BSDB Newsletter

Winter
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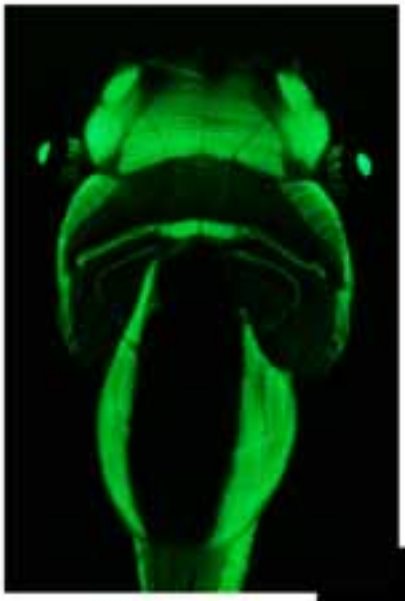

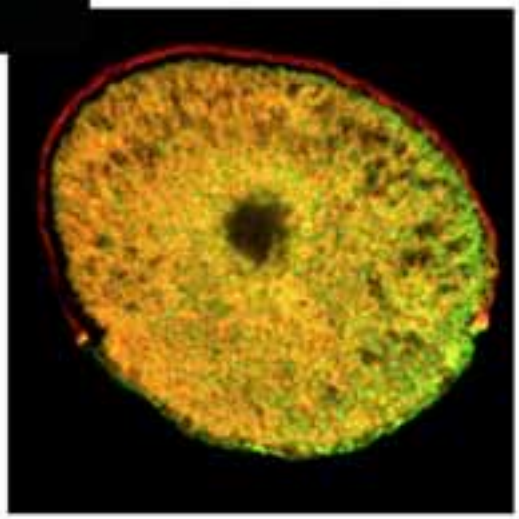

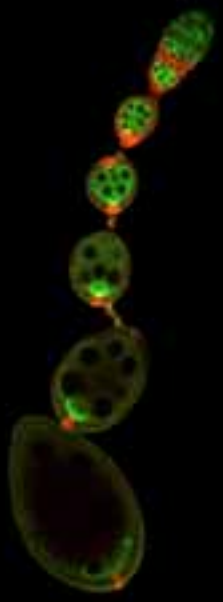

British Society for Developmental Biology

Genetics & Development

Spring Meeting 2004

Inside Front Cover

BSDB Newsletter

Winter 2003 Volume 24, Number 2

Editorial

This issue sees some **important changes** for the BSDB - the effect of some of which I am afraid you will feel on your pocket - that will lead hopefully to the more successful running of the organisation.

The first major change is that, for the first time in many years, **subscription rates are increasing** to £35 per annum (£15 for students). This has been prompted in part by falls in our reserves (reflecting the losses of the world's stock markets over the last two years), and in part by our having to turn away some Travel Grant applications last year. The need for these increases was discussed and approved at the AGM (Spring Meeting). Current members will soon be receiving a letter outlining how Direct Debits can be updated.

In a further effort to ensure that Travel Grants are distributed fairly, the Committee has also instituted new rules affecting, particularly, deadlines for submission of grant applications (p3). Beware that if you want a grant for the Spring Meeting, you need to get it in by **19th December**!!!

The other change you will have noticed is that the Newsletter is thinner. This is mostly due to the removal of the Forms section at the back (all these forms can now be downloaded from the website www.bsdb.org). This is a prelude to the **Newsletter becoming completely electronic** (most likely an e-mail), which will happen by the Winter 2004 issue, if not before. This will save substantial expenditure (the equivalent of 10 Travel Grants per year).

Of course, it does mean that if you haven't yet **let us know your e-mail address** (and 40% of you have not), then you won't get the Newsletter automatically!

We would like your views on this, and also what you would like to see included in the Newsletter, so please read the **Newsletter Questionnaire** (p2) and send me your views.

Numerous other changes, including a call for new committee member nominations, are outlined in the News (& Views) section.

I am glad to say that it is not all change. We have another bumper contribution from our students (page X) and some excellent book reviews. I draw special attention to the one on Responsible Conduct in science (p13), obviously a "must-read" for us all.

Last, but not least, a big "thank you" to the organisers of the Autumn Meeting in Nice. This proved a phenomenal success, as witnessed by *two* enthusiastic reviews (p7) who, remarkably, don't mention the beach once – clearly a sign of a scientifically engrossing meeting. Another joint meeting of this kind is now firmly on the agenda.

The Editor
(a.j.furley@sheffield.ac.uk)

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BSDB Spring Meeting 2004

Joint with GenSoc

Warwick, 14th – 16th March

For further details see page 9 and
www.genetics.org.uk

Registration and Abstract Deadline: 16th January, 2004

Deadline for Travel Grants: 19th December, 2003

Cover legend: Clockwise from top left; Transgenic X. tropicalis tadpole expressing GFP driven by the muscle actin promoter - **Enrique Amaya**; Drosophila ovariole showing a string of egg chambers in which the oocyte is labelled by Ov6 (green) and the somatic follicle cells are labelled by FasIII (red) - **Isabel Torres** and **Daniel st. Johnston**; A st. 10 Drosophila egg chamber showing Oskar mRNA localisation at the posterior pole of the Drosophila oocyte (Cyan) and bicoid mRNA at the anterior pole (white) - **Katia Litiere** and **Daniel St. Johnston**; isolated frog blastomere from a 64 cell stage frog embryo, showing that these cells are polarised: aPKC antibody localised apicaly (red) and integrin basolateraly (green) - **Andy Chalmers** and **Nancy Papalopulu**

News (& Views)

BSDB Committee changes

Following the retirements announced in the last issue, and the sad, but perhaps inevitable retirement of **Anthony Graham** for personal reasons, we welcome new members **Corinne Houart** (London), **Andrew Jarman** (Edinburgh) and **Mike Taylor** (Cardiff). Further forthcoming retirements next spring mean that we will be looking for **two new committee members** at the AGM at the Spring Meeting. Please send nominations to **Robert Kelsh** by **8th March, 2004**.

In considering the ever-increasing workload for Society Officers, the Committee also agreed to reduce the term served by Officers from 5 to 3 years with effect from Spring 2004. In the same vein, it was agreed that the duties of Treasurer will be split between two posts, that of Treasurer and the new post of Travel Grants Officer. Again, these changes will come into effect at the Spring Meeting 2004.

Travel Grant changes

Please see the Treasurer's page for important news about changes to Travel Grant applications

Beddington Medal Nomination 2004

We received five nominations for the first award of the Beddington Medal. This award, which is given in memory of **Rosa Beddington**, is intended to recognise outstanding achievement by a PhD student throughout the course of his/her research project. The winner will be announced at the Spring Meeting 2004 in Warwick (p9), where they will get a chance to present their work in a special talk at the symposium.

Changes for Beddington Medal 2005

While we were pleased with the entries received this year, we realised that the timing of our deadline will have forced a substantial number of people submitting just after the end of three academic years – the bulk of students in fact – to wait a whole year before being eligible. Taking this into account, the eligible period for for the coming year will extend from **2nd September, 2003 to 31st December, 2004**. (accordingly, in future years, the eligible period will run from 1st January to 31st December).

We have also changed slightly the form of the nomination to allow for the inclusion of figures from the thesis, which often can enhance the work significantly. Thus, each nomination should include a one page letter from the thesis supervisor, a **one** page summary outliining the background and findings of the thesis, with a further page including figures that illustrate a) the main point of the thesis and b) the quality of the figures.

As before applications should also include documentation verifying the date of submission. Nominations should be sent to the BSDB Secretary (**Robert Kelsh;** contact details in back pages of this issue) by **31st January 2005**. The winner will receive the Beddington Medal and the chance to speak at the Spring Meeting 2005.

Development Subscription Rates

Again this year, BSDB Members are entitled to special rates for subscriptions to Development, as follows:
Paper subscription – **£177**
Online subscription – **£42**
Combined subscription – **£217**
To avail yourselves of these rates, please see our website (www.bsdb.org)

Creche at Spring Meeting

In response to requests from members, the BSDB is pleased to announce that a small number of nursery places will be available at the 2004 Spring Meeting in Warwick, which will be awarded on a first-come-first-served basis. Please contact **Mike Jones** for details.

