-Nazi, needless to say some of his views were controversial and at odds with what many people accepted at the time, and remain so today. However, the evolutionary importance of cultural differences in a Darwinian sense is recognised (eg Dawkins, 2006 - 7).

Arthur Keith supported the veracity of Piltdown Man, the do-it-yourself "missing link" skull unearthed in a Sussex quarry between 1908 and 1912, and only proved to be a faked mixture of orang-utan, chimpanzee, and modern human remains in 1953, a process that was largely due to the work of Wilfrid Le Gros Clark, my own anatomy professor when I was a student in Oxford (8). Keith was considered by some to have been one of the perpetrators of the hoax, but most seem to think him an innocent victim.

He was awarded an FRS in 1913 and knighted in 1921, and was editor of the Journal of Anatomy from 1915 to 1936 and Rector of the University of Aberdeen between 1930 and 1933. He died in 1955.

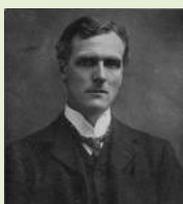


Figure 5: Sir Arthur Keith (from reference 9)

So, the plot thickens. Not only is the Medal not that old (the date 1877 refers to the founding of the Society, not the medal), but it was not actually donated by Arthur Keith. Simply, his 100 pound donation was used by Lockhart for making the medal in 1956. Not that this detracts from the symbolic value of the event and the object. However, I suppose that the first President to wear it must have been Lockhart himself.

But is it made of gold? There is a mark on the reverse that could be a gold hallmark. Does anyone know?  
Lawrence Garey

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### Summer Meeting, Aberdeen, 14-17 July 1986

To continue our series of group photographs taken at Summer Meetings, following those in Belfast in 1931, Cardiff in 1946 and Edinburgh in 1947, we come much more up-to-date, with the meeting at the University of Aberdeen in July 1986, which was joint with the Nederlandse Anatomen Vereniging.

It was provided by Ian Whitmore, who identified some of the participants. Di Lawrence-Watt helped with some others, and Berend Hillen also added some of the Netherlands contingent. However, there are many gaps, so perhaps someone out there can fill them in.

One thing we notice is the large number of attendees, which means that each one is rather small, which does not help identification.

Laurence Garey, [l.garey@sunrise.ch](mailto:l.garey@sunrise.ch)



### 2009 Studentship Awards from the ASGBI

Professor Graham Burton, Professor of Reproductive Biology, University of Cambridge and Director, Centre for Trophoblast Research, University of Cambridge

Title of Project: *Epigenetic regulation of transcriptional activity within the syncytiotrophoblast of the human placenta.*

Dr Stefan Przyborski, Reader in Stem Cell Biology, Director and Chief Scientific Officer of ReInnervate Limited, School of Biological and Biomedical Sciences University of Durham.

Title of Project: *Investigation into the biological effects of novel synthetic retinoid analogues on avian embryogenesis and their mechanisms of action.*

## EDUCATIONAL MATTERS

### Report on Educational Conference

#### Topical Issues in Biomedical Education

Queen's University Belfast, 13-14 September 2007

Dr Marise Heyns and Dr Etain Tansey, Division of Basic Medical Sciences

This highly successful symposium was organised by a group of Teaching Fellows from the Division of Basic Medical Sciences at Queen's University Belfast (QUB). The Biomedical Sciences (Physiology and Anatomy) are accepted as fundamental to the teaching of not only Medicine but also Nursing, Dentistry and Physiotherapy, amongst other clinically related disciplines. However, the changing demands in the provision of biomedical education have highlighted several important and topical issues which need consideration in the development and delivery of programmes fit for purpose. The five main subject areas chosen for this conference were Problem Based Learning (PBL), Student Selected Components (SSCs), Intercalated Degrees, Ethics in Biomedical Science and Standardised Assessment. The aim of the conference was to discuss these relevant issues through keynote lectures and workshops. Contributions in any area of Biomedical Education research were welcomed and there was also an opportunity for interested academics to present some of their own research. The conference was widely advertised and the high standard of the guest speakers, all experts in their fields, resulted in keen interest and positive feedback.

