BSDB Newsletter

Summer 2003
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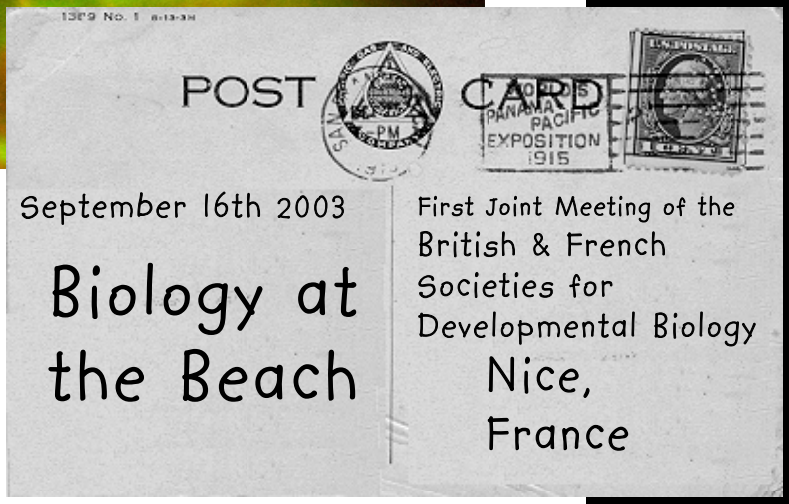
British Society for Developmental Biology



BSDB Newsletter

Summer 2003 Volume 24, Number 1

Editorial

This issue of the Newsletter sees the introduction of several changes to the standard BSDB format, not the least of which is a new adventure for the Autumn Meeting. Following an initiative from our Chairman, **Alfonso Martinez-Arias** has teamed up with colleagues in the French Society for Developmental Biology to organise a late summer scorcher on the Cote d'Azur. With BA aggressively competing with EasyJet and Ryanair, you now have no excuse for turning up pale and washed out for the start of the next academic year…

Big changes too on the website. Thanks to a great effort by **Kate Storey**, our new Website Co-ordinator, the BSDB website now looks better than ever. More importantly it also functions better than ever. Aside from the listings of committee members and meetings that it has always had, you can now download all the forms that have traditionally been found in the back of the Newsletter (Indeed, I would like to drop these from the next issue, so let me know soon if this is a bad idea). Kate has also substantially increased the range of information and links to related sites that are available.

Perhaps the biggest innovation, however, is that one can now **advertise** both **job opportunities** and **forthcoming meetings** on the website. Submitting an ad is pretty straightforward (*I* managed…I think) and can be done entirely online. Hopefully this will herald a new era of activities on the site. Other suggestions recently heard are for a "Protocol-swap Page", a "Schools Access Page" (to encourage High School Students to take an interest in the subject – if you have exciting images or movies that we could use on this, please let Kate or I know) and a "Student Chat Room". We like suggestions, so keep them coming

Talking of students, it is great to see that **Leigh Wilson** has really brightened up the Graduate Students page in the Newsletter (p6-7). Pity is that Leigh is leaving us soon. Nonetheless, she and her successor, **Caroline Parkin**, welcome contributions for the future. Caroline and Leigh are also working on leaflets and posters to send out to High School and, again, input from others is very welcome.

Now a moan. The moan is aimed at those of you who moan at us that you haven't received the latest Newsletter. In almost all cases where Ivor checks this out, it is because you guys have failed to tell us about an address change. Change of address form p22 or on website.

Finally, you will notice that there is little time left to register for the Autumn meeting. Those of you who have given Ivor your e-mail address (now ~700/1300 members) will have had several days extra notice, highlighting one of the many advantages of being on the e-mail list. However, as meeting deadlines are often in June, I have decided to move printing the Newsletter ahead by one month from the next issue. Future deadlines therefore 1st October (Winter) and 1st April.

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

Contents

BSDB Autumn Meeting 2003

Biology at the Beach

Nice, France, 13th – 16th September

For further details see page 8 and

www.unice.fr/nice2003/

Registration and Abstract Deadline

30th June, 2003

Limited space so hurry

From the Chairman

This year we say farewell to two stalwarts of the committee, **Jamie Davis** and **Ivor Mason** both of whom have acted as officers of the Society for the past five years. As Meetings Secretary, Jamie has been responsible for making sure all of our meetings happen: this involves everything from arranging venues, extracting the meeting programme from the scientific organisers, liaising with the conference organisers and representatives of the BSCB and Genetics Societies, to collecting the Waddington Medal and bringing it to the meeting! Ivor's job as Secretary of the Society is equally onerous, for it is he who keeps a record of all of the committee meetings, enrols all new members, compiles and updates the membership data base and keeps the Chairman informed of everything that the Society is doing. I have to say that it has been a pleasure to work with both Jamie and Ivor over the past four years and I cannot thank them enough for all of their hard work. Thankfully, we have found two committee members brave (or foolish; *'courageous' is the word you're looking for, Ed.*) enough to step into their shoes: **Nancy Papalopulu** will take over the reins from Jamie as Meetings Secretary while **Robert Kelsh** has agreed to serve another five years as Ivor's successor. We are grateful to them for volunteering their services and I look forward to working with both in my remaining year as Chairman.

The recent publication by the MRC of their "Forward Investment Strategy" discussion document has elicited a good deal of debate within the Society, not least through its proposal that the National Institute for Medical Research (NIMR) at Mill Hill be relocated to the Addenbrokes site in Cambridge. NIMR has a long and proud history of achievements in developmental biology: I personally remember the occasion when **Peter Holland**, then a graduate student in **Brigid Hogan's** lab, performed some of the first – if not THE first - Hox *in situ* hybridisations on mouse embryos within its impressive walls. And since then, many other important findings have been made in Mill Hill by a glittering array of investigators including **Rosa Beddington**, **Robb Krumlauff**, **Robin Lovell-Badge**, **Andy McMahon**, **Peter Rigby**, **Jim Smith**, and **David Wilkinson**, to name but a few. But just as many of these individuals have now departed a case can – and indeed has – been made for the institution to move on to new pastures. Having experienced the effects of such a relocation at first hand on more than one occasion, I am quite familiar with the kinds of emotions that such a proposal arouses. Naturally we are all concerned that any changes that the MRC envisages should not be to the detriment of developmental biology research, but I take the view that the Society cannot and should not adopt a position on the future of individual institutions. I have responded to the MRC's call for feedback by highlighting the past achievements of NIMR staff and urging the Council to continue to support research into developmental biology at least at current levels. Given that the strategy document emphasises the position of developmental biology as an MRC priority area, I hope that this call will be heeded.

Phil Ingham

Waddington Medal 2003

The award of the Waddington Medal recognises not only outstanding research achievement by a UK-based developmental biologist but also contribution to the vitality of the subject, be it through teaching, mentoring or intellectual leadership. Although relatively few individuals fulfil all of these criteria, the choice is never easy: This year, the BSDB committee elected to award the Waddington Medal to **Julian Lewis**, Principal Scientist at the Cancer Research UK's London Research Insititute.

CH Waddington was arguably the most original and influential British developmental biologist of the 20th Century. In a career spanning 40 years, he published over 18 books including his "Introduction to modern Genetics" in 1939 and the seminal "Principles of Embryology" in 1956. Waddington began his career as a geologist but became an embryologist, performing the first organiser grafts in the chick embryo in the early 1930s. He had an acute awareness of the role of genes in development long before developmental genetics became fashionable and indeed was Professor of Animal Genetics at Edinburgh for over 20 years.

Like Waddington, Julian did not train as a biologist - in fact his Oxford DPhil dissertation was entitled "Statistical mechanisms of a monolayer absorbed onto a crystalline surface". After pursuing his interests in physics in the USSR however, he too became fascinated by embryology and in the early 1970s joined the lab of **Lewis Wolpert**. Here he contributed to the experimental analysis of limb development for which the Wolpert group became famous, addressing both the generation of positional identity along the proximo-distal axis of the limb and how the different tissues that make up the limb – the skeleton, muscles and nerves - become integrated into a functional structure.

Following his post-doctoral research, Julian was appointed to a lectureship at King's College where, when not teaching, he developed various new lines of investigation including his pioneering studies of embryonic would healing and inner ear development.

Although Julian's empirical research was deeply rooted in the experimental embryological tradition of British developmental biology, his theoretical works had long recognised the importance of genetic networks in developmental processes. As long ago as 1975, he had written with **Lewis Wolpert**, in "Towards a Theory of Development" that "complexity lies in the specification of the internal state which may be described in terms of a gene-switching network". Following his appointment to the staff of the ICRF Developmental Biology unit in Oxford, he shifted the focus of his experimental work to the elucidation of such gene-switching networks. In particular, in collaboration with the group of **David Ish Horowicz**, he has characterised the role of Notch signalling in a variety of processes in the vertebrate embryo including neurogenesis, and somitogenesis.

In common with pervious Medal winners, Julian's contributions to the field extend beyond his own research findings. Indeed it could be argued that he has influenced more students of developmental biology than any previous winner through his co-authorship of the Molecular Biology of Cell.

Phil Ingham

BSDB Committee changes

From 1st September, **Ivor Mason** will retire from the onerous post of **Secretary, Jamie Davies** from the equally onerous post of Meetings Secretary, and **Leigh Wilson** from the, it has to be said, less onerous post of Graduate Representative. Our thanks to them all. The Committee is pleased to announce that from September their positions are taken by **Robert Kelsh, Nancy Papalopulu** and **Caroline Parkin** respectively. All three have begun the job of shadowing their predecessors, but enquiries should not be directed to them until September.

New 'Open Access' Journal

Many of you will be aware of the long-running debate on whether access to the journal articles that we publish should be 'open' (free) or not. Already we have seen a number of journals making older articles more freely available, but the key journals remain available only to those with personal or institutional subscriptions.

In October this year, a new journal will hit our screens – **PLoS Biology**. This is the first journal to be published by the Public Library of Science – a nonprofit organization of scientists committed to making scientific and medical literature a public resource. PLoS Biology will be a direct competitor to the existing top-ranking journals, but claims to have one major advantage over them – PLoS Biology will employ a new publishing model that will make all content available online, with no charges for access and no restrictions on subsequent redistribution or use.

The journal will be run by a very experienced editorial team headed by **Vivian Siegel** (ex-editor of Cell) and based mostly in San Francisco. But in a departure from the usual way of running a high-profile journal, peer review will be orchestrated by one of the professional editors in partnership with an academic editor, drawn from the impressive list of active researchers on the editorial board. According to **Mark Patterson** (one of the two editors based in Europe; ex-TIG and Nature), this approach will ensure the "highest standards of peer review in any top-rank journal". The success of PLoS Biology should provide a major stimulus to the development of further open access journals, and could signal the end for profiteering commercial publishers.

Who's paying for all this? The Public Library of Science is funded by a $9 million grant from the **Gordon and Betty Moore Foundation**, which was secured by the PLoS Founding Directors – **Harold Varmus** (CEO of Memorial Sloan-Kettering Cancer Center), **Pat Brown** (Stanford University) and **Mike Eisen** (Lawrence Berkeley Labs). Ultimately, their aim is to develop a self-sustaining open access publishing programme supported by publication charges to authors, institutions and funding agencies.