News, Letters and Comments to the Editor
a.j.furley@sheffield.ac.uk

Newsletter Questionnaire

In case you missed it in the Editorial, we aim to make the **Newsletter entirely electronic by the end of 2004**. This has become the norm for a number of societies and has the not insubstantial virtue of saving a large amount of money that can be put to good use in providing Travel Grants for students. The downsides are (those of which I can think), we lose the glossy cover and those of you who have still not sent us an e-mail address won't get it! But perhaps you can think of things we haven't thought about? Or perhaps you can think of better things we could do with the Newsletter? To give you a primer, perhaps you would like to send me your responses to the following questions:

1. Is a completely electronic edition of the Newsletter a good idea? If not, what would you do instead?
2. Which of the following sections of the Newsletter do you read/would you like to reinstall (whether in paper or electronic form):
    a. Editorial
    b. Chairman's Letter*
    c. News (& Views)
    d. Treasurer's Letter
    e. Graduate Student pages
    f. Meetings information
    g. Book reviews
    h. Book & Journal Offers
    i. Forms
    j. Committee member info
    k. Jobs
3. What additional items should be included?
4. How frequently should the Newsletter be published?
5. What other comments do you have?

* N.B. The Chairman's letter is only temporarily missing from this issue.

To save you typing these again (who would do that?), you can download these questions from our webpage (www.bsdb.org) and send me a response by e-mail (a.j.furley@sheffield.ac.uk). Please help me to sort my mail by putting "BSDB Questionnaire" in the Subject: heading.

Here's hoping someone has something to say!

Andy Furley

From the Treasurer

Travel grant update

As many of you will have noticed, requests for all categories of travel grant now exceed our budget, even with the generous contribution provided by the Company of Biologists. In the past we were able to offer full grants for all student and post-doc members who applied for funding to attend our own meetings; up to £400 for most applicants to attend an over seas meeting; and up to £500 for most applicants to attend a course or go on a laboratory visit. The squeeze on resources has come from a combination of more applicants and high meeting costs. The BSDB committee decided that it would be better to spread the limited funds across more applicants, rather than fully funding some, and providing nothing to others. In order to do this the follow procedures will be rigorously adopted:-

Grants to attend BSDB meetings

All applications for travel grants to attend BSDB meetings must be in the Treasurer's hand ONE FULL MONTH before the original registration deadline for the meeting*. This will allow applications to be assessed and funds to be distributed in plenty of time for applicants to discover the size of their award before having to register.

***Deadline for Spring 2004: 19th December, 2003**

Grants to attend overseas meetings and courses

Because of the multiple deadlines for registration for these meetings, it is necessary to process applications year-round. As before, applications will be collected over each month and awards will be made according to the remaining travel budget. The total amount needed will be taken into account so that an applicant who needs £1000 to attend and overseas conference will be more likely to receive the £400 maximum than one who needs a total of £500. Note:- those artificially over-inflating their request will be penalised.

Please take note of these new rules, which will hopefully allow an equitable distribution of funds among the membership.

TO APPLY FOR A TRAVEL GRANT:

- Members should complete a Travel Grant Application form and send it to the Treasurer. **Forms** can be downloaded from the BSDB website: www.bsdb.org
- **Applications for grants to attend a BSDB meeting must be in the Treasurer's hands ONE MONTH before the meeting deadline.**
- For other meetings, application 3-4 months in advance is advised so that the BSDB contribution can be used as a lever to prise the rest of the money from other sources. Grants will NOT be awarded in arrears
- **Please note**: Noone will be awarded more than one travel grant for an overseas trip per year.

Small Meetings

Members may approach the Treasurer for seed funding to help with organising developmental biology events (eg one-day meetings) that involve other institutions and at which students and postdocs are encouraged to attend and present work. The BSDB currently supports the meetings of several local developmental biology groups with small (~£250) annual contributions. Any further requests for this type of funding should be made in a letter to the Treasurer.

Louie Hamilton Fund

There is a small amount of money available from the Louie Hamilton Fund to provide travel support for handicapped members. Applicants should contact the Treasurer.

Subscriptions

Following discussions at the AGM (Spring Meeting 2003; see Editorial), the BSDB Committee has decided that the Society will increase its annual subscription fees as follows:

Full Members	**£35** per annum
Student Members	**£15** per annum

Existing members will shortly be receiving a letter instructing them how to update their Banker's orders for future payments.

Time to do the decent thing……

Student members who joined in **2000** are reminded that they should quickly upgrade their subscription to £35 before they are **humanely culled f**rom our records.

Ottoline Leyser
hmol1@york.ac.uk

Graduate Students

Welcome

I hope you like the new-look graduate section; Leigh (Wilson) worked hard to put it together. As you will gather (below) Leigh has now retired as your student rep, as she is no longer a student (good luck with the viva!). My name's **Caroline Parkin**, and I'm the new Graduate Student rep. I hope to continue the work Leigh has started on building the graduate student community. While the BSDB are updating the **website** I thought it would be a good idea to introduce a student page, at the centre of which would be a **message** board. This could be a really useful resource for **sharing ideas and protocols**, plus we could use it to request papers or materials from other labs. I'd also like to have some more input from you guys, I want **more news and reviews**, (conferences, books, commercial reagents, films, chocolate bars…) and also your thoughts on anything to do with your work. So this is a plea to anyone with a desire to communicate with the rest of the development world to **send me your ideas and thoughts** for the website and newsletter (please also answer Andy's questionnaire on p2). Also I'm here to communicate your views to the BSDB committee, so if you have anything to say, let me know. Email me at **emujuice@hotmail.com** or **mdp02cp@shef.ac.uk**. Bye for now.

There and back again…

The story starts with **Frodo**: a young hobbit, quite bright, a bit dissatisfied with what he's learnt so far and with his mates back home who just seem to want to get jobs and settle down and drink. He's also very much in awe of his tutor and mentor, the very senior professor **Gandalf**, so when Gandalf suggests he take on a short project for him (carrying the Ring to Rivendell), Frodo very quickly encounters the shadowy forces of fear and despair which will haunt the rest of his journey and leave permanent scars on his psyche, but he also makes some useful friends. In particular, he spends an evening down at the pub with **Aragorn**, who has been wandering the world for many years as Gandalf's postdoc and becomes his adviser when Gandalf isn't around. After Frodo has completed his first project, Gandalf (along with head of department **Elrond**) proposes that the work should be extended. He assembles a large research group, including visiting students **Gimli** and **Legolas**, the foreign postdoc **Boromir** ,and several of Frodo's own friends from his undergraduate days. Frodo agrees to tackle this larger project, though he has mixed feelings about it. ("'I will take the Ring', he said, 'although I do not know why.'")

Very rapidly, things go wrong. First, Gandalf disappears and has no more interaction with Frodo until everything is over. (Frodo assumes his supervisor is dead: in fact, he's simply found a more interesting topic and is working on that instead). At his first international conference in Lorien, Frodo is cross-examined terrifyingly by Galadriel, and betrayed by Boromir, who is anxious to get the credit for the work himself. Frodo cuts himself off from the rest of his team: from now on, he will only discuss his work with **Sam**, an old friend who doesn't really understand what it's all about, but in any case is prepared to give Frodo credit for being rather cleverer than he is. Then he sets out towards Mordor.

The last and darkest period of Frodo's journey, the Righting-up: He struggles towards Mount Doom (submission), finding his burden growing heavier and heavier yet more and more a part of himself; more and more terrified of failure; plagued by the figure of **Gollum**, the student who carried the Ring before him but never wrote up and who still hangs around as a burnt-out, jealous shadow; talking less and less even to Sam. When he does submit the Ring to the fire, it is in desperate confusion rather than with confidence, and for a while the world seems empty.

Eventually it is over: the Ring is gone, everyone congratulates him, and for a few days he can convince himself that his troubles are over. But there is one more obstacle to overcome: Months later, back in the Shire, he must confront the external examiner Saruman, an old enemy of Gandalf, who seeks to humiliate and destroy his rival's protegé. With the help of his friends and colleagues, Frodo passes through this ordeal, but discovers at the end that victory has no reward.

While his friends return to settling down and finding jobs and starting families, Frodo remains in limbo; finally, along with Gandalf, Elrond and many others, he joins the brain drain across the ocean to the new lands in the West.

Anonymous

"Writing-up"

I can imagine the creation of a PhD thesis being likened to the experience of pregnancy and giving birth…it can be a long drawn out event, but as soon as its over with, you immediately forget all of the hours of pain and struggle. My particular write-up process didn't quite stretch to 9 months, but the whole idea of "writing up" was an extremely daunting thought that hung over me for the three years leading up to the time when I had to put my money where my mouth was and actually put pen to paper, or tappy fingers to keyboard.