The symposium was opened by **Professor Maurice Savage** (Director of Medical Education, QUB) who emphasised the importance of high quality teaching and learning at QUB. He reflected on the recent increase in student entry numbers in the medical programme at QUB, its implications for all staff, and as well as the challenges in developing a possible postgraduate entry programme into medicine.

The first of the invited speakers was **Professor Jim McKillop**, who is Deputy Executive Dean of Medicine and Muirhead Professor of Medicine at the University of Glasgow. He spoke of the impact of PBL on the University of Glasgow's medical teaching over the past ten years. He discussed the shared characteristics of the various variants of PBL, the requirements for its successful implementation as well as the claimed benefits of PBL.

The next invited speaker was **Professor Deborah Murdoch-Eaton**. Professor Murdoch-Eaton is Head of Medical Education at University of Leeds and was awarded the prestigious National Teaching Fellowship in 2005. She discussed the work currently undertaken by the Northern Medical Schools SSC Consortium and emphasised the General Medical Council's stipulation that 25-33% of the 5 year curriculum be devoted to SSCs. SSCs are now acknowledged as being fundamental to the development of the generic lifelong learning skills of medical students and are often the only opportunity for students to develop an understanding of research skills and its application to medical practice.

This session was followed by a session devoted to oral presentations. **Dr Tristan Pocock** (Faculty of Life Sciences, University of Manchester) discussed a novel SSC exercise where the students were given an opportunity to experience working in a team, assessing and reflecting on their own and their peer's performance, and at adapting their behaviour according to colleagues' strengths and weaknesses. **Dr Alisdair Thin** (School of Life Sciences, Heriot-Watt University, Edinburgh) presented an overview of his use of text-to-speech software in lectures. His lectures were published to a virtual learning environment as the combination of audio narration with visual graphics has previously been found to lead to deeper learning than simple on-screen textual commentary. Existing lecture material can thus be adapted to take advantage of the many benefits that the internet has as a distribution medium. The final paper in this session was presented by **Dr Marise Heyns** (Division of Basic Medical Sciences, Queen's University Belfast) in which she shared the aims, objectives, delivery and assessment of her SSC module on Witchcraft and Muti – African Medicine.

For the final session of the first day the invited speaker was **Professor Anthony Payne**, Professor of Anatomy at the University of Glasgow, who explored the motives of and benefits to medical students carrying out an intercalated degree. He emphasised the point that flexibility and choice within a given intercalated degree may be the key to dealing with changes in students' knowledge base and learning skills. Through participation in an intercalated degree students can draw from their prior experiences and gain others that would stand to them post-graduation. Later in this session, he was joined by two

## EDUCATIONAL MATTERS

former QUB intercalated students (**Dr Patrick Campbell** and **Mr Gerrard Sloan**) who spoke very favourably of their experiences on the QUB intercalated degree programme.

The first speaker on the second day of the symposium was **Dr David Lewis**. Dr Lewis is Senior Lecturer at the Faculty of Biological Science at the University of Leeds and he explained why ethics should be integrated into undergraduate and graduate curricula within the biological sciences. Together with the Leeds-based Interdisciplinary Ethics Applied Centre of Excellence in Teaching and Learning, the aim is to provide progressive and comprehensive training in ethics, encompassing both generic and discipline specific issues, throughout all the degree programmes. His presentation was followed by a workshop where delegates were divided into groups and asked to discuss the ethical considerations in various cases.

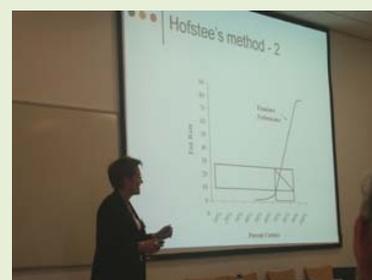
**Professor Trudie Roberts** and **Dr Katharine Boursicot** jointly gave the final presentation. Professor Roberts is Head of the School of Medicine and Director of the Medical Education Unit at Leeds and Dr Boursicot is the Head of Assessment at the School of Medicine and Dentistry, Queen Mary University of London. Their presentation was extremely informative and entertaining. The two speakers are well known experts in the field of standardised assessment, running workshops on the topic for the Higher Education Academy. Their lecture gave a broad overview of the different methods that can be used to set examination standards (including the Angoff, Ebel and Borderline Group methods). The delegates then had an opportunity to use standard setting techniques to set a pass mark for a 'mini-exam' designed for second year medical students.