If open access publishing really takes off - and certainly the publication of PLoS Biology suggests this to be very likely - unfettered access to the scientific literature should lead to major benefits for research, education and health. Think how much has become possible with the availability of DNA sequence data in publicly accessible databases, and then think what might become possible with a full text version of PubMed, incorporating new tools for navigation, linking and mining the literature.

PLoS Biology began accepting manuscript submissions on May 1, 2003. Find out more at http://www.plos.org.

Greenfield Report on Women in Science

Those of you who read **Kate Storey's** excellent review of a recent meeting exploring how women fare in science ("Women on Top"; last issue: BSDBNL, v23(2) p10), will be interested to know that the report referred to by **Susan Greenfield** has been published and can be found in the Resources section of the newlook BSDB website.

The future of the National Institute for Medical Research at Mill Hill – a letter from David Wilkinson

A frequently asked question at the BSDB Spring meeting was along the lines of 'can it really be true that the MRC are closing down the NIMR at Mill Hill?'. This was because of the MRC Forward Investment Strategy document that had been presented to the NIMR on the 31st March and published on the 4th April. The document contains the recommendations of a subcommittee of the MRC Council that the NIMR should be cut to half of its current size and in 2010 or later move to a new building at the Addenbrookes site in Cambridge. There was great surprise and dismay at the implications of the document for NIMR specifically and for developmental biology more generally. There are important general issues concerning the document, such as the overturning of peer review recommendations, and the NIMRs response to these are on the Web (http://www.nimr.mrc.ac.uk). I will focus on an aspect that one would hope is central to the decision to be made by the MRC Council in July: the costs versus the proposed benefits.

The reasons for the proposed 50% cut and relocation are that: 'Future scientific progress in the post-genomic era, and the continuum that characterises medical research in the new century will depend critically on ease of interactions across disciplines- including the physical, biological and clinical sciences. …NIMR at its present location may be too isolated from clinical and other academic units to compete and remain as attractive to scientists in the longer-term as it has been in the past'; 'those [Institutes] not embedded in university settings may have to be much larger to achieve critical mass' and 'a new smaller investment in a clinical multidisciplinary environment would be likely to deliver a similar volume of science and greater value for money in the longer-term'. In other words, it is proposed that the move to Cambridge will increase cross-disciplinary and basic-clinical collaborations, that groups outside the NIMR can substitute for critical mass within the building, and that a smaller NIMR will have increased productivity.

How do these proposed future benefits compare with the scientific costs of dismantling the NIMR? The NIMR is a very successful multidisciplinary centre comprised of more than 60 research groups in Structural Biology, Infections and Immunity, Genetics and Development, and Neurosciences. The infrastructure is excellent, with experimental animal facilities that are among the largest in Europe, and due to economies of scale and sharing of resources the research is highly cost effective. It is probably the most broadly based Institute in the UK, and the highly interactive environment has established extensive collaborations within and between disciplines that received very strong praise in the most recent peer review. It is difficult to see how downsizing by 50% could lead to an increase in cross-disciplinary research. A proposed benefit is that moving to Addenbrookes will

increase the opportunity for clinicians to interact with basic scientists. One major difficulty with this is that the proposed move would decrease interactions with the largest clinical community in the UK that is present in London. NIMR scientists have 57% (68) of their collaborations with 23 centres in London, 14% elsewhere in the UK and 29% with international centres.

A large multidisciplinary Institute such as NIMR has a particular role in the ability to carry out long term research, the provision of large scale facilities, and the enhancement of collaborations within and between disciplines through interactions within the building. It also enables flexibility in responding to new opportunities, as is well illustrated by the history and achievements of developmental biology at the NIMR. From its beginnings in the 1970s with **Jam Tata**, **Michael Gaze**, **Jonathan Cooke**, **Dennis Summerbell** and **Malcolm Maden**, there was a major expansion in developmental biology in the 1980s and 1990s with the recruitments of **Frank Grosveld, Peter Rigby, Brigid Hogan, Andy McMahon, Jim Smith, Tim Mohun, Robb Krumlauf, David Wilkinson, Vassilis Pachnis, Jack Price, Marysia Placzek, Robin Lovell-Badge, Rosa Beddington, Paul Burgoyne, Jean-Paul Vincent, Alex Gould** and **Derek Stemple**. The combination of excellent scientists, critical mass in multiple model systems (mouse, chick, frog, fish, fruit fly) and a very interactive environment underpinned many important contributions to developmental biology in the UK and internationally, both in training and research. Its research achievements include identification of the locus control region of globin genes, the first mesoderm inducing factor, Hox gene colinearity, molecular analysis of hindbrain segmentation, genetic basis of mouse sex determination and stem cell biology, and discovery of the anterior organising centre. Large numbers of students and postdocs have trained at the NIMR, and I hear time and time again from them that the training and research environment at NIMR was the best experience of their career. Most group leader recruitments have been at the career track level, with many going on to become senior scientists at NIMR or elsewhere. Its success is reflected in the recent appointments of three members as heads of Institutes: **Peter Rigby** (Institute for Cancer Research, London), **Jim Smith** (Wellcome Trust/CR UK Institute, Cambridge) and **Robb Krumlauf** (Stowers Institute, Kansas City). Following these departures and the premature death of **Rosa Beddington**, we have recruited 6 career track group leaders (**James Briscoe**, **Malcolm Logan**, **Lyle Zimmerman**, **Iris Salecker**, **Qiling Xu** and **Nobue Itasaki**) and 2 senior group leaders (**Francois Guillemot**, **Siew-Lan Ang**). The NIMR remains as strong and exciting a place for developmental biology as ever.

How will a 50% downsizing and moving NIMR affect developmental biology? For a number of reasons it is certain that the 19 research groups in NIMR 'Genetics and Development' cannot move to Addenbrookes. Ironically, one is due to an attraction of Cambridge - the existence of many excellent developmental biology groups. The rationalisation of the downsizing is that local groups outside of the NIMR can substitute for science within the building. Taken together with the policy of increased focussing of MRC funding on 6 sites in the UK, this implies a net decrease in funding of developmental biology. The substitution of critical mass, even by excellent external groups, does not take account of the way that interactions work. We all know how daily interactions stimulate new ideas and collaborations, in part because of the breadth and complementarity of approaches in different developmental systems, and novelty can derive especially from interactions across disciplines. In principle such interactions can happen between establishments, but in practise the effects of distance are inhibitory to daily contact.

With its many cross-disciplinary interactions and collaborations with the large clinical community in London, the NIMR is ideally suited for the 'postgenomic era' in which developmental biology plays a central role, and indeed should be expanding. It is instructive to compare the proposal of downsizing with the continued strong support of other major international centres (some, like NIMR, not on hospital or university campuses) such as the EMBL, Max Planck Institutes, Cold Spring Harbor and the Salk Institute, and the establishment of new centres such as the Stowers Institute, the RIKEN Centre and the forthcoming Howard Hughes Institute. The environment of a successful Institute, in its infrastructure, philosophy and people, is an investment built up over many years. Why dismantle something that works so well? We at the NIMR believe that the high scientific costs greatly outweigh the proposed benefits, and that the benefits themselves are very uncertain. The proposed dismantling of NIMR would be a retrograde step at a time when it is highly opportune to build upon success in developmental biology and cross-disciplinary research.

David Wilkinson, 15th May 2003

Royal Society under scrutiny

The House of Commons Select Committee on Science and Technology – chaired by Dr **Ian Gibson** – has again been scrutinising our revered institutions (see last issue BSDBNL, v23(2) p3: "MRC Scrutiny Session"). This time it is the Royal Society that has come under the microscope.

The remit was to discover whether the Royal Society provides good value for money and whether there is a case that other learned societies should receive government funds. They concluded that other societies do have a case and recommended that government establish a fund to which all learned societies could apply. Currently, says the report, funding is haphazard and disproportionately applied. The suggestion is that the money currently allocated to the RS (together with the Royal Academy of Engineering; about £30 million in 2001–02) might go into a pot and could be bid for by *all* learned societies including, of course, the RS and RAE.

For further details see:
http://www.parliament.uk/commons/selcom/s&tpnt41.htm

March of Dimes Prize for Developmental Biology

Nominations of candidates are solicited for the 9th annual March of Dimes Prize to be awarded in 2004. The prize, consisting of a medal and $250,000, is awarded to investigators whose research has profoundly advanced the science that underlines our understanding of birth defects. Deadline September 15, 2003.

For further details see:
http://www.marchofdimes.com/professionals/691_1442.asp

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

From the Treasurer

Travel Grants

Thanks to the continued generous support of the Company of Biologists, the BSDB awards three types of travel grant to members, with preference given to graduate students and postdocs.

BSDB Spring and Autumn meetings:

These are the only UK meetings for which there is BSDB support, and grants cover basic travel and conference expenses (but not conference dinners!). We are currently able to fund demand but, if numbers increase, preference will be given to members who present posters.

BSDB members based abroad are eligible for a contribution (max £400) towards attending BSDB meetings.

Practical courses: Support of up to £500 is available for these courses and, at the moment, all applicants are funded. If more than about 8 members a year apply, however, a selection procedure will be introduced.

Foreign meetings: This is the category for which there is greatest demand and we cannot fund everyone. BSDB will give members a contribution (max £400). Current policy is as follows: no more than two people from one Department or one person from a group will be awarded a grant to go to a particular meeting. Preference will be given to members presenting work.

Other activities: The Treasurer now has a small additional fund to support other activities eg. travel within the UK, or the USA, in order to visit laboratories. Please email the Treasurer with any appropriate request.

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.

TO APPLY FOR A TRAVEL GRANT:

- Members should first complete the Travel Grant Application form and send it to the Treasurer. (see **Forms** section at the back of this issue or see the BSDB website: www.bsdb.org)
- 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. No grants will awarded in arrears
- **All applications for grants to attend a BSDB meeting must be in the Treasurer's hands a week before the meeting deadline.**

Please note: noone will be awarded more than one travel grant for an overseas trip per year.