I found there were numerous obstacles to overcome before I could even sit myself down at the PC. How do you know when to finish in the lab? Do I have enough data to feel comfortable putting those pipettes into hibernation? What chapter should I start with?

One of the best ports of call for advice on these types of questions was my supervisor. Being a regular PhD examiner himself, and having had several PhD students from his lab successfully write and pass the PhD examining process, he gave good advice on the quality and amount of data that would be expected by the examiners in the thesis. And after an initial meeting, I took myself off and wrote a plan of action, which I asked him to look over before I made a

start. This was particularly useful for considering exactly what data was going to go in each of the results sections, as well providing a prompt for ideas and structure during times of little inspiration and loss of direction. It also made me feel like I had made a start (albeit tiny) on the huge task in hand. If you don't have a supervisor who is so amenable to helping you then take a look around, every single post-doc has had to write a thesis and go through the whole experience, so take advantage of their advice, they quite often come up with little pearls of wisdom just when you need them most. Alternatively (and this is a scary, but worthwhile avenue), get hold of other thesis's (preferably from people who have passed) and take a look at content and standard as an indicator of what is expected. This can be a daunting thing to do, as the big book can seem light-years away from what you feel like you can produce, but do not fear, you will hopefully produce something equally as impressive in the not-too-distant future

With the starting hurdle firmly behind me I began by writing my materials and methods chapter first, intermingled with the compilation of data and figures. I found this a useful way to enter the world of thesis formatting as well as getting up to speed on the wonder that is the imaging programme of photoshop. I then moved on to the supreme joys of the introduction. I found this one of the hardest chapters, as progress seemed slow (yes, you do have to read all of those papers you have been storing on your desk for the last three years), and some days the reading to writing ratio was pitifully low. However, it paid-off for later chapters and I kind of wished I had done the in-depth reading earlier in my Ph.D as it did help put my project into a better context. Next were the results sections followed by the final discussion and conclusions. At various points throughout writing I did feel as though I was running to stand still, and these moments were interspersed with times when it really felt that I was making progress and that I could see the light at the end of tunnel. However, mostly I felt as if I was just plodding along. That's the main part of what took getting used to the most…the idea that this whole thesis writing biz wasn't going to be over in a hurry, unlike some of the essays I banged out the night before the deadline during undergrad years.

I found that various inputs along the thesis-writing way helped immensely, the main one being the feedback from people who were kind enough to wade through the drafts of each chapter. It was really important to gather criticisms and praises, along with different opinions whilst writing, as these helped to develop ideas and make the thesis better, and more reader-friendly. Also, discussions regarding ideas and theories as well as approaches taken in the study were priceless for the viva and got me thinking about the strengths and weaknesses of the project long before I had to sit in front of the two examiners.

That being said, it can be all too easy to become overly absorbed and perfectionist whilst writing, especially towards the end, so having people around to say "stop worrying and start printing" was invaluable. Oh yes, the printing. That's a whole other ball game, and not as quick and easy as you think (hope and pray) it's going to be. So to make it simple, here's a list of things I experienced that went wrong/stopped working/ran-out/ in the FIVE days it took me to print the 3 copies required by the university: computer file format (try and make your files smaller rather than larger for those sensitive printers that can't handle more than a mouthful), paper (get the right type for printing figures versus text), printer cartridges (have a couple of spares standing by)…well anyway, you get the picture. This can be an extremely frustrating process, especially after the slog of writing, but be prepared, and it won't tip you over the edge, and you will be left free to enjoy the pleasure of delivering your masterpiece to the binders. It is wise to get a university approved binders, as they will know your exact requirements (colour/lettering etc), however, I found a broad range of prices, and none of them were particularly cheap, so don't forget to pencil this expense onto the end of your thesis outlay.

Phew, and so basically after submitting you are free to roam and explore life outside of a computer screen and decide how best to prepare for the viva. But usually you have a good few weeks before the date comes rolling in so you can have a bit of a break and give yourself a well-deserved pat on the back. It's a good feeling, and to a certain extent, is worth every second of the three years of lab work and writing time it took to get there. So all you final year Phd-ers, get friendly with your computer, the sooner you start, the sooner it'll be over…it can be fun, honest.

Leigh Wilson (ex-PhD student)

Post-PhD doesn't have to mean Postdoc

Admit it, there are times when you hate your PhD. Those 'Eureka!' flashes of insight can be separated by weeks/months/years (delete as applicable) of frustration and even, dare I say it, boredom. Some (amazing in my opinion) people have the dedication and shear love of science to carry them through the slough of despond and on to research success. But not me. It was towards the end of the second year of my PhD that I accepted once and for all that my future did not lie in the lab.

Fortunately, this acknowledgement coincided with the recognition that there was something that I did want to do. Rather than spending my time struggling for results, I wanted to talk about other people's struggles and results. I longed to indulge my nosiness--what the guy at the next bench was doing always seemed far more interesting then my project. Science communication, that was the career for me!

Funnily enough I didn't intend to become a journalist (which is what I do now). Nor, for that matter, was 'public relations' on my list of career options, although Public Relations Co-ordinator was my first post-academia job title. I applied for a bunch of jobs (advertised in Monday's *Guardian*--still a great place to find such ads, plus these days I recommend subscribing to the psci-com listserv (http://www.jiscmail.ac.uk/lists/psci-com.html) to catch posts vacant)--everything from academic publishing to civil service communications--but didn't land an interview until the PR

Graduate Students

job came up, working for the British Society for Immunology.

I didn't actually know what PR was when I started, but I learnt on the job, mainly thanks to the generosity of a bunch of people in similar roles at other learned societies and research institutes with words in their job titles like 'education' and 'external affairs.' That's the thing with science communication, you can forget about standardised titles and career paths. You really have to be prepared to look at job descriptions to work out what the role is all about. I was the BSI's first ever PR co-ordinator, so I really had a remarkably free hand to steer the job in the direction I wanted it to go. Just as well that I'm a motivated self-starter--essential qualities for anyone who wants to make it in science communication, I'd say.

But no matter how nice it was creating my own job, after four years my learning curve had flattened off and I was looking for a new challenge. I actually intended to stay in PR, but move into a different environment, a university say. However, networking led me to a totally different opportunity, and yet another career change. Science's Next Wave is a career development web magazine for PhDs and postdocs. I'd got to know the UK staff and, to cut a long story short, when the UK editor moved on to a new job, I was offered the role. These days I see the lack of a 'job for life' as liberating; it gives you permission to try different things.

So was my PhD a big waste of time then? Not at all. The insight I gained into how research and academia work are valuable to me every day. And in a domain which is often seen as a bit fluffy, having a doctorate gives me some much needed credibility with the scientists I rely on to be able to do my job.

So what do I suggest if, like me, you suspect that the lab is not for you? Well, first of all work out what it is that you do want to do! If I can be allowed a quick plug, Next Wave (www.nextwave.org) can help you do that. It's full of stories of PhD scientists who have gone on to do a multitude of different things--reading them can help you discover what you might be interested in. Recognise your strengths and skills--going on a GRAD school course (see www.grad.ac.uk) is a fantastic way of doing this. My own GRAD experience gave me the confidence to believe that I could get into science communication. But above all, be proactive. Do some research (after all, you should be good at that) and make the most of your networks. Your dream job is not going to fall into your lap, but you might just trip over it if you go looking.

Kirstie Urquhart
European Editor
Science's Next Wave
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Entente Cordiale – Views from the Beach

'Joined at the hip, or is it the hinge?'

The 1st Joint meeting of the British and French Societies for Developmental Biology, Nice 2003.

The recent explosion of large genetic screens used to identify new genes and genetic pathways that control development dominated the joint meeting of the British and French Societies for Developmental Biology held in Nice. In particular, the fly Drosophila, proved to be the pièce de résistance, in demonstrating the power of this approach.

The last few years has seen remarkable progress in establishing pathways that address how cells organise themselves and form correct arrangements. It was however clear from this meeting that a lot of energy is now being channelled towards understanding the molecular details of these pathways. The programme of this meeting was arranged to focus initially on more 'universal' problems associated with early development such as cell migration and morphogenesis, tissue growth and proliferation, signalling and trafficking, and moved on to consider the more specific problems of patterning and transcriptional regulation. The link between these two major aspects was facilitated by a session entitled 'global approaches' that straddled both spectrums.