The **posters** presented at the conference were available for viewing for the duration of the conference with two specific sessions set aside. The posters covered subjects such as new, low-cost approaches to teaching in-vivo techniques to undergraduate students, simulation in Medical and Dental Education, the challenges of teaching pre-registration Nursing students with varied educational backgrounds, a strategy towards professionalism in the Dissection Room and approaches to the teaching of physiology to mature pre-registration nursing students.

**Dr Etain Tansey** (Teaching Fellow and Chair of the Conference Organising Committee) gave the concluding remarks and thanked all of the speakers and delegates that had traveled from all over the UK and Ireland to attend and contribute to this inaugural meeting. The contributions of the Teaching Fellows who chaired the various sessions were acknowledged.

Feedback from the conference was extremely positive. Some examples of comments made include: "The themes were very relevant and the speakers were excellent"; "Standard setting – very good format. The two speakers worked very well together. I enjoyed the visit"; "This was an excellent conference which I look forward to attending each year". QUB and the University of Manchester are already discussing ideas for future conferences, planning to hold the conference at each institution on an alternating 2 year cycle. A proposed date for the next conference is September 2009.

The organising committee gratefully acknowledges the funding award received from the Anatomical Society of Great Britain and Ireland. Only with the support of the sponsors was this initiative from the Teaching Fellows at Queen's University Belfast made possible. An opportunity was created to expose delegates to an educational symposium from which valuable information was gleaned that can be incorporated in curriculum development and its delivery. It is anticipated that it will also nurture an interest in medical educational research, which is increasingly receiving more recognition as an important informant on our teaching.



## STUDENTSHIP MATTERS

### ASGBI Funded PhD

#### Review: Endothelial Function in Veins

Stephanie Hammond, ASGBI funded PhD student  
PhD Student, University of Nottingham  
(Under the Supervision of Prof. TM Mayhew & Dr. WR Dunn).

Vascular endothelium comprises a layer of flattened cells lining the heart, blood vessels and lymphatic vessels. The endothelium was once thought of as an inert layer providing a barrier between the blood and the extravascular tissues until it was demonstrated that the endothelium was an obligatory requirement for an acetylcholine induced vasorelaxation response (Furchgott and Zawadzki, 1980). Since then, research into the function of the endothelium as an active, regulatory tissue has expanded and consequently the understanding of its many functions has grown. These functions include the release of vasodilators, vasoconstrictors, inflammatory mediators, pro-coagulant factors, anti-thrombotic factors and growth factors in response to circulating factors and mechanical stress (Galley and Webster, 2004).

The ability to release vasodilators allows the endothelium to influence vascular tone, peripheral resistance and blood pressure. In arteries, these endothelium-dependent vasodilators include prostacyclin, nitric oxide (NO) and endothelium-derived hyperpolarizing factor (EDHF) (Moncada and Vane, 1978; Palmer, et al., 1987; Chen, et al., 1988; Taylor and Weston, 1988). Although venous tone can also influence blood pressure, by altering venous return and consequently cardiac output, little information is available about the endothelium-dependent vasodilators released.

One of the physiological situations where venous tone may be important is pregnancy. During the first half of pregnancy, maternal blood pressure decreases, whereas cardiac output increases, suggesting alterations in venous return. Disease states of pregnancy such as pre-eclampsia, which is characterized by high blood pressure, proteinuria and oedema, have been associated with endothelial dysfunction (Carbillon et al., 2000; Gabbe et al., 1996).