Financial Report see below

SUBSCRIPTIONS ****1999** "Student-rate" members should quickly upgrade their subscription to **£20 or they will be culled (humanely).**

Ottoline Leyser

FINANCIAL STATEMENT YEAR ENDING JULY 31st 2002

Balance Sheet

2000/01 £		2001/02 £
	Investments	
100,366	Baillie Gifford Managed Fund (1,2)	91,968
	Current Assets	
27,241	Barclays Bank High Interest Account (2)	27,854
17,863	Barclays Bank Current Account	8,972
2,857	Barclays Bank: Louis Hamilton Account (3)	2,875
47,962		39,701
8,100	Less: Unpresented cheques	1,954
39,862	Net Current Assets	37,747
140,228	**Total Funds**	**129,715**

This statement is also available on the BSDB website:

WWW.BSDB.ORG

Income & Expenditure Account

Income	£	Expenditure	£
Membership (Standing Order)	16093	Grants (Travel & Courses)	48286
Membership (Cheques)	505	UKLSC etc	1320
Capitation Fee (CoB)	12945	Newsletter	2258
Travel grant fund (CoB)	20000	Small meetings and other DB meetings	1500
Sale of addresses	1135	00/01 meetings and 02/03 meetings	642
York Meeting	2936	Committee & administration	3011
Oxford meeting	2900	Bank charges	141
		Prizes	2205
Interest and Investment Appreciation:			
Barclays High Interest a/c	613		
Barclays Louis Hamilton a/c	18		
Barclays Current Account	102		
	733	Total Expenditure	**59,362**
		Net Surplus for the Year	**- 2,115**
Total Income	**57,247**	Unrealised Gains on Baillie Gifford Managed Fund	- 8,398
		Fund balance at 31st July 2001	140,228
		Fund balance at 31st July 2002	**129,715**

Notes

These accounts were prepared under the historic cost convention, in accordance with the applicable accounting standards and Recommended Practice of Accounting by Charities. There have been no major changes to our financial arrangements this year.

1. The Baillie Gifford and Barclay High Interest Account valuations are on 30.6.02

2. This account includes £25,500, the surplus on BSDB practical courses; this is used to provide grants for members to go on courses, and £4,530 was spent in 2001/02 for this purpose.

3. This is the only restricted account and no call was made on it in the financial year 2001/02

Graduate Students

Welcome to the new regular student slot in the BSDB newsletter. The aim is to give student members a chance to write about and share experiences associated with Ph.D life, providing any little tips or pointers that'll make your trip through Ph.D-dom as smooth and fun as possible. We also welcome suggestions, either for this column, or for improvements to the student pages on the website – so let's hear from you!!!

To kick off the first instalment we have articles written by first, second and third year PhD students discussing their personal experiences of three different aspects of PhD life.

The Demonstrator

By Susan Reijntjes, a first year Ph.D student at the MRC Centre for Developmental Neurobiology, King's College London.

Whenever people asked me as a child what I wanted to be when I grew up I would reply that I wanted to be a teacher. When I did eventually grow up I became much more ambitious *(Aghh. You see Tony, it's just not working. However can we get respect for the long-suffering teacher? Ed.)* and decided that I wanted to be a scientific researcher and a university lecturer instead.

I am now a first year PhD student at King's College London so the first part of my ambition is on track but what about the second ? Just after I started my PhD I was asked by the Histology course organiser to be a demonstrator for the Histology practicals demonstrating to first and second year medical students. I was given a crib sheet and a copy of the students' practical workbook. I went home and worked through the practical using text books as this would to give me an indication of how long it would take them to complete the practical, how difficult the practical would be and also so that I could appear knowledgeable.

I absolutely loved the first time I demonstrated and still do. I enjoy getting the students to think before I give them the answer and because

> 'I find them telling me about the first time they saw a cadaver, their exam worries or boyfriend/girlfriend problems.'

my undergraduate degree was in Molecular Biology I can give them additional information that is not necessarily covered in their course. For example, when we covered blood cells and blood vessels, I could explain the molecular mechanisms for atherosclerosis.

The course organiser encourages the demonstrators to stay with the same group of students so that you build up a relationship with them. I find them telling me about the first time they saw a cadaver, their exam worries or boyfriend/girlfriend problems.

Demonstrating is beneficial to me in that I genuinely like students, the sessions fly by and afterwards I am in a very good mood. I want to instil in the students a passion for science and feel happy when they learn something. I like to encourage them and make them feel good about themselves. If I do not know the answer to a particular question that they ask (and being medical students they do ask some particularly difficult questions) then I can always ask the practical lecturer or look the answer up with them in a book. If all else fails I tell them to go to the library and look up the answer, as all good students should.

Recently I undertook the Graduate Certificate in Academic Practice course. To complete this course you have to submit three samples of your teaching. I have devised a demonstrator assessment form that the stu-

> 'I will of course be taking in a bag of Mars bars when I ask them to complete it – a bit of bribery and corruption!'

dents fill in giving me marks from 1-5 on my demonstrating abilities, this will count as one sample. I will of course be taking in a bag of Mars bars when I ask them to complete it – a bit of bribery and corruption !

I would recommend demonstrating to anybody, especially if they have an interest in teaching. You also get paid for it – around £10 per hour - the money from which I intend to save and go on holiday with. My only regret is that due to the demands of my PhD, I cannot spend even more time demonstrating.

My first conference

By Alison Wood-Kaczmar, a second year Ph.D student at the MRC Centre for Developmental Neurobiology, King's College London.

When my supervisor first suggested I attend the American Society for Cell

> 'How could I possibly have enough results to put into a poster of international standard, and did I really deserve this?'

Biology (ASCB) conference in San Francisco at the end of my 1st year, I was immediately chuffed, and not a little disbelieving!… How could I possibly have enough results to put into a poster of international standard, and did I really deserve this? In reality, however, the incentive of a week away in the States was all I needed to pull my finger out and get together some decent figures for a presentation.

As always, it all came together at the very last minute and with my hot-off–the-press poster slung over one shoulder and my entire winter wardrobe over the other I set off to meet my supervisor on the other side of the world.

After taking a bit of a detour to see a bit more of the West coast on route (definitely one of the perks of the job!), I finally arrived in rainy SFO to register at the meeting held in the vast Moscone Convention Centre right in the centre of the city. I suddenly felt pretty small, insignificant and, well stupid, as I stood and watched hundreds of similarly minded cell biologists, no doubt all experts in their field, converging in from all over the world. All were busy talking ten to the dozen in various languages about highly complicated issues, swapping key results, discussing pioneering research.

It was daunting at first, as I tried to take it all in, and go to every symposium, speech and tenuously relevant poster. But as fatigue set in, so I wised-up, and concentrated on attending only those lectures whose speakers I knew from papers I'd read, or whose subject matter was relevant, and lets face it, basically, those which my boss told me to go to! I'm not sure how much I assimilated or even understood, but I'm sure I

picked up on the emerging trends, and hopefully increased my general awareness in the field as well as learning a bit more about specific techniques.

My poster was to be displayed all day on the Tuesday, and I had to be present for at least an hour that day over lunch. I dressed a bit smarter and had an early-ish night beforehand, but that was basically all the preparation I did. I was expecting the worst kind of nightmare to be honest; standing there trying to hold my ground against a barrage of criticism and superior intellectual knowledge.

But what I experienced was quite the opposite. Most people who stopped by asked me to 'take them through it', and so I ended up giving around 5-6 mini-talks to small groups in turn, stopping to explain the finer points of experiments if necessary, or engaging in interesting speculation on the function and significance of my favourite molecule. Many people who came along were experts in the field, often having worked on 'my' protein for years, but all expressed enthusiasm and encouragement for my project, and I came away (after 3 hours!) feeling positive and up-lifted about where I was in life.

Helpfully, my boss kindly introduced me to several key players in our area of work, and I could finally put faces

> 'I'm not sure I'll be able to erase the memory of dozens of upstanding professors sweating it out on the dance floor ..., bellowing out the lines to Love Shack, supping Zinfandel and staving off the advances of a pink wigged cross-dressing midget'

to names from all those papers you read in the confines of your office or lab. I think that was one of the most important things that came out of the whole experience- the humanisation of science; attributing people to the work they do.

And what better way to consolidate those new found friendships than to socialise, and believe me, in San Francisco, you can't help but enjoy yourself. What with countless restaurants, bars and diners, the opportunity for fun and interaction was plentiful, one of the highlights being the Social Event organised by the ASCB. I'm not sure I'll be able to erase the memory of dozens of upstanding professors sweating it out on the dance floor in the Museum of Modern Art, bellowing out the lines to Love Shack, supping Zinfandel and staving off the advances of a pink wigged cross-dressing midget (employed to get us going). Excellent stuff.

Big scary interviews

Written by Rachel Hammond, a third year Ph.D student from the MRC Centre for Developmental Neurobiology, King's College London

I guess that I should start this article by saying that interviews for post-doctoral positions are neither big or scary. But I would be lying – *they really can be*. It can be intimidating talking to a world expert, and trying to convince them that they want to employ you. The only way of getting around this fear is by reminding yourself that your PhD supervisor is also

> 'the other way to overcome the fear lies in the preparation.'

an expert in their field, and so are you for that matter, so it shouldn't be that scary….!

Not convinced? Well the other way to overcome the fear lies in the preparation. Firstly look into who you want to work for. Aspects you might want to investigate include – how much time do lab heads spend in the lab? How much pressure are postdocs put under? What does a working day in the lab involve? And on the scientific front – are you interested in the same questions? And are you happy using their techniques? Will the project enable you to learn new skills? What are the teaching requirements? Is there a good level of cooperation and an exchange of ideas between labs within that department?

Some of these questions can be answered by looking up their website or by reading their papers on the web. And these are things that you really should do before an interview anyway. But the most important way to answer all your questions about a lab

> 'the most important way to answer all your questions about a lab is to visit it'

is to visit it, and get a gut feeling about both the lab and the lab head. It is crucial that you get on well with your future boss, and that they are able to provide you with as little or as much support as you need.

I decided that I wanted to have the opportunity to live in New York City so applied to two labs in Columbia University. I first met with the lab heads of these groups at a conference and then asked my supervisor to send them each a reference and I included my CV. A year before the end of my PhD I interviewed with both of these groups. The process included meeting postdocs to discuss

> 'Remember to start the story from basics assuming no prior knowledge, and keep words on the slides to a minimum'

their work, talking with the lab heads to discuss what I am interested in and presenting my data. The latter was by far the most daunting part, and the only way to make sure it goes according to plan is preparation overkill. In my case people were asking questions throughout the talk which meant keeping track of where the talk was going and which slide was next. Remember to start the story from basics assuming no prior knowledge, and keep words on the slides to a minimum.

Also remember to ask the key questions about funding – do they have any? Are you eligible as an overseas

> 'Also remember to ask the key questions about funding – do they have any?'

postdoc? Will they help you write grant applications etc if necessary? It is vital to get in touch with labs as early as possible so that they know you are interested, and have the time to apply for funding and/or make space for you.

So bite the bullet and get e-mailing to those scary people… and hopefully they will be more than happy to have you!

If you would like to contribute to, or see any specific issues tackled on this page, or have any questions or ideas regarding student involvement in the BSDB, then email me, Leigh Wilson, at : Leigh.Wilson@kcl.ac.uk

I'm looking forward to hearing from you!

BSDB 'Autumn' Meeting 2003

First Joint Meeting of the
British & French Societies
for Developmental Biology
'Biology at the Beach'

Nice, France
September 13th – 16th 2003

Organizers:
Alfonso Martinez Arias , (UK)
Pierre Leopold, Stephane Noselli, Pascal Therond, (France)

Despite the 'entente *in*cordiale' elsewhere, the British and French Societies for Developmental Biology have managed to work together to stage their first joint meeting. This will take the place of our usual Autumn meeting and will be held in Nice. Bearing in mind that the cost of travelling to Nice from Luton or Liverpool is less than the average rail fare between any two cities in the U.K., we hope to see as many of you as possible for a late summer refresher on beach etiquette. The meeting will be quite general but centres on the cellular mechanisms that underlie developmental processes.