The molecular mechanisms that govern cell migration and morphogenesis are one of the most important issues in current developmental biology. In the first session, the success of clonal screens in Drosophila has allowed **Pernille Rorth** (Germany) to address the regulation of cell migration, in particular that of border cells during Drosophila oogenesis. His laboratory used mutants who showed defects in border cell migration such as pvr, cb1 and Hrs, and was able to identify Sprint, a protein likely to be a receptor tyrosine kinase (RTK) involved in endocytosis. They reported that the first step of endocytosis is critical to limit signal spread and so maintain localized signalling important for guidance. An alternative way to look at movement and a contrast to these large screening methods came from the work of **Cornelis Weijer** (UK). His approach was to visualize cell movements using time-lapse microscopy in the slime mould Dictyostelium, where he investigated the role of cAMP signaling in chemotaxis. He also explored the role of chemotaxis in cell movement in vertebrates using an innovative combination of grafting experiments and video microscopy in early chick embryos. Weijer concluded that chemotaxis might indeed have a crucial role in all cell movement. The diversity of this session also introduced the audience to the zebrafish embryo (**Carl-Philip Heisenberg,** Germany) and the use of morpholinos as an alternative antisense technology (**Marina Mione**, UK). In particular, Mione was able to show morpholinos to Disabled 1 (Dab1) a cytoplasmic adaptor protein that functions downstream of Reelin expressed in migrating neurons, affect neurite outgrowth and migration to the hypothalamus in zebrafish.

The Tissue Growth and Proliferation session returned us swiftly back to the fly providing ample evidence of the power of genetics screens to identify genes involved in these biological processes. The big question of 'What directs growth?' initiated by **Hugo Stocker** (Switzerland) showed us a convincing example of what can be achieved by such screens. He identified novel mutations in the highly conserved insulin-signaling pathway that is dedicated to the control of growth. Loss of function mutations in the Drosophila Rheb gene are growth-inhibitors, whereas overexpression of Rheb promotes cell

growth. It will be interesting to see now what Rheb does in hypomorphic mutations. The power of the Drosophila genetic system was also exploited by **Sally Leevers** (UK) to identify new players in growth regulation. They were looking for an alternative to the insulin pathway that affects size and cell number. By conducting a sensitised genetic interaction screen they identified pixie, an enhancer gene required for cell proliferation but not survival. Interestingly, certain pixie mutant combinations result in flies of small size that nevertheless contain normal sized cells as opposed to the flies generated by mutation of insulin/PI3K pathway components that show both reduced cell size and body size. The question that remains is 'what are the differences between Minute, another well defined class of mutation effecting growth, and pixie?' They could perhaps discover that pixie is a recessive Minute mutation.

Molecular pathways and the use of mutant screens was also the focus in other developmental systems. In the mouse, **Katherine Anderson** (USA) described new data from her ENU mutagenesis screen designed to identify mutations that affect dorsoventral patterning in the mouse neural tube. Interestingly their analysis of the mouse Hedgehog signalling pathway and the mutants wimple and flexor, that affected left-right asymmetry, was nicely linked to the role of cilia in transporting signals, in that cilia are required to interpret the Hh signal. This is indeed is a hot topic in Development Biology as discussed by **Lewis Wolpert** (UK) in his talk on left-right asymmetry.

Recently a lot of attention has focussed on global approaches to understand developmental biology. **Norbert Perrimon** (USA) discussed the power of RNA-mediated inhibition (RNAi) screening able to extract biological information from loss of function approaches. Perrimon's approach has far reaching applications in that this technology can be used; to identify new components in cell signal transduction pathways; to establish a RNAi signature database; and to develop data analysis tools to integrate the information generated. An alternative approach used to study global developmental problems, but with the same dramatic outcome was discussed by **Eileen Furlong** (Germany). The approach here consisted in combining mutant embryo analysis with DNA microarrays to identify Drosophila genes involved in mesoderm formation. This ambitious project aims to map out the transcriptional networks governing muscle development in the fly and then characterise these pathways in other systems. Microarray technology was used by **Rick Livesey** (UK) as a means of testing the hypothesis that the mouse neocortex is pre-patterned as the protocortex. Using differential displays he identified over two hundred genes that were differentially expressed in the rostral and caudal elements of the neocortex before and after axon entry.

The theme of patterning and transcriptional regulation constituted most of the second half of the meeting. Techniques such as using mutant fly lines (**Alain Vincent**, France), gene-targeting (**Shahregim Tajbakhsh**, France) combined with gene-expression analysis have really made an impact into piecing together molecular interactions within genetic pathways. An innovative in vivo assay, which consists of injecting fluorescent labelled RNAs, and then imaging their movement was used by **Ilan Davis** (UK). In the Drosophila embryo RNA localisation and translational control play a key role in axis formation. Interestingly he found that RNA retention seems to be dependent on the presence of microtubules presumably due to anchoring. His group also mapped the RNA localisation signal for gurken (a TGFalpha homologue) to a 64 nucleotide predicted stem loop structure that is also conserved in other fly species. In this half of the meeting we also saw the emergence of the flowering plant, Arabidopsis (**Berger**, France). Berger showed that Fis proteinase, the plant homologue of the Polycomb gene controls developmental timing of endosperm at the transcriptional level.

In the final session **Marysia Placzek** (UK), **Frédéric Rosa** (France) and **James Briscoe** (UK) linked the molecular details of these genetic pathways to specific patterning events in whole vertebrate embryos. In particular, Briscoe used a combination of molecular, cellular and embryological techniques to identify how subclasses of neurons in the dorsoventral axis of the spinal cord are specified. In an elegant series of experiments he demonstrated that Sonic Hedgehog signalling is interpreted as a dorsoventral gradient in the vertebrate spinal cord, and that different levels of Gli transcription are necessary for ventral patterning and subtype identity of neurons.

As a Daphne Jackson Fellow (designed for women who have had career breaks, www.daphnejackson.org) I am amazed at the rapid introduction of new techniques and concepts that have emerged over the last few years I have spent out of the laboratory, which has transformed the way we think and study developmental biology. I also was pleased to notice that there was a significant increase in the number of women key speakers and chairpersons, although a conscious effort may be needed in the future to include more women as meeting organisers, a much needed inspirational marker to senior and junior women scientists. The organisers of this meeting provided an enjoyable and varied programme, which covered the whole spectrum of developmental models and successfully joined together for the first time the animal models of French and British Developmental Biologists! It indeed is an exciting time to be in the age of modern developmental biology.

Autumn Rowan-Hull, Oxford
Dept. of Human Anatomy & Genetics
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And yet more praise…

This year the BSDB made the effort to give up on its cool 15°C Autumn meeting and tried to concentrate at a torrid 28°C in France's Côte d'Azur in the First joint meeting with the French Society of Developmental Biology (SFBD). The French made the effort not only to speak english with the British but also to organise all of the practical stuff, for which we are all very grateful. It sounded like a good relaxing meeting to attend, but in fact it wasn't. The organisers made sure we did not relax too much by coming up with a packed schedule of "I-must-attend" talks and very little time to look at 170 posters. The program was as wide as developmental biology can be, as there was no specific orientation to the meeting, which must have given the organisers a headache to classify in coherent sessions and which for me makes it even harder than I thought to summarise. So, please be indulgent with the result, and by all means this is NOT an exhaustive account of ALL the talks!

The meeting began looking at cell migration that in the era of time lapse

imaging is unravelling fascinating facts. In Drosophila oogenesis, **Pernille Rorth** showed how border cells use long cellular extensions as a substrate to migrate in response to a gradient of PVF1 and demonstrated that endocytosis of the receptors PVR and EGFR was a mechanism to maintain sensibility to the gradient throughout migration. **Carl-Philip Heisenberg** showed evidence that Zebrafish gastrulating mesendodermal cells use the epiblast to move forward, and silberblick/Wnt11 is necessary to regulate the orientation of cellular processes and cell movement. During chick gastrulation, **Cornelis Weijer** described chemotaxis mediated by FGFs as an emerging mechanism for cells to migrate out of the primitive streak.