My PhD research focuses on endothelial function in veins, more specifically, the endothelium-dependent vasodilators released. Initially endothelium function was investigated in rat mesenteric veins from male Wistar rats. Apart from the fact that venous endothelium function in rats had rarely been investigated, rats also provided a readily available tissue source with which to learn the experimental techniques, optimize experimental protocol, and generate animal data. Once I had developed these skills, the research was then expanded to characterize endothelial function in human omental veins from normal pregnant women. To obtain these samples, I asked consent of the women on the maternity wards who had normal pregnancies and were booked in for elective Caesarean (EC) sections. Reasons for EC sections included previous sections, breech or transverse presentation, placenta previa or maternal request. The surgeon then took omental samples during the EC section.

To determine the vasodilators released from the endothelium, pressure myography was used. This method involves dissecting veins of diameter 300-600µm (when pressurized) from the surrounding fatty tissue and mounting each end onto a glass cannula. The veins must be free of branches or holes that could cause the vessels to leak. This process involved great dexterity and took approximately 3 months to master. I was then able to use this skill to dissect out veins from the human omental samples which is more difficult as the vessels are not arranged in a formal manner, and the sample contains much more adherent fat and membranes. I also had to identify vessels of a suitable size as the sample contains vessels of various sizes.

Once mounted onto the glass cannulae, the vessel was then pressurized by closing off one cannula and attaching the other to a pressure servo unit set to 10mmHg, as this is similar to the pressure experienced in the body. Physiological salt solution was circulated around the system which provided a mechanism for delivering drugs to the vessel. Initially vessels were precontracted to 50% of their original diameter using noradrenaline. However, it was very difficult to maintain tone using noradrenaline, and so the thromboxane mimetic U46619 was used as this proved to be a more reliable

## STUDENTSHIP MATTERS

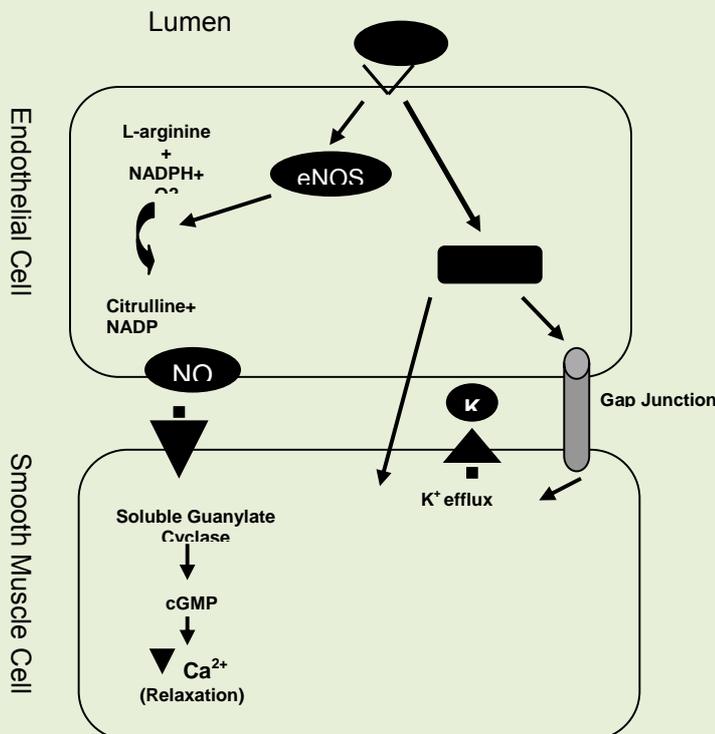
preconstrictor. Relaxation responses to bradykinin were then obtained by adding bradykinin in a concentration dependent manner. Bradykinin (an endogenous vasodilator) was used to relax the vessel rather than the more commonly used acetylcholine, as acetylcholine was found to have a predominately preconstrictor effect on the veins. The role of the endothelium-dependent vasodilators was determined by adding their respective inhibitors; Indomethacin for prostacyclin, L-NAME for NO and increasing extracellular potassium for EDHF.