Sessions :

Periodic processes
Cell and tissue patterning
Morphogenesis
Cell shape and migration
Tissue growth
Signalling and traffick
Cellular asymmetries
Global approaches to
cell and developmental biology

Deadline for Registration:
30th June, 2003
Space is limited, so don't wait 'til the last minute!!

Speakers:

Kathryn Anderson (USA)
Frederic Berger (France)
James Briscoe (UK)
Margaret Buckingham (France)
Francois Fagotto (Canada)
Matthew Freeman (UK)
Eileen Furlong (Germany)
John Gurdon (UK)
Ernest Hafen (Switzerland)
Carl-Phillip Heisenberg (Germany)
Jules Hoffman (France)
Patricia Kuwabara (UK)
Michel Labouesse (France)
Sally Leevers (UK)
Christian Lehner (Germany)
Rick Livesey (UK)
Andrew Loudon (UK)
Francois Payre (France)
Norbert Perrimon (France)
Marysia Placzek (UK)
Olivier Pourquie (USA)
Pernille Rorth (Germany)
Frederic Rosa (France)
Paolo Sassone-Corsi (France)
Francois Schweisguth (France)
Derek Stemple (UK)
Alain Vincent (France)
Cornelis Weijer (UK)
Lewis Wolpert (UK).

Information and registration:
http://www.unice.fr/nice2003/
or e-mail: nice2003@unice.fr

£50 to Post-docs or PhDs willing to review the meeting.. Contact Andy Furley....

Future BSBD Meetings – see also www.bsdb.org

Spring 2004

Developmental Biology Annual Symposium

To be held jointly with the Genetics Society at Warwick University

14th March – 16th March, 2004. Organisers: Mike Jones & Ivor Mason

The 2004 Spring Meeting will continue with the format that proved successful at the 2003 Symposium. Half-day sessions with specific themes will be organised to provide an up-to-date report on the latest findings in the general field of Developmental Biology. The meeting will be held jointly with the Genetical Society and one half-day session will be joint. Topics for the 2004 Annual Symposium will be:

1) Stem Cells	(chair: Austin Smith)
2) Organogenesis	(chair: Chris Wright)
3) Polarity	(chair: Daniel St. Johnstone)
4) Evolution of Developmental Mechanisms	(organised jointly with Gen Soc)
5) A session honouring Chris Graham	(chair: Richard Gardner)

Each session will consist of an introduction by the section chairperson followed by talks from four invited speakers. It is intended that three shorter talks in each session will be chosen from abstracts submitted for the meeting.

Autumn 2004

"Organogenesis of the Nervous System"

A debate on cell interactions and growth in the nervous system using invertebrate and vertebrate model organisms.

Organisers: Alicia Hidalgo & Guy Tear

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:**
Jamie Davies (jamie.davies@ed.ac.uk) or, from Sept, **Nancy Papalopulu** (np209@cam.ac.uk)

NewLook 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

Don't Forget!

Beddington Medal Nominations

Nomination should be for a thesis submitted in the 12 months preceding 1st September, 2003. Each nomination should include a one page letter from the thesis supervisor, a two page summary outliining the background and findings of the thesis and documentation verifying the date of submission. Nominations should be sent to the BSDB Secretary (**Ivor Mason**, contact details in back pages of this issue).

Next Deadline 1st September, 2003

For further info see:

www.bsdb.org

Other Related Meetings & Courses –see also 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

New Directions in Tissue Repair and Regeneration - *A Royal Society Discussion Meeting*

24th - 25th September 2003

Organisers – **Jeremy Brockes** and **Paul Martin**

The meeting will consider new information on regeneration and wound healing as biological mechanisms in a variety of species, together with presentations directly concerned with tissue engineering and repair. It will conclude with a discussion on the prospects for human regeneration.

Speakers include:
Yann Barrandon, Jeremy Brockes, Michelle De Luca, Mark Ferguson, Ellen Heber-Katz, Mark Keating, Malcolm Maden, Paul Martin, Ronald McKay, Joanna Price, Alejandro Sanchez-Alvarado, Jonathan Slack, Evan Snyder, Elly Tanaka and **Sabine Werner**

Attendance is free, however **pre-registration is essential**. For more info, please contact: Suzi White at suzi.white@royalsoc.ac.uk or look at www.royalsoc.ac.uk/events.

Molecular Biology of Cellular Interactions – *A EuroConference on the Role in Morphogenesis and Cellular Differentiation*

Obernai (near Strasbourg), France

17-22 October 2003

Cell adhesion receptors represent an integrated system for transducing sensory information of crucial importance in regulating cell shape, proliferation, survival and differentiation. Strong evidence for their implication in the control of the correct organization of the body plan during development as well as under pathological circumstances are now provided by a variety of complementary experimental approaches in many different cellular and animal systems. The aim of the meeting is to discuss and confront the most recent data obtained on the subject. Several topics will be considered: genetic approaches to the role of adhesion receptors during development in vertebrates and invertebrates; regulation of cell adhesion by morphogens and by fate and position regulatory genes; regulation of adhesion receptors during cell migration and the control of cell directionality; adhesion receptors and the control of cellular differentiation and tissue morphogenesis; roles of adhesion receptors during the patterning, differentiation and regeneration of the nervous system; adhesion receptors during tumor progression, bacterial invasion, and other pathologies.

Speakers will include:
A. Ben Ze'ev (Rehovot, IL); **A. Bershadsky** (Rehovot, IL); **M. Bienz** (Cambridge, UK); **N. Brown** (Cambridge, UK); **D. Critchley** (Leicester, UK); **I. de Curtis** (Milano, I); **P. Defilippi** (Torino, I); **D. Edgar** (Liverpool, UK); **E. Georges-Labouesse** (Strasbourg, F); **C. Ffrench-Constant** (Cambridge, UK); **M. Gluckhova** (Paris, F); **O. Huber** (Berlin, G); **J. Huelsken** (Lausanne, CH); **R. Klein** (Martinsried, D); **E. Martì-Gorostiza** (Barcelona, E); **U. Müller** (Basel, CH); **N. Perrimon** (Boston, US); **P. Sonderegger** (Zurich, CH); **A. Sonnenberg** (Amsterdam, NL); **C. Streuli** (Manchester, UK); **F. van Roy** (Ghent, B); **F. Watt** (London, UK); **B. Wehrle-Haller** (Geneva, CH); **D. Wilkinson** (London, UK).

For further information, visit the website:

http://www.esf.org/euresco/03/lc03066>http://www.esf.org/euresco/03/lc03066

or contact:

Mrs. Anne-Sophie Gablin, EURESCO Office, European Science Foundation, 1 quai Lezay-Marnésia, 67080 Strasbourg France

mailto:asgablin@esf.org>asgablin@esf.org .

Tel +33 388 76 71 35 / Fax +33 388 36 69 87

Northern Exposure – Sheffield Integrated Life Sciences Club *Monthly Seminar Series*

Recent speakers include:
Fiona Watt, Paul Martin, Claudio Stern, Richard Treisman, Jim Smith, Tim Hunt, Martin Humphries, Peter Scambler, Andy McMahon, Peter Gruss, Nick Hastie, Amanda Fisher, Peter Ratcliffe and **Adrian Bird**

Next meeting – Thurs 19th June, 2003

Matthew Freeman (Cambridge)
"Activating signals between cells and across evolution"

Steve Wilson (UCL)
"Left brain/right brain - studying the genetic basic of laterality in the developing brain"

Begins 6:15pm

Venue (check website for possible changes): Medical Lecture Theatre 2, Medical School, University of Sheffield, Beech Hill Road, Sheffield, S10 2RX

Attendance is free.

For further information see:
http://www.shef.ac.uk/devgen/lsc/

Patterning in Vertebrate Development

Editor. Cheryll Tickle
Frontiers In Molecular Biology series,
Oxford University Press
ISBN 0-19-963869-1 £40.00*

Patterning in Vertebrate Development is the latest in the Frontiers In Molecular Biology series of texts and covers many important aspects of vertebrate patterning from the viewpoint of experts at the forefront of their fields. The first chapter deals with a basic guide to patterning and positional information, followed by a chapter detailing the embryological principles in laying down the vertebrate body plan. The next 6 chapters describe in detail, and at a molecular and genetic level, the patterning mechanisms underlying formation of the mesoderm and the nervous system. The final two chapters describe patterning during limb development, both from a molecular standpoint and an evolutionary standpoint. This last taster of evolutionary developmental biology highlights how a relatively old field can be rejuvenated with the advent of modern molecular techniques. This book is an interesting and very informative read, and sets out our state-of-the-art levels of understanding in the various fields. As such it lives up to its Frontiers billing. The book is aimed at people with some knowledge of molecular cell biology and developmental biology and will therefore be a little heavy going for the beginner. Oddly though, chapter 1 does provide a well-written, basic introduction to positional information, but this in fact may be too basic for some and might not be preparation enough for the later chapters.

The very nature of this Frontiers series allows for a wide variety of writing styles and viewpoints and the editor has done a good job in bringing these together and in providing good cross-referencing between the different chapters. The chapters are also very well referenced and the reader is given both historical and very up-to-date bibliographies to draw from. The multi-contributor format does nevertheless contain a slightly frustrating variation in chapter layout, in particular in the style and number of supporting figures. For example, a few colour plates referring to several chapters are included, but in a group of pages which are seemingly randomly placed inside chapter 7. In addition, with many complex subjects being covered, it would be advantageous to have a more consistent provision of diagrams to aid the reader. Some chapters are by their nature particularly heavy in detail about very complex gene action, but with few figures to fall back on. Consequently, these chapters could be a little "dry" for some.

The final thing that the book does well is that it highlights the current, dynamic state of research in the patterning field. It lays out the facts that we currently have but, more significantly, it reveals the many areas in which there is current controversy and the areas in the field in which we still have an almost complete lack of understanding at the molecular level. For young scientists entering a career in developmental biology, this book should be a focus of interest as well as a spur to dive into a field with many exciting opportunities and challenges for their research.

Andrew Stoker, ICH, London

*****This book is being offered to BSDB members at a **preferrential discount of 20%**. Contact Sarah Kidd at OUP for details: KiddS@oup.co.uk

Ageless Quest: One Scientist's Search for Genes That Prolong Youth

Lenny Guarente
Cold Spring Harbor Laboratory Press
ISBN 0-87969-652-4 $19.95

As aging is a very obvious and sometimes annoying process, people have searched for a long time for explanations for this process or even tried to stop it in sometimes dubious ways. Many theories have been expounded, from the 'wear-and-tear' theory to more sophisticated ones such as the 'rate-of-living' theory or the 'telomere' model. But none of these theories has proved to be the universal answer to aging.