Another interesting theme was the regulation of cell growth and body size in Drosophila, by **Hugo Stocker** that reported that Rheb, a new small GTPase downstream of Tsc1 and Tsc2 in the TOR signalling pathway controls cell growth. **Sally Leevers** reported that Pixie, an ATP binding protein that regulates translation and is required for imaginal disc growth. **Pierre Fichelson** (Gho lab) showed how Tribbles, a cell cycle regulator, coordinates the speed of cell divisions and the fate of the progenitor cells that give rise to the mechanosensory organs of Drosophila. **Samantha Carruthers** (Papalopulu lab) explained that the cell cycle inhibitor p27Xic1 in Xenopus is required for cells to exit the cell cycle and differentiate in primary neurogenesis. **Matthew Freeman** presented evidence in the Drosophila imaginal eye disc for two intercellular pathways regulating different checkpoints in the cell cycle: EGFR signalling controlling the G2 to M checkpoint and Notch/Delta signalling required for the G1 to S transition.

A number of talks brought us up to date with Nodal signalling in meso/endoderm development. Nodal controls endoderm induction before the onset of gastrulation (**Frederic Rosa**) and controls gastrulation itself in zebrafish via Squint and Cyclops (**Derek Stemple**). In the mouse, graded Nodal signalling governs epiblast cell fate and axial mesendoderm formation (**Stephane Vincent**). And Nodal signalling from prechordal mesoderm in the chick cooperates with Shh to induce anterior floorplate (**Marysia Placzek**).

In somite development, **Olivier Pourquie** presented new insights in somite boundary positioning in the chick demonstrating that the gradient in FGF activity relies on fgf8 transcript maintenance in the presomitic mesoderm as active transcription of fgf8 is limited to the primitive streak. Surprisingly his data implicates the PI3K pathway as the downstream effector of FGF for somite boundary positioning in contrast to previous studies in the zebrafish which implicate FGF signalling through MAPK. **Catarin Freitas** (Palmeirim lab) presented some very elegant experiments that show that the segmentation of the presomitic mesoderm is governed by the medial cells that instruct lateral cells. The medial cells acquire autonomy for segmentation when their precursors are located in the sinus rhomboidalis. In mouse muscle differentiation, **Margaret Buckingham** dissected the role of the multiple Myf5 enhancers that integrate signals of cell type specification and positional information, concluding that this complexity reflects its key role as an upstream regulator of myogenesis. **Shahragim Tajbakhsh (with a leg in a cast!)** gave us an exciting glimpse suggesting a role for Numb and asymmetric cell division in satellite cells for postnatal muscles regeneration.

In neural development, **Claudia Linker** (Stern lab) presented a series of experiments addressing the sufficiency of BMP inhibition for neural induction in both chick and frog. Using Smad6 to block BMP signalling her data suggested that BMP inhibition acts at the neural plate border and is insufficient for neural induction, which may prompt a radical rethinking of vertebrate neural induction. **James Briscoe** presented a model in which opposing gradients of Gli activator and repressor activities regulate the neuronal subtype specification in D/V axis of the spinal cord. **Francoise Helmbacher** (Maina lab) described that Met signalling is necessary for the recruitment of more anterior motor neurons to the initial PEA3 positive motor pool via a relay mechanism. In Zebrafish, **Jovica Ninkovic** (Bally-Cuif lab) reported that Him, a new Hairy/E(spl) transcription factor, and Her5 are both necessary to prevent precocious neurogenesis in the midbrain-hindbrain boundary and **Marina Mione** showed that Reelin and Disabled1 are implicated in neuronal migration from rhombomere 4 to 7.

We enjoyed three plenary lectures (from 9 to 10pm!), in one of them, **John Gurdon** gave a detailed analysis of plasticity of cell fate determination, stressing that at the end of the day in gradient interpretation, what really counts is the amount of signalling in the nucleus.

As room for improvement, unfortunately we had to wrestle our way through the posters; we could really have used more space and time for them. Nevertheless, this First Joint meeting with the French society was a success, the number of participants from Britain and France was very similar (123 and 127) and we did not scare off international participants (60). Apparently, a joint French/German/UK meeting is scheduled for sometime in the future and a joint Spanish/ UK meeting imay also be on the way I suggest that the latter is held in Costa del Sol (*if you like these ideas, let the Committee know, Ed.*)..

Isabel Olivera-Martinez, Dundee
isabel_olivera@yahoo.fr

All of which proves that the French and the British can do some things together, so long as the French are in control (which is fine as long as they keep letting us win the rugby…;-) *ed.*

Books for Review

I always welcome suggestions for future book (& meeting) reviews. If you know a book (or meeting) you think should be reviewed, please contact me (Andy Furley). For books, I will arrange for a copy to be sent to you gratis. Below are some suggestions:

Developmental Biology – 7th Edition, Scott F. Gilbert Palgrave. ISBN 0878932585

The Development of Animal Form – Ontogeny, Morphology & Evolution, Minelli. CUP. ISBN 0521808510

Invertebrate Zoology – 7th Edition, Ruppert, Fox and Barnes. Thomson Learning. "The return of a classic"

Genesis: The Evolution of Biology, Jan Sapp. OUP. ISBN 0195156196

Evolution – 3rd Ed. Mark Ridley. Blackwells. ISBN 1405103450

Readers Of The Book Of Life. Anton Markos. OUP. ISBN 0195149483

George Beadle: An Uncommon Farmer. Paul Berg & Maxine Singer. CSHLP. ISBN 0879696885

How to Write and Illustrate a Scientific Paper. Bjorn Gustavii. CUP. ISBN 052153024

Spring Meeting with Genetics Society
14th – 16th March 2004, University of Warwick

This meeting will cover a broad range of subjects of interest to geneticists, developmental biologists and biologists in general. The meeting will include plenary and parallel sessions, medal lectures, platform presentations from selected abstracts and poster sessions

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PROGRAMME OUTLINE

SESSION 1A: Genomic technologies in Drosophila whole genome analysis
Julian Dow, Glasgow, UK
Eileen Furlong, Heidelberg, Germany
Renato Paro, Heidelberg, Germany

SESSION 1B: Stem cells
Austin Smith, Edinburgh, UK
Alexander Medvinsky, Edinburgh, UK
Haifan Lin, Durham, USA
Kiyokazu Agata, Kobe, Japan

SESSION 2A: Balanced polymorphic systems
Mikkel Schierup, Aarhus, Denmark
Scott Edwards, Washington, USA
David Conway, London, UK

SESSION 2B: Polarity
Daniel St Johnston, Cambridge, UK
Shigeo Ohno, Yokohama, Japan
David Strutt, Sheffield, UK
Tony Hyman, Dresden, Germany

SESSION 3A: The evolution of repetitive DNAs
Mark Batzer, Louisiana, USA
John Moran, Ann Arbor, USA -
Andrew Flavell, Dundee, UK

SESSION 3B: Organogenesis
Chris Wright, Nashville, USA
Susan K. McConnell, Stanford, USA
David Wilkinson, London, UK
Malcolm Logan, London, UK

SESSION 4A: Pharmacogenetics: Challenges and opportunities
Sanjay Sisodiya, London, UK
Roland Wolf, Dundee, UK
Lefkos T. Middleton, GlaxoSmithKline, UK

SESSION 4B: Vertebrate development: A session in honour of Chris Graham
John K. Heath, Birmingham, UK
Richard Gardner, Oxford, UK -
Sir John Gurdon, Cambridge, UK
Liz Robertson, Cambridge, USA
Andy P. McMahon, Cambridge, USA
Frank Costantini, New York, USA

SESSION 5: Evolution of patterning mechanisms
Diethard Tautz, Cologne, Germany
Victoria E. Prince, Chicago, USA
Seb Shimeld, Reading, UK

SPECIAL LECTURES
The Genetics Society Medal Lecture
Peter Holland, Oxford, UK
BSDB Plenary Lecture
Eddy de Robertis, LA, USA
The Genetics Society Balfour Lecture
Gilean McVean, Oxford, UK
BSDB Waddington Medal Lecture
Announced at the conference

COMPETITIONS
GenSoc/Promega Young Geneticist of the Year Award
BSDB Poster Prize
BSDB Beddington Medal
GenSoc/Trends in Genetics Student Poster Prize

POSTERS AND ORAL PRESENTATIONS
Scientific posters for the meeting are welcomed from all participants (students, postdocs and others). There will be two formal poster sessions but posters will be on display throughout the meeting. The programme has an additional **21 slots for oral presentations selected from submitted abstracts.**

STUDENT GRANTS
Student members of either The British Society for Developmental Biology or The Genetics Society are eligable to apply.

Deadline for BSDB student grants: 19th December 2004

SUPPLIER'S EXHIBITION
Open to companies who wish to exhibit their products.