The results from these experiments were very similar in both rat and human veins, with NO and EDHF being the main vasodilators released. Further experiments are currently being carried out to identify the unknown factor EDHF in both rat and human veins, by investigating those factors that have been put forward as candidates for EDHF in arteries, namely, hydrogen peroxide, epoxyeicosatrienoic acids, potassium ions and gap junctions. Figure 1 depicts the two possible endothelium-dependent vasorelaxation mechanisms upon addition of bradykinin (BK). Endothelial nitric oxide synthase (eNOS) is activated and catalyses the production of NO which is then released from the endothelial cell and binds to the soluble guanylate cyclase in the smooth muscle cell. This activates cGMP which causes vasorelaxation by causing a decrease in cytosolic calcium. EDHF is also released from the endothelium, either directly or mediated by gap junctions, and hyperpolarizes the smooth muscle cell by causing potassium ions ( $K^+$ ) to leave the cell.

Gap junctions between the endothelial and smooth muscle cells (myoendothelial gap junctions) directly link the cells and have been suggested to act as a channel to mediate the transport of a hyperpolarization from the endothelium to the smooth muscle cells, where it would then induce smooth muscle hyperpolarization and relaxation of the vessel. Myoendothelial junctions are composed of two protein hemichannels, one from the endothelial cell and one from the smooth muscle cell. Each hemichannel is composed of six transmembrane proteins called connexins (Cx). In vascular tissue these are Cx37, Cx40 and Cx43 (Gustafsson et al., 2003). In human omental arteries, gap junctions have been shown to contribute to the EDHF relaxation response. The gap junction inhibitor carbenoxolone was found to attenuate the relaxation response to bradykinin (Kenny et al., 2002). Here, carbenoxolone was also shown to reduce the relaxation response to bradykinin in human omental veins. To reinforce this finding the presence of the vascular connexins 37, 40 and 43 in omental arteries and veins was investigated using a tertiary antibody staining procedure.

## STUDENTSHIP MATTERS

Figure 1.



Arteries and veins were dissected from the omentum samples and frozen in OCT using supercooled isopentane. Every attempt was made to freeze the vessels in an upright position that would provide cross sections when the samples were cut, but this was not always successful as the procedure was quite challenging.

The samples were then cut into 5-10µm sections using a Cryostat and put onto glass slides. These sections were then fixed using 4% Paraformaldehyde and a blocking solution of 1% Fish skin gelatine/ 0.2% Triton X100 was used to prevent any unspecific antibody binding before the primary antibody was added. The primary antibody was an antibody against either connexin 37, 40 or 43. The secondary antibody was a biotinated goat anti-rabbit followed by a tertiary Streptavidin TRITC antibody. A biotinated/Streptavidin complex was used as this has been found to amplify the signal and improve the success rate of the connexin staining in these small vessel sections. The coverslips were mounted using a mounting medium containing DAPI which stains the cell nuclei blue. This aids the orientation of the section and identification of cell layers.