The author of this book has attempted a, so far, new approach to solve this burning question. He describes two stories: one is his own, how he was hooked on this venture. From his personal point of view he describes the highs and lows of a man of science. On the other hand, he gives an insight into his research, from the first trials with magnetically labelled yeast mother cells over food restriction in C. elegans, to homologous genes in yeast, worms and humans. Lenny Guarente describes the development of a thought into an assay and from there to a theory. He allows us to participate in the discovery of SIR2, its function in the cell and how it could be shown that SIR2 homologues could 'extend life spans in different organisms in which the direct cause of aging were very different'. He illustrates how in mammalian cells a higher level of the SIR2 homologue suppresses apoptosis and thus links his research on yeast to the process of aging and cancer generation in mammalian cells. He also reflects on the calorie restriction, a long discussed possibility of prolonging lifespan.

I thoroughly enjoyed reading this book as the author understands how to describe the complex schemes of his area of research in an understandable way, even for the interested lay reader. Thus, I can highly recommend the book to anyone who would like to read a good story with a scientific background.

Tanja Mack, Konstanz

The Dream of Eternal Life. Biomedicine, Aging and Immortality.

Mark Benecke (translated by Rachel Rubenstein)
Columbia University Press, New York
ISBN 0-231-11672-1 $US27.95

There was a time when those of us of a certain age wore high-collared shirts, corduroy bell bottom trousers and two-tone shoes. Fashion like this hadn't been seen, publicly at least, since the foppish macaroni strutted their stuff in the streets of London 200 years earlier. In retrospect, the style police should have lined us up against the wall and had us shot, but at the time it was very much de rigueur, or at least we thought it was.

"The words of a Ray Davies song 'Dedicated Follower of Fashion'…..flooded my memory banks."

Reading Mark Benecke's book brought the era back to me. The words of a Ray Davies song 'Dedicated Follower of Fashion', which proved a hit for The Kinks oh so long ago, flooded my memory banks. A cursory glance at the index to Benecke's fast-paced summary of life,

death and just about everything else sums it up: Benecke is nothing but fashionable. Oh yes he is. From clones to cyborgs, Gaia to Goethe and vampires to Vlad the Impaler, Benecke flits everywhere just like a butterfly. He's even managed a reference to klotho, a mouse gene implicated in ageing (Kuro-o et al., 1997: Nature 390: 45-51), which I confess has only just made it into my own lecture notes. That's pretty good for a book

"From clones to cyborgs, Gaia to Goethe and vampires to Vlad the Impaler, Benecke flits everywhere just like a butterfly."

originally published in German in 1998. On the other hand, how can I be so slack?

Inevitably, such a broad brush of the canvas leaves us short of detail. Klotho is given a few lines squeezed between Caenorhabditis elegans, Werner Syndrome and a quote from James Watson. We now know that although human klotho is not linked with any premature ageing syndrome, it appears to be associated with postnatal life expectancy and longevity (Arking et al., 2002: PNAS 99: 856-861). This really brings me to a parting of our ways, for what I wanted from the book and what Benecke has provided are clearly two different things. I was looking for some hard science whereas Benecke sacrifices experimentation and analysis to the hoi polloi. It's bubblegum science if you like: expansive, thin skinned, full of air and a bit messy when it pops.

We scientists must remember, however, that our world is very small and in a commercial sense there is a much bigger market out there for this book. Ageing and death face us all and who hasn't at some time dreamed of eternal life, or an extended youth at least? The extraordinary amount of anti-ageing spam I receive confirms this for me. So although short in detail, this book shotguns a significant target and its style will fuel inquisitive minds, which is no bad thing. Bubblegum science then? I think so, but chew on it nonetheless.

Clive Evans, Auckland

Manipulating the Mouse Embryo: A Laboratory Manual – 3rd Edition

A. Nagy, M. Gertsenstein, K. Vintersten & R. Behringer
CSHL Press, 2003
ISBN 0-87969-591-9 - $115 (£85, Amazon) Paperback

This is the new 3rd edition of the "how-to for mousers" manual rewritten by a new set of editors and which will eventually have a companion web site (though this is still under construction). So it was with great interest that I opened the packaging to see what changes the new authors had introduced after a 9 year gap since the publication of the 2nd edition and whether these changes made it worth upgrading to the newer model. On first impression the plastic ring binding has been replaced

"the cover picture has been 'updated' from a rather beautiful wholemount in situ... to what in my opinion, looks like a green splodge"

with a straight paperback cover and the cover picture has been 'updated' from a rather beautiful wholemount in situ of HNF3β to what in my opinion, looks like a green splodge, but is in fact GFP labelling the vasculature of an E9.5 embryo - such is progress! (*However, the Cloth version seems to have a different cover, so go for that if you care about aesthetics and have some extra cash, Ed.*) However my slight negative vibes about the illustrations were instantly allayed as the inner title page contains some of the late great Rosa Beddington's 'da Vinci' sketches of mouse development - Such good taste made me instantly put all my biases aside.

Although the editors have completely changed, the underlying foundation definitely remains the same, starting with two background chapters on the history of mouse research and a summary of mouse development - both very useful for teaching purposes and general information. After these, there has been extensive reorganisation as well as several new chapters included so that now there is a long discussion about the various merits of different vector designs for targeting into ES cells plus a final chapter on 'setting up a micromanipulation lab'. Other chapters on generating and analysing transgenics and chimearas have also been considerably expanded and updated.

On top of the previous editions' protocols several new ones have been added including electroporation of DNA into post implantation (E9.5-E11.5) embryos, mouse cloning, artificial insemination, as well as cryopreservation of gametes and embryos -both with and without an expensive programmable freezing controller (the latter which I would dearly like to try). In general the protocols are well laid out and appear easy to follow with greyed boxes indicating materials required at the start and useful comments at the end. However I did find it slightly surprising that cryostat sectioning was not suggested as a method for preparing sections for performing immunohistochemistry nor in situ hybridisation, but rather it is hidden (without indexing) within the protocol for staining embryos for lacZ. My only other minor quibble is that some of the figures would benefit from better legends or even scale bars. This is especially true in the introductory chapters where embryos ranging from an E6.5 conceptus to E14.5 all appear to be the same size as the newborn beside them. But in reality, these grievances are really just petty nitpicking, in what otherwise is an excellent book .

"...in reality, these grievances are really just petty nitpicking, in what otherwise is an excellent book"

Without a doubt the best way to learn manipulative techniques is to have an expert sitting beside you, but for those who aren't so fortunate, or who want to expand (or remember) their repertoire of procedures, this book is certainly the next best thing and I would strongly recommend it as a important essential addition to any mouse orientated lab.

Pen Rashbass, Sheffield

The Organic codes: An introduction to Semantic Biology.

Marcello Barbieri
Cambridge University Press
ISBN 0 521 82414 1 Hardback £47.50; US$ 75
0 521 53100 4 Paperback £17.95; US$ 25

Is it productive, as a science reading-omnivore, to be worried? Or put another way, is it useful for an author to work quite hard to convince us that 'we' are in fact nowhere near understanding phenomena for which 'we', on the whole, believe that the elements of explanation are already in place? Sometimes, obviously yes. When we look back, for instance, at the kind of assumptions that once reigned about what language is, and thus about what must be involved in acquiring it during the normal

individual's development, we can only be profoundly grateful to Noam Chomsky and the school of thinking about this that he founded. Not that we understand language yet, but at least we may have stopped wandering in the boondocks. But can the present book claim analogously to wipe the scales from our eyes with regard to the origins and evolution of life itself, as its author unmistakably feels?

> "...is it useful for an author to work quite hard to convince us that 'we' are in fact nowhere near understanding phenomena for which 'we', on the whole, believe that the elements of explanation are already in place?"

As a reader with a history of research into animal development and interest in evolution theory, I found myself first puzzled, then worried as to whether my puzzlement was justified, then finally, frankly a bit irritated at having been bamboozled into puzzlement in the first place. But I remain perfectly open to learning that I have myself wandered so far into the boondocks, as a simplemindedly biomedical biologist, that I was irredeemably ill-equipped to inbibe Barbieri's message all along.

It all revolves around the concept of a code on the one hand, and of how many levels of biological organisation can only be understood as codes, and on the other hand of trying to define what is necessary for the reliable reconstruction of complex objects and happenings from an inadequate (in the flat-footed information theory sense) supply of specifying information. As you may guess, the inadequate information is that residing in the genome, and the complex objects/happenings are not only the developments of multicellular organisms from their zygotes, but the continuity and integrity of cellular life itself. The inference is that 'we' (the conventional research community) are somehow blocked from an understanding of the whole gamut of cellular, organismic and evolutionary phenomena by our failure to recognise the profundity of the reconstruction problem, and by our assumption that the (normally DNA-based) genomic sequence is the only thing we need to think of as a code until evolution gets to language and culture (which most of us don't even aspire to 'get to', as seekers of natural knowledge).

> "This was where the worry/irritation began. Had I been hopelessly naive to feel that as a result of the last half century's advances, we now possess the elements from which an understanding of organic development and thus evolution will come?"

This was where the worry/irritation began. Had I been hopelessly naive to feel that as a result of the last half century's advances, we now possess the elements from which an understanding of organic development and thus evolution will come? We probably understand most of the ways in which genes interact with each other in controlling the transitions of cellular organisation that map out development, and many of those in which proteins interact through self-assembly or other recognition processes to build and regulate the continuity of cellular organisation. Not that there isn't boundless hard work and ingenuity still needed before we complete our journey. The self-organising and stability properties of metabolism, and how it may provide temporal structure for cells, may take a little longer to crack open for instance. But specifically, evolutionary developmental biologists are classifying the ways in which microevolution - change of form or developmental timing between obviously closely related species - correlates with 'tweaking' of the executive properties of gene products or, most often, of the network of regulatory linkages that defines the deployment of genes' expressions in space and time. This in turn is fuelling progress in understanding of how the complex regulatory inputs between genes, and not only the properties of their protein products, are encoded into genomic sequence. The undoubted fact that a complete and explicit description of even the simplest cellular development in this way will involve more information than our brains can handle unaided is, I feel, beside the point. But Barbieri plainly feels differently and as I say, one oscillates between impatience and worry in inverse proportion to one's intellectual self-confidence (in my case, largely dependent upon time of day!)

There are good discussions along the way, worth reading in themselves, of many matters. These include the origin, stabilisation and preferred carrier molecule (DNA) of the genetic code, the centrality and conservation of certain RNA sequences that do not act as message for protein, and the successive evolutionary transitions to new levels of complexity, when the replicative self-interest of entities at the previous level is subjugated to the greater durability of a complex in which they tie their fortunes together. But such matters are already at least as well described elsewhere (for instance, by John Maynard Smith and Eors Szathmary in tough-to-grasp and less-tough versions of a 'Major Transitions' book), by authors who seem less to feel that they are leading us towards a blinding light on the road to Damascus.

> "...one oscillates between impatience and worry in inverse proportion to one's intellectual self-confidence ..."