ORGANISERS
Administration for this meeting will be managed by the Genetics Society. A list of the scientific organsiers is available at www.genetics.org.uk

INFO
Jayne Richards: ***mail@genetics.org.uk***
Tel.: 0131 527 4472
Fax: 0131 440 0434

For further information and online registration please visit: www.bsdb.org.uk or www.genetics.org.uk

Abstract Submission and Registration Deadline – 16th January 2004

Future BSDB Meetings

Autumn 2004

Genesis of the nervous system: a debate on cell interactions and growth using invertebrate and vertebrate model organisms

27th – 29th September 2004

University of Birmingham, UK

The aim of this meeting is to bring together researchers using Drosophila and vertebrates as model organisms to study nervous system development. By comparing findings from these model organisms, we hope to encourage a lively interaction between the two scientific communities that will enhance our opportunities to learn from each other.

The meeting will include the following sessions:
(1) Emergence of cell diversity in early neurogenesis
(2) Cell number regulation
(3) Neuron-glia and neuron-target interactions during wiring
(4) Dendrite formation and topographic maps
(5) Disease and repair

Organisers: Alicia Hidalgo and Guy Tear

Spring 2005

Cell and Developmental Biology Annual Symposium
Joint with the BSCB

6th-9th April, Warwick University, UK

BSDB Organisers: Alfonso Martinez-Arias and Phil Ingham

Topics for Future Society Meetings

One of the major tasks of the BSDB Committee is to select topics to be covered in future meetings and then to ensure that these meetings are well organised and successful. It is obviously crucial that meetings are supported by the members of the Society, and we always welcome suggestions for future topics. If you have an original idea for:

- **a half-day theme for the Annual (Spring) Symposium**
- **a two day Autumn meeting**
- **a one day workshop**

please get in touch with the **Meetings Secretary:**
Nancy Papalopulu (np209@cam.ac.uk)

Have you seen?

BSDB Website!

Some of you may have already noticed our website has changed, thanks to the fine efforts of Kate Storey (k.g.storey@dundee.ac.uk). **New features** include:

- **Resources section**. Info on where to find Fellowships etc., in particular, fellowships for returning to work after periods of absence
- **Jobs section**. Submit your ad for post-docs, PhDs, techs etc. online on the Jobs page.
- **Meeting Adverts**. Online submission of meeting and course notices, seminars etc.
- **Plus** many other new features……
- ***Suggestions*** for other features always welcome.

Check it out on:

www.bsdb.org

Early Warning!

Beddington Medal 2005

Nominations should be for a thesis submitted between **2nd September, 2003 and 31st December, 2004**. Each nomination should include a one page letter from the thesis supervisor, a **one** page summary outliining the background and findings of the thesis, with a further page including figures illustrating a) the main point of the thesis and b) the quality of the figures. The application should also include documentation verifying the date of submission. Nominations should be sent to the BSDB Secretary (**Robert Kelsh;** contact details in back pages of this issue).

Next Deadline 31st January, 2005

For further info see:

www.bsdb.org

Craniofacial Morphogenesis and Tissue Regeneration – *A New Gordon Conference*

Ventura Beach Marriott, Ventura, California.

January 18th – 23rd, 2004

Chair: Paul Sharpe, London
Vice Chair: Yang Chai, UCLA

www.grc.uri.edu/programs/2004/cranio.htm

BioScience2004 - From Molecules to Organisms

SECC Glasgow, UK

18th – 22nd July 2004

Focus topics for the meeting:

* Lipids, Rafts and Traffic
* Structure Related to Function: Molecules and Cells
* Signalling Outwards and Inwards
* Genes: Regulation, Processing and Interference
* Energy: Generation and Information
* Ethics, Education and Employment

Plenary Speakers:

* **Roger Y. Tsien** (Howard Hughes Medical Institute, La Jolla, CA, USA) - Opening Lecture
* **Stephen O'Rahilly** (Cambridge, UK)
* **Tony Pawson** (Toronto, Canada)
* **Chris Dobson** (Cambridge, UK) - EMBO Lecturer
* **Karen Vousden** (Beatson Institute, Glasgow, UK)
* **Graham Warren** (Yale, New Haven, CT, USA)

Poster abstract deadline: 23 April 2004
Early registration deadline: 18 May 2004
www.BioScience2004.org

Masters in Science Communication

University of the West of England Beginning January 2004

A new Masters in Science Communication is being offered by the University of the West of England in collaboration with the University of Bristol and at-Bristol. It will run from January 2004 and is a practically focused programme offering career development opportunities to those already working or aiming to work as science communicators.

The course has parallel Science and the Public and Science and the Media strands which will both give students the opportunity to build a portfolio of work that demonstrates their ability as science communicators. It is part-time, two years in duration and is structured around short intensive teaching sessions. It will be coordinated from UWE by Frank Burnet [Professor of Science Communication, Co-Director of Cheltenham Festival of Science] and Emma Weitkamp [Senior Lecturer in Science Communication]

The course team includes Kathy Sykes [Professor of Public Engagement in Science and Technology, University of Bristol, Co-Director Cheltenham Festival of Science] John Durant [Chief Executive at-Bristol], Melanie Quin [Chief Executive of Ecsite UK], Tim Radford [Science Editor, The Guardian], Toby Murcott [Broadcaster] and Malcolm Love [TV and Radio Producer and Trainer].

For further information visit:

www.uwe.ac.uk/fas/courses/environment/mscscicomm.html

or contact Frank at:

The Graphic Science Unit Faculty of Applied Sciences UWE Coldharbour Lane Bristol BS16 1QY
e-mail Frank.Burnet@uwe.ac.uk
tel +44 (0)117 344 3756

fax +44 (0)117 344 3919

First Annual Upstate Cell Signalling Symposium

University of Dundee

6th – 9th June, 2004

The first annual Upstate Cell Signalling Symposium will take place in Dundee (UK) from 6 - 9th June 2004 and is entitled 'Regulation and Therapeutic Potential of the PI 3-kinase/PKB signalling pathway'. The symposium is being co-sponsored by Sir Philip Cohen and Prof. Dario Alessi (The MRC Protein Phosphorylation Unit) in conjunction with Upstate. Participation at the symposium is strictly limited to 300 delegates, so early registration is recommended.

Full details of the symposium, including the aims and programme, can be viewed at www.upstate.com/symposium

If you have any queries regarding the symposium, please contact Michelle Hynd on +44 (0)1908 552839 or email registration@upstate.com

Embryology: Concepts & Techniques in Modern Developmental Biology

Woods Hole Marine Biological Lab

June 12 - July 25, 2004

An intensive six-week laboratory and lecture course for advanced graduate students, postdoctoral fellows, and more senior researchers who seek a broad and balanced view of the modern issues of developmental biology in an evolutionary context.

Generous financial assistance is available!

Application Deadline: **February 2, 2004**.

See:
www.mbl.edu/education/courses/summer/course_embryo.html
for more information.

Book Reviews

From Conception to Birth

Alexander Tsiaras
Hardcover 304 pages (1 October, 2002)
Publisher: Doubleday Books; ISBN: 0385503180

Looking for the perfect Christmas gift or post-graduation peace offering to your supervisor? I think I've found it. Alexander Tsiaras has been working hard with a suite of high-tech computer wares to produce this marvelous collection of images. Presented in his new book, from Conception to Birth, Tsiaras has worked to show the development of the human embryo, from conception to birth (oddly enough). He uses a combination of techniques from conventional and electron photography, to his niche specialty, amalgamated CT and MRI images normalised and pseudo-coloured with artistic expertise.

'This is a coffee table book. There's no doubt about it.'

This is a coffee table book. There's no doubt about it. It is hard-covered and large, with big beautiful images. The book opens and remains open, allowing you to study each glossy image from a distance. The beautiful thing about this book though, the novel thing about this coffee table book, is its incredibly sexy subject matter. This is a coffee table book on embryology. Yes, this is a coffee table book on our subject. And it's stunningly beautiful, provocative, and intriguing. Everybody loves it.

Reading this book in the lounge of my shared flat, I was, for the first time, able to share some of my enthusiasm and knowledge for development with people from entirely different backgrounds. We had had conversations in the past about my work, but never were they so intrigued as the other day when I could map my work onto these images that were already capturing their imaginations. This is perhaps the book's greatest asset; it captures the imagination, not only of laypeople, but everyone. You too will be inspired.