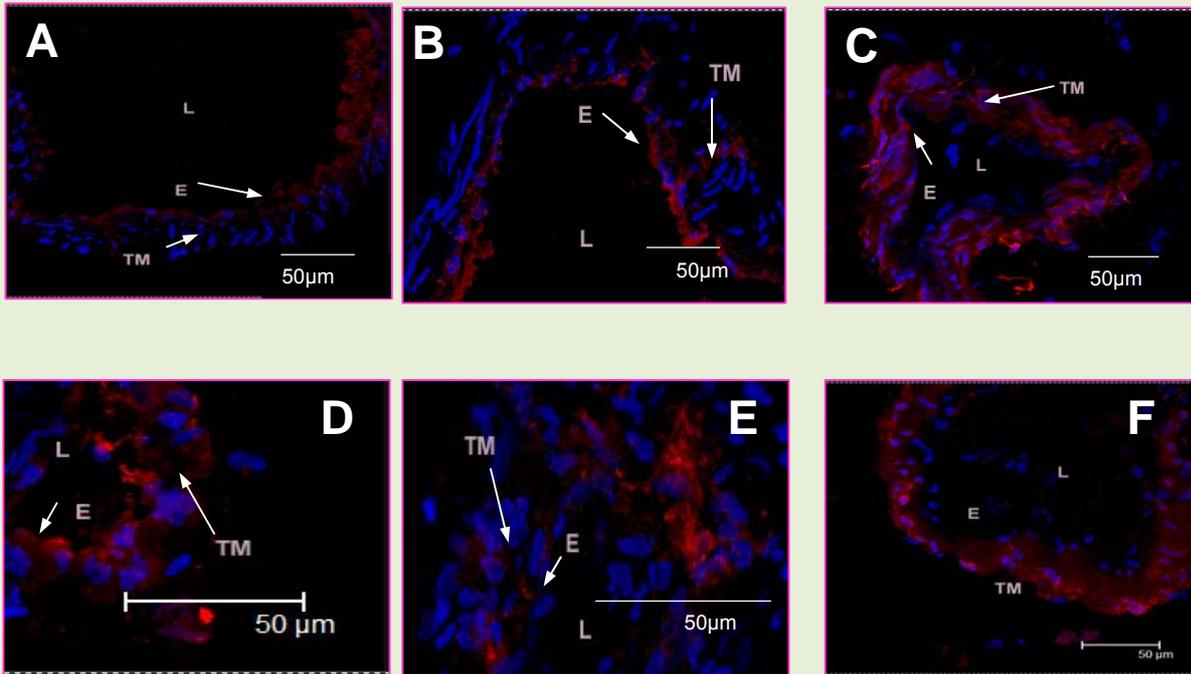
In arteries Cx37 was found primarily in the endothelium, Cx40 in the endothelium and tunica media, and Cx43 primarily in the tunica media. In veins Cx37 was found primarily in the endothelium, Cx40 and Cx 43 primarily in the tunica media. (Figure 2.) These results reinforce the finding found using the gap junction inhibitor carbenoxolone.

Although the techniques I am using throughout my PhD have been very challenging and has required a great deal of patience, it has meant that I have felt a sense of achievement upon completion, and I would like to thank the ASGBI for giving me the opportunity to carry out this research by providing my studentship.

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## STUDENTSHIP MATTERS



**Figure 2.**

**A, B and C:** Connexin expression in human omental arteries. A) Cx37 expression (*red*), nuclei (*blue*): B) Cx 40 expression (*red*), nuclei (*blue*): C) Cx43 expression (*red*), nuclei (*blue*). **D, E and F:** Connexin expression in human omental veins. D) Cx37 expression (*red*), nuclei (*blue*): E) Cx 40 expression (*red*), nuclei (*blue*): F) Cx43 expression (*red*), nuclei (*blue*). Key; E =endothelium, L =Lumen, TM =Tunica Media (DAPI= *Blue*)



800 YEARS  
1209-2009

Department of Physiology,  
Development & Neuroscience



### PHD STUDENTSHIP

'Epigenetic regulation of transcriptional activity within the syncytiotrophoblast of the human placenta'

A PhD Studentship funded for 3 years by the Anatomical Society of Great Britain and Ireland (from 1<sup>st</sup> October 2009) is available at the University of Cambridge (Department of Physiology, Development & Neuroscience)

The aim of the project is to identify the epigenetic factors regulating transcriptional activity within the nuclei of the syncytiotrophoblast of the human placenta. This is of key importance to our understanding of how turnover of nuclei occurs within an extensive syncytium, and more specifically as to how transcripts within this tissue, whose wellbeing is critical for a successful pregnancy, are controlled. The research will involve a mixture of molecular biological, immunohistochemical and cell culture techniques.

You will be supervised by Professor Graham Burton ([www.pdn.cam.ac.uk/staff/burton/index.html](http://www.pdn.cam.ac.uk/staff/burton/index.html)) in collaboration with Professor Anne Ferguson-Smith ([www.pdn.cam.ac.uk/staff/ferguson/index.html](http://www.pdn.cam.ac.uk/staff/ferguson/index.html)), and be a member of the Department of Physiology, Development and Neuroscience.