Barbieri attaches great importance to an analogy, between human-engineered algorhithms that enable full descriptions of complex entities to be retrieved using formally incomplete information, as in X-ray diffraction analysis of macromolecular structure that he has himself been creatively involved in, and embryonic development. He proposes that in the latter as in the former case, the equivalent of a set of 'memories' is built up by recording and storing results of projections and extracting consistencies from them. These 'memory traces' somehow correspond, in the case of development, with that which needs to be put together with the genomic information library to constitute the species' biological inheritance. Trouble is, while he describes admirably his own diffraction analysis algorithms, I could not for the life of me image for myself what the equivalents of his 'memories' would be, other than the history frozen into the gene regultory network, as embryonic form unfolds using the 'inadequate' information within the progressively transcribed genome and the given structure of the zygote. Not only did the analogy seem inept, but I, as I feel would most contemporary biologists, already intuit that it is uncalled-for. That is, one already feels that, for example, an elephant's zygotic (or otherwise 're-set') nucleus, transferred into an enucleated mouse egg-cell, would produce -- an elephant, with only the no-doubt technically massive, but conceptually empty problem to be overcome of nursing it through the crisis of being presented initially with a set of mouse orthologues of the 'expected' elephant egg proteins. To locate in these initial mismatches 'the memory traces' of what it is to be a mouse seems obscurantist at best.

Central to the book's argument is the question of where the boundary usefully comes between the concept of a code and that of propagating, frozen history within biological organisation. Surely these represent a continuum, whereas Barbieri feels that we are somehow held back by our failure to recognise several codes at levels other than the genetic one itself. Thus, the contemporary code that links triplets of nucleic acid bases to amino-acid species is understandable as contingent and evolved, but frozen from deep within the evolution of life (apart from the odd change of codon assignment within a lineage every 108 years or so). Apart from the fact that it probably optimises the relation between mutability within protein sequence and the overall amino-acid composition proteins need, any change now would produce such vast inefficiency in the organism harbouring it. It thus has the formal characteristics implied in human life by the word 'code'. But we are asked to consider the significantly conserved relationships that have built up between sugar species on cell surfaces and biological signals, or between modifications to chromatin proteins and states of transcriptional availability of associated DNA, also as codes. I felt it worth looking up the cited references to these 'codes', and can only say that, interesting and important instances of frozen or conserved signalling biochemistry though they represent, as codes they did not impress. For codes worthy of the name, since the genetic one, we shall be looking either to the mapping between brain function and mind (not there yet investigation-wise), or to linguistic/cultural phenomena (but we're only cell/developmental biologists, aren't we?). Cells and embryos can't usefully be understood as having employed any intervening ones.

"But unsatisfactory as these are, they seem to me like clear conjectures beside the Barbierian 'explanation'…"

An acid test of the cogency of the Barbieri vision has to be its take on the 'Cambrian Explosion' - if explosion it was, rather than simply the arrival of hard fossilisable body parts to record accumulated diversity. Why at least, subsequent to a now remote point in time, has there been little or no further diversification of 'body plans'? Probably, we shall have to settle permanently for just-so stories to do with kindly early biospheres, forgiving to experimentation as never again, or with less integrated and thus more malleable early gene networks. But unsatisfactory as these are, they seem to me like clear conjectures beside the Barbierian 'explanation' for pre- vs. post-body plan worlds. I could not grasp it. But I have gone back to sleeping soundly. Am I too bullish about our progress in biological understanding? An end to these spasms of depressive doubt in the small hours!

Jonathan Cooke
jcooke@danvers.u-net.com

DNA Microarrays – A Molecular Cloning Manual

David Bowtell (Editor), Joseph Sambrook (Editor)
Cold Spring Harbor Laboratory Press
Paperback - August 2002
ISBN 0879696257 £64.40 (Amazon)

'DNA microarrays' is a detailed list of protocols for using microarrays. It covers the methodology for the use of spotted DNA microarrays on glass and Affymetrix chips for genomic analysis, analysis of gene expression and identifying DNA-protein interactions. The need for this book was realised by the academic DNA microarray field and the book is the product of the recent DNA microarray meeting at the Cold Spring Harbour Laboratories. With techniques for making and using microarrays being a relatively new discipline it was decided that techniques being generated in academic labs needed to be made widely available to researchers worldwide. What's more, with the rapid advances occurring in this field, tight deadlines were set for the authors of various protocols, making the publication of this book almost as high throughput as the technique itself!

DNA chip technology is essentially an extension of the Southern blot, though with probes and targets having reversed physical location. The authors discuss this and many other aspects surrounding microarrays in information boxes, making interesting discussions of this type characteristic of this text. Appropriately Ed Southern, the founding father of so-called parallel processing, has contributed the foreword. He sums up the essence of and need for microarrays. 'The Sanger legacy [of high-quality public sequence information] leaves us with the challenge of progressing from sequence to function for genomes and organisms of high complexity'. He stresses that we are faced with the problem of combining new experimental techniques with the powerful computing tools we have to understand gene expression and genomic DNA variation. In particular there is a need to design high-throughput protocols to match the capacity of information technology. So 'DNA Microarrays' serves not only as a useful tool in its own right, but also as an example of the advantages of greater academic communication and publications like this one, to aid progress in the evermore rapidly advancing armoury of experimental techniques.

At first glance this book seems very daunting; indeed for most I'm sure the title itself doesn't instil a great deal of enthusiasm! However a quick flick through reveals a logical and accessible organisation, ideal as a text for thorough reference. It is exactly what it claims to be – a

"…this book is a wonderful laboratory manual to possess…"

molecular cloning manual. The book runs logically through each step of the microarray process from generation of probes to bioinformatic analysis of the wealth of information that this technique produces, with a chapter on each. At each step a variety of different scenarios are explored from the use of a range of different DNA sources and different applications. Thus with a range of in depth protocols at each step and for many different scenarios this book is a wonderful laboratory manual to posses not just for the use of microarrays but also for many other molecular biological techniques, from microdissection through PCR to identifying DNA-protein interactions.

The book itself is simple to follow. Though it is essentially a list of protocols, it is more than that. In particular it has very useful information concerning the purchase of materials from manufacturers whilst always emphasising the possibility for smaller laboratories to synthesise their own chips in an attempt to make this technique more widely accessible. This is of great importance considering the huge expense of the procedure if done commercially. There are also interesting introductions to each chapter explaining the background to each set of protocols. The sections of the book that particularly appealed to me were the information panels. These give the theoretical background of many of the methods used which is often hard to find out.

In summary 'DNA Microarrays' is certainly a valuable book to have to hand as reference for molecular biologists. As a guide in the process of performing microarrays it is complete, thorough and the most up-to-date information in the field. It will shortly be accompanied by a companion web-site that should be useful for DNA microarray practitioners, providing links to bioinformatics resources, manufacturer details and the latest developments. The main drawback is the cost at £150 so it is worth encouraging your library to stock a copy (*but check the Amazon price first, Ed.*)!

Dagan Jenkins, ICH, London

A Biologist's Guide to Analysis of DNA Microarray Data

Steen Knudsen,
Wiley-Liss, 2002
ISBN 0-471-22490-1 £31.50

This useful little book provides a short introduction to the principles and possibilities of microarray hybridisation, then proceeds to devote the remaining 90% of its length to explain some principles of data analysis. Approaches are arranged roughly in order of recommended application, with the simplest at the beginning.

Initially, the problem of absolute measurement of RNA abundance is discussed. There are some basic technical points, such as the danger that unstable mRNA species may be missed in a microarray hybridisation experiment unless careful attention is paid to extraction methodology.

Scaling of data sets and non-linear responses (low signal-to-noise ratios and signal saturation) are tackled, then parametric and non-parametric methods of testing for significant change. Many students will find some useful general explanations of the principles of data analysis, such as how the probability of false positives and false negatives changes with the number of replicate experiments. There follow sections on principal component analysis, hierarchical and K-means clustering, function prediction, reverse engineering of regulatory networks and building classification methods.

Methodology is illustrated for the most part by use of small imaginary data sets, giving the beginner a ready insight into the mathematical or statistical principles at work. There is a useful discussion of data formatting and the advantages and limitations of common software such as Excel. Interfacing large microarray data sets with clinical and other types of biological data remains an important problem. There are clear recommendations in favour of Unix or Line operating systems and Perl or Auk for programming. A very good selection is offered of web sites from which free software can be obtained, including that of the author. The reading list is useful up to 2001.

This is a field in its infancy. Unfortunately, there are few examples given of how microarrays have contributed to the advance of biology. The field is plagued by poor experimental design and success depends on a combination of a good experiment and, to a significant extent, an intuition for the key observation. Inspiring results have been achieved on a few occasions and students would have benefitted from seeing some actual examples of how the methodology described in this book has contributed to a successful outcome. Nonetheless, I'd recommend anyone setting out to use this methodology to buy a copy for the lab.

John Aplin, Manchester

Evolutionary Developmental Biology of the Cerebral Cortex.

Editors: Gregory R. Bock and Gail Cardew.
Novartis Foundation Symposium. April 1999.
ISBN 0-471-97978-3 £75.00

Unlike many textbooks available, this volume is really 'up to date'. The book is a collection of the talks given at the symposium on evolutionary developmental biology of the cerebral cortex, held at the Novartis Foundation, London, 20-22 April 1999, and as such is laid out in the style of research papers, telling us the topic of each of the research talks given. It is a primary source for the subject area, being explained by the people doing the work.

The talks, of which there are 14, form a very in depth appraisal of where the field was at three years ago, at the time of the symposium, and if you are a non-specialist each chapter gives a fairly lengthy list of references so you can read up on the background literature if you so choose.

I am not a specialist in the evolution of the cerebral cortex, so I shall concentrate on four areas of the book that I found most useful as an overview of the topic. Firstly, the introductory chapter is by Lewis Wolpert. Entitled 'What is evolutionary developmental biology?' this is an excellent introduction to the field, and is the first seminar in the symposium. For this you do not need to be a specialist in 'evo-devo' to understand what is being said. I have read some of Wolpert's previous books, and find him to be an excellent communicator. This is no disappointment. The opening statement in the main body of text 'It has been suggested that nothing in biology makes sense unless viewed in the light of evolution' sets the stage and then you are thrown into what 'evo-devo' means, discussing issues such as gene duplication and how cells get positional information.

> "It has been suggested that nothing in biology makes sense unless viewed in the light of evolution"

The remaining three sections of the book that I found most useful were the 'General Discussions'. At the end of each chapter is a 'discussion' in the true sense of the word. The participants at the symposium numbered 26, and so there is a real 'round table' feeling to these sections of each chapter. This is expanded in three further discussions that are not related to specific talks. The first discusses 'evolution of cell populations', the second, 'amniote evolution' and a final discussion on where the field of evolution and development of the cerebral cortex is at, where the participants would like to see it going, and which specific questions they would like to address, or feel should be addressed. These sections bring the overall areas of individual researcher's work into context, and are equally relevant to other areas of evo-devo. I found the second discussion on amniote evolution to be the most interesting part of the book, highlighting pertinent questions about vertebrate relationships.

I found this to be a very good book. It is not an easy introduction to the field, but it isn't meant to be.