And perhaps reminded of the simple things, the obvious things. That the developing mouse is incredibly similar to developing humans, for instance. von Baer was right. And although I've been schooled in this subject, I could not help but think that Tsiaras had somehow played a trick on us. "This is not a human embryo," I thought, "not a chance, this is E12 mouse! The trickster nicked the 3D mouse atlas, and with some fancy colouring, is selling it to the public as human..." Such was my instinct.

'my next thought was, "I want to see more"'

After looking at the book for a while, playing around with ideas, and exploring the anatomy of the little humans, my next thought was, "I want to see more". Tsiaras has developed an imaging technology and built up a database of images of the developing human embryo. "He has created a virtual camera studio that enables him to view a human body or any part of it, individually, scan it, enlarge it, rotate it, adjust its transparency so that we can view inside a living [sic] being, and light it from any angle," says one reviewer. This is the sort of tool that would be of benefit to legions of developmental anatomists. It could be used in teaching, and extended to create research models. I want to see it. Great work Tsiaras. When do we get the interactive version?

Jonathan Butt, Edinburgh

Mouse Development: Patterning, Morphogenesis, and Organogenesis

Janet Rossant and Patrick P.L.Tam
Academic Press, 2002
ISBN 0-12-597951-7 £111.72 (Amazon, UK)

This is an impressive collection of reviews covering many actively researched areas of mouse development. It contains 23 chapters, involving more than 50 authors. Those with experience of editing a multi-author volume will appreciate the effort involved in delivering such a tome to the press. Janet Rossant and Patrick Tam have not only marshalled a stellar collection of authors but have managed to do this in style. The chapters are divided into three sections, "Establishment of body patterns", "Lineage specification and differentiation" and "Organogenesis". This allows for holistic views of processes (e.g. fertilization, asymmetry, gastrulation) as well as separate organ systems. Each section is drawn together by a brief introduction from the editors. The book maintains a remarkably uniform style throughout, with each developmental system carefully explained in both anatomical and molecular detail. Most chapters end with some consideration of the remaining questions and future directions of the field. It is unfortunate that the appearance of the book is marred by poor reproduction of some of the figures.

While the scope of the book is wide-ranging it is not comprehensive. Indeed, for a comprehensive description of mouse development we already have the definitive reference by Matt Kaufman and Jonathan Bard, "The Anatomical Basis of Mouse Development". Instead, Mouse Development tackles a more selective range of topics and includes the additional detail of our molecular understanding of each system. Consequently, this means that some readers will be frustrated by the gaps in the books coverage. For example, I could find no account of adrenal gland, thymus, spleen, adipose or mammary gland development. I would also have liked to see a coherent treatment of growth (fetal and placental) and perhaps of the epigenetic changes that occur during mouse development. It is however only fair to point out that these quibbles reflect my own interests and that the book does not pretend to be comprehensive in its coverage. On the other hand, if your favourite system is not featured you might be less inclined to purchase a copy.

'I found myself wondering "who is this book for?"'

I found myself wondering "who is this book for?" It clearly does not presume to compete with the general developmental biology texts but is aimed at those using the mouse and related organisms in their research. Assuming your favourite developmental system is covered then it will certainly be a nice volume to hand to arriving graduate students and post-docs new to your specialist field. You will almost certainly be able to find review articles in your area that are more up-to-date but many will not have the scope afforded by these book chapters to span both anatomical and molecular aspects of a given developmental system. Books reporting on dynamic fields of research are inevitably dated by the time they appear on the shelf but in Mouse Development this is offset by having in a single volume a superb collection of articles with a broad span of the subject area. For this reason I imagine that the natural home for this book need not be restricted to those focussed primarily on

mouse development. The copy sent to me was quickly appropriated and passed around the lab. It came back with a collection of bookmarks that indicate areas peripheral to our main interests. Anyone working with transgenic and knockout models for any length of time will have found themselves drawn into areas that are new to them and this is a good reason for having this book to hand. In summary, this will be a welcome addition to the bookshelf of most mouse labs and will be a useful point of reference to many of those studying other vertebrates.

Andrew Ward, Bath

Statistical Analysis of Gene Expression Microarray Data

Ed. Terry Speed,
Series Name: Interdisciplinary Statistics Volume: 11
Chapman & Hall/CRC Press
ISBN: 1584883278
Pub Date: 03/26/2003 Price £39.99

The book covers the main aspect of microarray analysis: design signal extraction, classification and clustering. Each chapter is an independent assay that focuses on one of the above aspects. Chapter 1 describes the different types of model used for the analysis of the gene expression signal from microarray experiment. It is divided in two parts describing oligonucleotide and cDNA arrays. Although the chapter is very technical in addressing all the statistical issues arising when dealing with this type of data, it remains very introductory. It is a very good starting point for readers who are new to the subject but it would require some integration with more literature for readers who are looking for more specific details. There is a small background introduction for both oligonucleotide and cDNA technologies, enough for understating the numerical and statistical problems that affect this type of data.

Chapter 2 contains a very nice and clear summary of possible the experimental designs for microarray experiments. It is very important for the success of the microarray analysis, to have an appropriate experimental design. This chapter analyses each experimental designs explaining what the implications are in the down-

'It is rather technical, which might result in difficulty for biologists, but it is a very good guide for biomathematicians, bioinformaticians and computer scientists '

stream analysis of the gene expression data. It is a very important guide when planning new experiments.

The last two remaining characters focus on classification a clustering. They are both very complete and give with clear examples an overview of the different methods and algorithms. These chapters are particularly important for the downstream analysis of the data and require a technical background for being deeply understood.

Over all the book is a very nice introduction of microarray data analysis. It is rather technical, which might result in difficulty for biologists (*! Ed.*) but it is a very good guide for biomathematicians, bioinformaticians and computer scientists working with biological data and approaching the microarray world for the first time.

Marta Milo, Sheffield

Responsible Conduct of Research

Adil E. Shamoo, David B. Resnik
Oxford University Press Inc, USA
0195148460 358 pp October, 2002

At last month's British Association Festival of Science, Colin Blakemore, Professor of Physiology at Oxford University, called a press conference to highlight what can go wrong in the process of science publication. He referred to a paper published in Science by a group led by George Ricaurte of John Hopkins University in Baltimore. The paper had dramatic findings - monkeys injected with 'recreational doses' of ecstasy were found to develop symptoms similar to those of Parkinson's disease. The study was widely reported by the world's media, and may have influenced an 'anti-rave' act being debated in US congress at the time. However, there were problems with the study. A vial had been mislabelled and the monkeys had been given methamphetamine, not ecstasy. Consequently, the paper was retracted.

The mislabelled vial apart, there were already serious problems with the study. It was unclear whether the dose given to the monkeys would accurately reflect the recreational dose taken by humans. After the initial injection, two animals died and one was removed from the study, which is clearly not something which typically happens to club goers who have taken an ecstasy tablet. This should have been picked up during peer review. The way the paper was reported in a press release was also at fault. A word had been accidentally altered - instead of suggesting that 40% of a type of neuron had been 'damaged' by the drug, it read that the neurons had been 'destroyed'. The mistake wasn't picked up and the resulting press release suggested much more dramatic findings than the paper had reported.

In this case, many things went wrong. The methods of research were unreliable, the peer review process did

'In this case, many things went wrong….. Who is to blame for these errors? How can problems like this be avoided in the future?'

not detect basic errors in the study, and the way the study was billed to the media was inaccurate. Who is to blame for these errors? How can problems like this be avoided in the future? This is the type of question that Responsible Conduct of Research aims to discuss. Shamoo and Resnick have identified the ethical dilemmas that are intrinsic to carrying out research - how you get your data, analyse it and present it; how much responsibility you have for it; how it is peer reviewed and published; how the research is funded. All these issues have ethical implications for scientific research, whatever the method, area or topic.

The authors are well qualified to discuss ethics in research. Shamoo is the founder and editor-in-chief of the journal Accountability in Research and is a member of the Applied Professional Ethics faculty at the University of Maryland. Resnick is an ethicist who has taught the history and philosophy of science and is author of The Ethics of Science: An Introduction. Both have an impressive publication record. It is perhaps because of their academic ethics background that the book can feel weighty and dry in parts. If this book is to be used as a

guide for the general researcher, it could stand to lose some of the detail and take a more applied approach.