Applicants must be UK, Irish or EU citizens who have spent at least three years at a UK, Irish or EU university and should have or expect to obtain a degree in a biological subject with first class or upper second class honours, or an equivalent qualification.

Interested applicants should e-mail their CV, including their full academic record and the full contact details of two academic referees to: Elizabeth Harrington ([eph25@cam.ac.uk](mailto:eph25@cam.ac.uk)) by March 6<sup>th</sup> 2009. Please include a covering letter explaining your interest in the project.

## EDITORS COMMENTS

And finally..... I have always been mesmerised by these two words and now I have an opportunity to use them. I have had a long run as Editor of *Anastomosis* and have felt increasingly that it was time for a new person with new ideas (and a lesser workload – although the latter definition would rule out all academics!) to replace me. At the Council meeting in Oxford I asked if any councillors were interested and, to my delight, Dr Jo Wilton stepped up immediately. So this is my last issue of *Anastomosis*.

I really have enjoyed this role and feel it was a privilege to be able to contact/harass/edit works of so many colleagues. I thoroughly enjoyed the networking it allowed me and the freedom to be nosy and camera happy. One of the joys was archiving events of this lovely friendly august society so that a descendant of Lawrence Garey will have less trouble collecting Historical relics about the society. I absolutely loved the front covers and still feel that there are some wonderful micrographs out there in every anatomist's portfolio which we should and could see, if only you were less reticent about your images! The name "Anastomosis" was chosen partly because of the implied communication between anatomical colleagues and partly because of my own vascular interests and I hope you did feel that the newsletter was a platform for communication and networking. Rather than hard copies on coffee tables, with its implied publication costs and some loss of materials that are time sensitive, the way forward may be electronic issues. Once the new web page has been launched, the newsletter will probably migrate to this mode of delivery, but I will leave all this to the new in-coming Editor Jo Wilton to sort out. I wish her every success.

On a final note, I won't disappear yet from Society business as our new Secretary Professor Steve McHanwell has persuaded me to become the new Assistant Secretary and I have agreed (you can't get rid of me that easily).

Best wishes  
Lopa Leach  
Editor, *Anastomosis* (February 2009).

Details of the new Editor:  
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LANCASTER UNIVERSITY  
**DIVISION OF MEDICINE**  
**Lectureship in Human Anatomy**  
Salary on grade 7 (£28,290 - £31,840)

Applications are invited for a Lectureship in Human Anatomy within Lancaster University's recently established Division of Medicine. The Division contains the Centre for Medical Education which collaborates with the University of Liverpool in the delivery of Liverpool's innovative, highly regarded undergraduate medical curriculum with its emphasis on problem-based learning and early patient contact. The Division wishes to expand its activities in undergraduate and postgraduate teaching, and in research.

The appointee will contribute to the teaching and administration of the undergraduate medical degree to an annual cohort of 50 Lancaster-based students and to the development and delivery of new postgraduate degree programmes, either within the Division of Medicine or in collaboration with other departments. In particular, the appointee will be responsible for the development and delivery of human anatomy teaching and learning resources for undergraduate and postgraduate programmes within the Department.

The appointee will contribute to the research in the Division of Medicine in combination with colleagues from the Division of Biomedical and Life Sciences. While consideration will be given to any field of research which fits with that currently being carried out in the two Divisions, priority will be given to candidates with expertise in feto-maternal and placental research. The appointee will be expected to develop their own programme of research, and will be encouraged to develop collaborative research with other groups in cognate areas.

The Division of Medicine is one of three constituents of a new School of Health and Medicine. For an informal discussion about the post, please contact Professor Anne Garden, Head of Division (tel +44 (0)1524 593383, email [a.garden@lancaster.ac.uk](mailto:a.garden@lancaster.ac.uk)) or Professor Colin Ockleford, Director of the Clinical Anatomy Learning Centre Division of Medicine (tel +44 (0)1524 594515, email [c.ockleford@lancaster.ac.uk](mailto:c.ockleford@lancaster.ac.uk)).

## EDITORS COMMENTS