Neil Gostling, Reading

Book Reviews

Chromatin and Gene Regulation – Molecular Mechanisms in Epigenetics

Bryan M Turner
Blackwell Science (UK), 2001
ISBN: 0865427437 £29.99 (Amazon)

Chromatin consists of repeating units of DNA and proteins called histones that form a DNA binding complex called a nucleosome. The winding of DNA around these protein structures is essential for packaging the vast amount of DNA contained within each cell into a manageable size and form. While this is an important function of chromatin, this book is most interested in a second property - the ability to carry epigenetic information. This comprises instructions to control the regulation of genetic information through modifications in the association of transcription regulatory proteins.

The book begins with an excellent introduction to gene transcription, including interesting digressions such as thoughts on the evolution of transcriptional complexity from prokaryotes to higher organisms. The concept of chromatin structure and function is introduced gradually and described clearly in a methodical style. Later chapters explore the mechanisms by which chromatin can influence gene expression through subtle structural alterations that affect the accessibility of DNA to transcription initiation proteins.

This gentle progression through the many levels of gene regulation makes this difficult subject easy to understand. The book can easily be read cover to cover, while the clear chapter layout allows students to dip in at any point. This book is ideal for students and researchers wishing to learn more about this rapidly developing subject.

Lindsay Emerson, Colchester

I wish I'd made you angry earlier

Max Perutz
Cold Spring Harbor Laboratory Press, 2003
ISBN 0-87969-674-5 £7.99 (Amazon)

This year's celebration of the 50th anniversary of the discovery of the structure of DNA has led to an outpouring of reviews and books reminiscing about the early days of molecular biology and the disciplines from which it arose. A key player in that discovery was Max Perutz who unfortunately died last year. He was a superb scientist but also an excellent organizer and motivator of other scientists. At the memorial meeting in honour of Sir John Kendrew held in Cambridge in 1997, Perutz said: "John and I shared three great scientific adventures: founding the MRC Unit for Molecular Biology, solving the first protein structure and founding the European Organization for Molecular Biology (EMBO)."

Perutz was also a renowned communicator, as reflected in this collection of his writings, republished this year with nine additional essays. Several of these are book reviews; my favourite was the description of Francois Jacob's 'The Statue Within', probably because I was familiar with the original (which is thoroughly recommended to anyone who has not read it).

The sections, 'How to make discoveries' and 'Rights and wrongs' were written for a lay audience, but are fascinating accounts of scientific endeavour and serve as useful reminders that there was biology before the era of gene manipulation. In 'What holds molecules together?', Perutz explains the excitement generated by Linus Pauling's valence bond theory and how it 'transformed the chemical flatland of my earlier textbooks into a world of three-dimensional structures.' Pauling is better known to biologists as the 'loser' in the race to determine the structure of DNA but he was already a giant amongst scientists and Perutz reminds us of his many contributions to both chemistry and biology.

The most appealing element of the scientific essays for me was the sense of being there: Max Perutz talks about the leading scientists of the 20th century as friends and colleagues. There is also a section on human rights and the issues that arise from the application of science in areas such as human reproduction, population control and nuclear energy. Finally, some of the essays are autobiographical, recalling episodes of Max Perutz' life, most notably his deportation to Canada at the start of the Second World War. He describes what must have been a most depressing period with wry humour and sheds light on an oft-forgotten part of history.

In looking through the book again, I continue to find snippets to amuse or enlighten, and would recommend anyone to dip into this should they have the chance.

Joan Marsh, Editor BSCB Newsletter

Cellular Physiology of Nerve and Muscle – 4th Edition

Gary G. Matthews
Blackwell Science, 2002
ISBN 1-4051-0330-2 $57.95

Like many PhD students, I only came to understand some concepts important for my project whilst writing my thesis. I was interested in how light is converted to a nerve impulse in retinal rod cells, but I was in a biochemistry department and had only a foggy memory of undergrad electrophysiology. If I had read this book at the start of my PhD in 1981 I might have made wiser decisions and faster progress.

"If I had read this book at the start of my PhD in 1981 I might have made wiser decisions and faster progress."

Hidden in that sentence are the good and bad aspects of this book. Good because it provides a clear account of the origin of membrane and action potentials without burying the reader in maths. Bad because most of the current text could have been written well before 1981, although the first edition actually appeared only in 1986.

The book comes in three parts. The first, on the origin of membrane potentials and control of cell volume, is excellent, leading the reader to a fair understanding with useful appendices. The second part describes neural action potentials and synaptic transmission. An historical account of the Hodgkin/Huxley/Katz experiments beautifully portrays how brilliant deductions derived from careful observation on home-made equipment led the field, but does not intrude on the concepts. The third, and weakest, part covers the electrophysiology of skeletal and cardiac muscle. As the title advertises, but nevertheless disappointingly given current excitement, there is no coverage of the electrical and mechanical properties in other cell types that build on the foundations laid by studies in nerve and muscle.

Despite its clarity, the book has an archaic feel that many will remember from undergrad physiology: molecules are left in the background, the focus is on ions and charge movements. A description of single channel properties and how they originate from protein

structure appears, but apparently as an afterthought. I wonder whether building upwards from biochemistry to reveal the emergent beauty of electrophysiology might be more intellectually satisfying. The section on synaptic transmission is more modern, but somehow does not ring with the excitement that currently surrounds studies of synapse function and modulation. The fusty smell gets particularly strong in the muscle contraction chapter, where the opportunity is missed to describe the recent single molecule work on myosin and draw analogies with single ion channel studies. For cell biologists excited by the possibility of understanding cell mechanics and motility in the quantitative detail currently available only to electrophysiology, this omission is particularly saddening.

In summary, for those wanting to get to grips quickly with the basics of electrophysiology this is a good easy read. Those wanting to get a feel for the excitement of current research in the electrical and mechanical properties of nerve and muscle should look elsewhere.

Simon M. Hughes, KCL, London

Watson and DNA: Making a Scientific Revolution

Victor McElheny
John Wiley & Sons, 2003
ISBN 0470854294 £13.29 (Amazon)

Can you imagine a time when only about 50 people in the world were interested in DNA structure? When no one knew what a gene actually was? We seem to have come a long way in 50 years, although people are still

"Can you imagine a time when only about 50 people in the world were interested in DNA structure?"

struggling to identify genes simply by scanning the genome sequence. This book guides us along this path, following the life of Jim Watson.

A brief description of his upbringing culminates in Watson hearing about the work of Oswald Avery which inspired him to study genetics in graduate school. A PhD in Indiana was followed by some wanderings around European laboratories looking for a post-doctoral topic and position. The impression of the first half of Watson's life, apart from his time in Cambridge, is of someone never quite sure where to go and what to do next with his scientific career. His work with Crick at the LMB has been well covered and is described in detail here. The novel aspect for me was appreciating how this field went from being rather esoteric to something of interest to the general public within a few months. While Crick and Watson were famously cautious in the original Nature paper ('It has not escaped our notice …'), within a few weeks Max Delbruck wrote Watson that if the model were correct, 'all hell will break loose, and theoretical biology will enter into a most tumultuous phase'. The lay press picked up the story soon afterwards, with articles in the Times and the New York Times amongst others.

From Cambridge, Watson moved back to the US and turned his attention to RNA. Again, we are given the impression of someone searching, not just for scientific answers, but also for something to act as the focus of his life – this time made worse by the sense of anticlimax after the excitement of the double helix. The answers come with running a lab of his own, in Harvard, then moving on to running a whole institute at Cold Spring Harbor. Never an experimentalist, Watson seems to have preferred selecting bright people and encouraging them to work together or in friendly competition to solve problems that he found interesting. He was generous with ideas; usually initiating projects then content to leave his name off the papers that resulted once others had done the lab work.

In the years to come, Watson's achievement at Cold Spring Harbor Laboratory may rank alongside the elucidation of the structure of the double helix. Victor McElheny worked there during the time that Watson was changing it from a ramshackle Laboratory that had seen better days and was losing out to more fashionable institutions in more central locations to a major centre with world-class laboratories, a conference programme that attracts capacity audiences every year and a thriving Press. This, for me, was the most interesting part of the book. We see Watson as the scientific leader, dropping in on his staff at all hours to chat about their work, and as a shrewd operator, cajoling funds from the Lab's rich neighbours on Long Island.

Finally, there is Watson's third endeavour, which was not his original idea but which came to be associated with his name, particularly to the general public – the Human Genome Project. The book describes the early planning, the arguments for and against, the efforts to convince biologists that it was a worthwhile project and then to raise the money to see it through so that it did not detract from the funding of science already in progress. Again, we get a picture of Watson as an operator, as in the early decision to focus on the infrastructure of the genome rather than genetic diseases: 'After heated debate, [Norton] Watson signaled Zinder to call a vote, and the infrastructure advocates won. … It was a watershed meeting, controlled almost silently by Watson.'

The whole book is packed with quotes, all referenced, which can make it heavy going for a lay reader, but which provide a good feeling of first-hand experience to anyone familiar with at least some of the science and the scientists who feature. While you may feel that you have heard enough about the discovery of the double helix recently, there is plenty more in this book to keep you turning the pages.

Joan Marsh, Editor BSCB Newsletter

Imaginal Discs: The Genetic and Cellular Logic of Pattern Formation

Lewis I. Held, Jr.
Cambridge University Press, 2002
ISBN 0521584450 £86.90 (Amazon)

The genetic analysis of the development of imaginal discs–communities of cells from which the external structures of the adult fly emerge during metamorphosis–has provided many key insights into the workings of evolutionarily-conserved developmental mechanisms. This book delves deeply into the intricacies of imaginal discs, with the aim of providing a comprehensive reference guide to the field. But this is no laboratory manual; rather, it is a fascinating cornucopia of historical and current theoretical models. Held's approach is to use deductive reasoning to interpret genetic data in a conceptual framework, and while the experimental data receive ample and clear coverage, the emphasis is squarely on models and how data can be used to either support or disprove them.

This is an unusual format for a book on developmental genetics. While everybody working in the field uses models (at least implicitly) to direct and order their

thinking, overt discussion of the models is typically relegated to small schematics in the discussion section of papers. Here, the models take centre stage. The descriptions of the historical development of some of the more well established models are very illuminating and capture well both the stunning progress that has been made, and the twists and turns of the paths taken to achieve the current models. In highlighting these convoluted paths, the book illustrates clearly one of the key features of a good model–that it is, by necessity, "wrong", but that it is wrong in a useful way. The best models are always staging posts on the route to a deeper understanding (and improved model).

"…the book illustrates clearly one of the key features of a good model – that it is, by necessity, "wrong", but that it is wrong in a useful way."

A particularly striking feature of the book is the gargantuan bibliography. Comprising 4900 entries, and taking up nearly a third of the book, it is more than comprehensive! What I particularly like about it is that it is so much broader in scope than one might imagine; in addition to the requisite references on imaginal discs, there are entries charting a way into related (but perhaps peripheral) areas such as noise in gene networks and patterning by reaction-diffusion models. This has a potential downside though, in that it is very easy to spend a great deal of time flicking backwards and forwards between the bibliography and the main text, losing the thread in the meantime... It is clear that much attention has been paid to the figures, and they convey the logic of the developmental systems well. However, I did find the absence of any micrographs of real imaginal discs disappointing. It is important to keep in mind what is actually being modelled here, and a few such figures would serve to "ground" the theoretical discussion.