Wading through the detail is, however, worth the effort, as some of the information is fascinating. The section on peer review in particular is interesting and informative. Did you know, for example, that studies have shown that peer review for grant applications may disfavour researchers from certain geographic areas and that grant awards are lower for women than for men? The section on misconduct is also worthy of note. What constitutes misconduct in research? If you are aware of misconduct among colleagues, what are your responsibilities? The chapter suggests that misconduct is more of a problem than is currently recognised by the scientific community. For example, a survey in 1993 of science students and faculty members estimated that the incidence of questionable research was between 6 and 12%.

'How much of an understanding of ethics should a biologist have?'

So how much of an understanding of ethics should a biologist have? The opening chapter of this book tells us that the US National Institutes of Health require scientists to be exposed to research-related ethics issues. This is probably also the case for all British research councils. the book is written for an American audience: It would be nice to have discussion of the ethical requirements of equivalent British research councils, government and non-government organisations.

Responsible Conduct of Research was published at the beginning of 2003 and can, therefore, provide the reader with an up to date view of ethics in research. The themes are very relevant to modern scientific horizons - there are chapters on intellectual property, collaboration between academia and private industry, and genetic and human reproduction. With biological ethics issues making headline news - Colin Blakemore's criticism of the Ricaute study was reported by The Times and The Daily Telegraph - it is even more important for the researcher to be well versed in ethics. Although this may not be a book that is easy to read from cover to cover, its topical, stand-alone chapters can be dipped into to supply information as necessary.

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From Genes to Genomes: Concepts and Applications of DNA Technology

Jeremy W. Dale, Malcolm von Schantz
ISBN: 0-471-49783-5
August 2002 £24.95

My bookshelves are packed with an abundance of dated textbooks that cover DNA technology and genetics. The relentless advance of DNA technology leads topics once considered cutting edge to be filtered down the curriculum and ultimately become routine lecture material to the lowly undergraduate. Hence, textbooks have the unenviable task of constantly and succinctly describing this ever-increasing knowledge in manageable, understandable portions. Genes to Genomes is just such a book, covering much of the same ground as previous titles, but going further on contemporary topics like transgenics, sequence comparison and analysis of variation.

The title is at first misleading, suggesting an explanation of the relationship between the single gene to its immediate surrounding regulatory elements and the relationship of the gene within the genome, DNA packaging and how the character of this packaging has a direct impact on gene regulation. The subtitle 'Concepts and Applications of DNA Technology' reveals the true nature of the book. It opens with a brief synopsis of the basic concepts of molecular biology, concentrating on techniques surrounding gene cloning, before moving on to describe key molecular methods and how they fit together. After the cloning and study of individual genes, broader topics are discussed, such as sequencing of whole genomes, genetic variation and the analysis of genome-wide information. Finally, the book considers some of the applications of these techniques in biotechnology, medicine and agriculture, as well as in research that is causing the current explosion of knowledge across the biological sciences.

All the main points are covered in sufficient detail, without being overly brief or going into too much depth, while the accompanying diagrams, although not eye catching, are certainly clear and simple. However, the bibliography falls well short of expectations, ultimately depriving the reader of more specific insights into their particular areas of interest.

'When compared to some of the more overbearing, super-dense books that typically litter the lab... it is a welcome change'

When compared to the some of the more overbearing super-dense books that typically litter the lab and office, it is a welcome change that at only 360 A5 pages, it can be carried easily. Consequently, the more proletarian scientist will be more attracted to, and perhaps more importantly will be able to read through, this book without feeling too out of depth. Furthermore, an accompanying web site should allow the authors to keep their audience up to date in the areas that are prone to change most rapidly between successive editions.

In summary, From Genes to Genomes is a concise well-written, up to date textbook that provides a balanced coverage of traditional and contemporary topics.

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Molecular Biology of the Cell - Fourth Edition, A Problems Approach

John Wilson and Tim Hunt
Garland Science 0815335776 550 pp September 2002

This problems approach companion accompanies the fourth edition of Molecular Biology of The Cell (MBoC), delving deeper into the wide range of cell biology topics covered in the parent textbook. The style and content are very well organised and presented, with the format following that of MBoC, making the book easy to use as chapters are the same in both.

Each chapter consists of experimental questions and problems that encourage problem solving and lateral

thinking, accompanied by answers at the back of the book in a separate section. Only half of the answers are provided, with the rest available to lecturers and tutors on request. Although a great idea for lecturers setting exam questions and tutorials, it may make the task of self-study quite frustrating when the answer isn't available. In this respect, I think that the book would be more useful for lecturers teaching students than for students studying alone. Although there are enough questions in each chapter to provoke learning and understanding, if the book is used in this way. Overall, I found the experimental questions very interesting and thought provoking and especially enjoyed the opening chapters dealing with the basics of biology and genomic diversity. This is a wonderful way to encourage thinking and understanding rather than rote learning, and provides a valuable treasure of information on experimental design and evolution of ideas that has contributed to scientific understanding so far. The authors have surpassed their task of introducing readers to the experimental foundations of cell and molecular biology.

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Gene Transcription: Mechanisms and Control

Robert J. White
ISBN 0632048883
December 2000 Price £32.50

I was a little disappointed by the opening of this book, the introduction ploughs through explanations of the molecular structure of DNA and the central genetic dogma using cumbersome analogies and for the uninitiated, impenetrable explanations. I didn't understand why this was necessary, for a beautifully written and accessible description of elementary transcriptional control one can do no better than Ptashne's "A Genetic Switch" by the same publishers. This book won't be particularly useful for the general reader requiring an explanation of the structure of DNA.

'After the introduction, my faith was restored'

After the introduction, my faith was restored. Without the constraints of elucidating the foundations of molecular biology, the book takes off. I found myself engrossed and making notes, the content is replete and thoroughly captivating. Descriptions of key experiments are provided and the end of every chapter provides references for further reading. The body of the book begins with descriptions of the RNA polymerases, including an incisive comparison of the prokaryotic and eukaryotic transcriptional machinery with speculation about the evolution of these proteins. It then goes into detail about the structure of some important categories of transcription factor and their modes of interaction with DNA. Though the list is not comprehensive, many key examples are illustrated. Following these initial chapters it then goes into the details of transcription by RNA polymerase II with a description of basal level transcription. The components of the basic transcription initiation complex are explored, and the mechanism of initiation, synthesis and termination are then illustrated. Once the basics of transcription are covered the ensuing chapters look at the interaction of the transcription complex with transcription factors and how this mediates transcription,. Further details follow about other components of the transcriptional machinery including cofactors, mechanisms of access to the histone architecture, the influence of distant enhancers and synergistic activation.

Chapter 6 describes transcription by RNA polymerase I. The author goes into the typical structure of ribosomal RNA genes, their upstream control elements and termination sequences. He then goes into a description of typical rRNA transcription taking examples from mammalian and Xenopus systems. The next chapter describes RNA pol III, the largest and most complex of the RNA polymerases, this polymerase transcribes various essential RNA structures including the transfer RNAs. It shows the unique promoter structure of DNA transcribed by RNA pol III then assembly, initiation, elongation and termination of transcription in the pol III system. This chapter finishes with a discussion on how RNA polymerase activity is coordinated, this neglected question is significant because an imbalance in the acitivities of the RNA polymerases would have huge consequences on the cells metabolic economy.

So far this describes half the book, the second half then delves into various aspects of transcriptional control; the influence of chromatin, control of transcription factor production, localization of transcription factors and regulation of transcription factor activity. The descriptions are precise and exhaustive in the their detail.

Finally the book goes into what could be termed case studies, looking at cell cycle regulation and the relationship between some transcription factors and development. Between these chapters we find a fascinating exploration of the fate of RNA transcripts and the influence of transcription on DNA replication and DNA repair.

By the end of the book I was convinced that this book should be regarded as an essential inclusion in the book collection of biologists because it is virtually impossible to avoid encountering transcriptional control in our work. I would further suggest that it is read through rather than regarded a reference text, its small size a relatively small number of pages lends itself to this. I would encourage the publishers to push for a second edition however, since the book was first published great inroads have been made into the analysis of gene transcription control in the post-genomic era using new and exciting techniques.

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Want to review a book?
See page 8 for details

BSDB Committee Members

The main function of the BSDB Committee is to organise our meetings, from deciding on appropriate topics to arranging organisers and venues. If you have any ideas on topics for a good meeting, or on a good venue, don't hestitate to convey them to Nancy Papalopulu (or another committee member). The officers of the society will be happy to answer any questions relating to their specific subjects.

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