So who (or what) is this book for? It is not an introduction; knowledge of fly development and the standard techniques of molecular and classical genetics are assumed. It can be dipped into as a reference on specific processes (e.g. bristle spacing), but is by no means exhaustive. It isn't always easy to locate a particular topic, either. There is no listing in the index for, say, "lateral inhibition", although it does appear in the list of models in an Appendix and is discussed in detail in the chapter on bristle patterns. Nor can I find any mention of "planar cell polarity" in the index, although it is discussed in the context of the eye disc in the main text. On the positive side, the glossaries of protein domains and key genes involved in imaginal disc development are useful resources that are instantly accessible. But the book is really aimed at those who already have a working knowledge of fly development and who want to see in detail the interplay between experimental data and theoretical models, and how this affects our way of looking at developing systems. There is (alas!) no discussion of mathematical formulations of the models, so the book is accessible to anybody with a background in fly development. Finally, all books age, and those dealing with developmental biology tend to age particularly quickly. The theoretical and historical emphasis of this book should help it to age gracefully.

Nick Monk, Sheffield

Comparative Vertebrate Lateralization

Lesley J. Rogers & Richard J. Andrew (editors)
Cambridge University Press, 2002
ISBN 0521781612 £ 80.00 Hardback

Left-right asymmetries in sensing and moving are commonly known in humans. For example our world is divided in left-handers and right-handers. The discovery of the underlying phenomenon of functional brain lateralization in humans is associated with classical observations in the 19th century by Broca. It is no longer seen as merely interesting for a few species including our own, but is now recognized as a key property of most vertebrates. Therefore this book comes as a welcome look at lateralization in a comparative context.

This monography is arranged in four major parts: the evolution, the development and the cognitive dimensions of lateralization and its role in memory. It highlights model systems that have proven invaluable in elucidating many aspects of lateralization, all of them contributed by experts in the field. The book starts with the question of the age of brain lateralization which might be answered by the phenomenon of homology among higher vertebrates. In this context fish are likely to come closest to retaining the original conditions under which lateralization probably first appeared and evolved. This leads to questions how lateralization and related behaviour have developed and which factors affect their development. Underlying mechanisms of visual lateralization in chicken and pigeons, as well as structural differences of the corpus callosum between sexes in rodents are shown in a developmental context. One important fact is that stimulation in early developmental stages can only induce asymmetries in brain and behaviour if the potential for lateralization is already present. One fundamental issue regarding vertebrate lateralization is the extent to which such lateralization is generated by mechanisms within the forebrain common to all senses. The last two chapters refer to cognitive aspects of asymmetric brain structures and review evidence of involvement of lateralized behavioural, electrophysiological, biochemical and structural processes that occur during memory consolidation.

This book is an excellent tool for researchers working in, or planning to work in the field of lateralization. There is information on recent knowledge in the field and on the background of the techniques used. Like the authors stated it is an important and authoritative text for researchers, graduates, and advanced undergraduates in psychology, neuroscience, and behavioural sciences. It is in fact the first book to take a closer look at lateralization in a broad comparative manner and should find its way to the shelf of every scientist in the above mentioned fields even if it is a real expensive investment.

And, apparently Güntürkin (2003) discovered that a neonatal right-side preference makes a romantic reappearance later that means humans prefer turning their head to the right, rather than to the left to kiss each other. One reason more to get into the field with a good book.

Broca, P. (1861). Perte de la parole. Rammollissement cronique et partielle du lobe anterieur gauche de cerveau. Bullettin de la Societé d´Anthropologie 2: 235-237

Güntürkin, O. (2003). Adult persistence of head-turning asymmetry. Nature 421: 711.

Dirk Steinke, Konstanz

Books for Review

To prevent the overcrowding of my bookshelves, I am no longer asking publishers to send me books for review unless specifically requested. Instead, I get regular updates on potentially interesting books that are released and some of these are listed below. If you would like to review one of these, or if you know of other new releases that you think should be reviewed in these pages, please contact me (a.j.furley@sheffield.ac.uk) and I will arrange for a copy of the book to be sent to you. *If* you then review it, you get to keep it (otherwise we send the boys round).

Blackwell Science

Gene Transcription: Mechanisms and Control, White 0632048883 £29.50

Cambridge University Press

The Development of Animal Form – Ontogeny, Morphology & Evolution, Minelli 0521808510 £55

Cold Spring Harbor Press

Proteins and Proteomics: A Laboratory Manual,, Richard Simpson (Dec 2002) 0879695544 £129

Oxford University Press

Experimental Design for the Life Sciences, Graeme D Ruxton and Nick Colegrave 0199252327 £14.99
(to be published in January 2003)

Readers of the Book of Life – Contextualising Developmental Evolutionary Biology, Anton Markos
(despite my encouragement, Jonathan Cooke could not be persauded….Ed.) 019514948 £29.50

Life Beyond the Gene, Steven Rose (*to be published in 2003*) 019515039 £TBA

The Evolution of Plants, Willis & McElwain 019850065 £22.99

Molecular Plant Biology, Eds Gilmartin and Bowler, Vols 1 & 2 019963875 £35.00 ea
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****Developmental Biology – 7th Edition,** Scott F. Gilbert 0878932585 £TBA

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The International Journal of Developmental Biology - 2003 Online + Paper: 127.50 Euro (instead of 170 Euro); 2003 Online only: 67.50 Euro (instead of 90 Euro); 2003 subscription requests to: ijdb@lg.ehu.es or http://www.ijdb.ehu.es.
BioEssays - $125 (student rates $60)
* use special form to be found in the Forms section

I have had little feedback on the utility of these discounts. *Please* let me know *now* if you want me to keep them on, or they will be gone by next issue!!

New Journal – Birth Defects Research

John Wiley & Sons, Inc. and the **Teratology Society** have announced the launch of a new journal, **Birth Defects Research**, beginning in 2003. The new journal responds to the need for a comprehensive source of original research and reviews in the fields of teratology and embryology. Birth Defects Research will draw from the expertise and reputation of two current Wiley journals and introduce a new forum for reviews covering a range of topics from developmental molecular biology to clinical embryology.

The journal will consist of three parts:

Part A - Clinical and Molecular Teratology, formerly published as Teratology, will publish twelve times a year and will serve as a forum for original scientific articles and commentary that contribute to the understanding of the causative factors and mechanisms leading to adverse pregnancy outcomes in the human population. Submissions that cover a broad range of topics from molecular mechanisms through epidemiology are encouraged. Philip E. Mirkes, of the University of Washington in Seattle, will serve as editor

Part B - Developmental and Reproductive Toxicology, formerly published as Teratogenesis, Carcinogenesis and Mutagenesis, will publish six times a year and will contain original contributions describing the influence of chemical, physical or biological agents on developing organisms and the process of reproduction. The journal's primary focus will be on studies with in vivo and in vitro animal models. George P. Daston, from the Procter & Gamble Company in Cincinnati, OH, will serve as editor.

Part C - Embryo Today: Reviews will publish four times a year and will provide scientists and clinicians with multidisciplinary review articles that capture exciting conceptual and technical advances in the fields of embryology, developmental biology, and teratology. Look here for the latest information on mechanisms of normal and abnormal development, relevant to both basic and clinical sciences. Rocky S. Tuan, of the National Institutes of Health in Bethesda, MD, will serve as editor.

For more information about these new journals, visit the Teratology Society's website at http://www.teratology.org

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Full name:* .....**Title** ..... **Degrees** .....

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Dr Ivor Mason,
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Please give further information in support of application:

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Will you be presenting a poster or talk?YesNo ☐ ☐

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Please give a breakdown of the costs ie registration fee, travel expenses, accommodation.

NB: a guarantee of sufficient funding will be required before the grant is issued.

Please return this form to:

Prof. Ottoline Leyser, BSDB Treasurer, The Plant Laboratory, Dept of Biology, PO Box No 373, University of York, Heslington, YORK, YO10 5YW.

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Development

Members of the BSDB are entitled to a reduction in the subscription price to 'Development'. The normal 2003 personal paper subscription is £254 but, for BSDB members, it is (only) £186 (£123 for online and £214 for combined)

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Other CoB Journals - the Journal of Cell Science and the Journal of Experimental Biology - are also available at reduced subscription. Write to the above address with your cheque and a signed undertaking that you will not pass your individual copy on to a library.

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 hesitate to convey them to Jamie Davies (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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Post-Doctoral Position – Gene Expression in Muscle Differentiation

The project is to study gene expression during muscle differentiation. You will explore the mechanism of action of the pivotal muscle transcription factor MEF2, focussing on the activation of different muscle genes at distinct thresholds of MEF2. The approach will use microarrays coupled to a computer-directed molecular genetic analysis of gene expression in Drosophila. The post is funded for 3 years by the BBSRC (salary £18265 - £27339).

You should have, or shortly will have, a PhD together with relevant expertise and an enthusiasm for muscle biology and/or gene expression. Experience in microarrays, bioinformatics and molecular techniques would be advantageous. Drosophila experience is not essential. The position is suitable as a first post-doc, but is also appropriate for someone a bit more experienced looking for a stepping stone to independence.

My research group is housed in the Cardiff School of Biosciences, Cardiff University. The School continues to actively expand following the appointment to Director of Professor Martin Evans FRS, who was awarded the Lasker Prize (2001) for his work on ES cells.

Further information at http://www.cf.ac.uk/biosi/research/molecular/staff/taylor.html and http://www.cardiff.ac.uk/jobs

Please send your CV (including contact details for three referees) before 20 June 2003 to:

Dr M.V. Taylor,
Cardiff School of Biosciences,
Cardiff University Main Building,
Park Place, Cardiff CF10 3TL.
Email: TaylorMV@cf.ac.uk

Centre for Developmental Genetics, University of Sheffield - Control of Neuronal Progenitor Cell Proliferation

A three year, BBSRC-funded **Postdoctoral Research Associate** post is available in the laboratory of Andy Furley to study the role of L1-like neural cell adhesion molecules (L1nCAMs) in the control of neuronal progenitor cell proliferation. We have recently shown that ectopic expression of F3/contactin modulates neuronal progenitor proliferation in the developing mouse cerebellum (Bizzoca et al. (2003). Development 130: 29-43), suggesting that L1nCAM signaling may have a general role in the control of differentiation initiation. We now wish to determine how L1nCAM signalling interacts with granule cell mitogenic pathways, particularly that of sonic hedghog, using a combination of mouse genetics and cell biology. The research has implications for neuronal stem cell research and for the causes of neural tumours. Applicants with experience in cell or developmental biology, or the analysis of signalling pathways will be preferred.

For further information about this post see: http://www.shef.ac.uk/devgen/jobs/ Ref. RW2934

Or contact Andy Furley (a.j.furley@sheffield.ac.uk)

For further information about the Centre for Developmental Genetics see: http://www.shef.ac.uk/devgen/

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