# BSDB Newsletter

## No 24

## Winter 1991

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### *In this issue*



**This is YOUR Newsletter: please use it!**
You may not realise that each issue of this publication is mailed to over 800 people, making it an excellent means of disseminating information. If there is anything that you would like to be included in subsequent issues, please let me know. Equally, if you have any ideas for improving the current format, I will be happy to hear from you. Next year, publication will revert to Spring and Autumn: the deadline for copy for the Spring 1992 issue is March 15th. Philip Ingham, *Editor*

# Spring Symposium 1992

## "Gastrulation" Venue: University of Sussex

The Spring 1992 Symposium is, as is customary, organised jointly with the **British Society for Cell Biology** and will take place at Sussex University from **Wednesday 8th April to Friday 10th April**. The topic of the symposium, which is organised by Claudio Stern is **Gastrulation** . Claudio has put together an excellent programme and the Symposium promises to be one of the major international meetings of 1992.

The main **BSCB symposium**, organised by Peter Rigby is on **Transcription Factors**, and includes many talks that will be of direct interest to Developmental Biologists. In addition to the main symposia, both Societies have organised a number of other sessions that will run in parallel. The BSDB sessions are on Nematode Development (organised by Ian Hope) and Teleost Development (Nigel Holder & Peter Thorogood), with BSCB sessions on Actin-Binding Proteins (D. Critchley), Kinases and Phosphatases (P.J. Parker) and Tumour Promoters (B. Ponder) and a joint BSDB/BSCB session on Signal Transduction.

For those of you who have not visited Sussex University before, I can assure you, as a former Sussex student, that it has a great deal to offer. Access to the campus is easy either by car or rail, and the delights of Brighton are only a few miles down the road!

Detailed information about the venue, together with a **Booking Form** and **Abstract Form**, can be found in the 'Centre Section' of the Newsletter. The full scientific programme appears on the following pages.

## PROVISIONAL PROGRAMME

## Main BSDB Symposium: Gastrulation

*Scientific Organiser*: Claudio Stern *Local Organiser*: Robert Whittle

### Wednesday 8th April

9:00-9:05 Welcome

***THE SYSTEMS***

**Chair: Claudio Stern**

9:05-9:30 Lewis Wolpert (London): Gastrulation and the evolution of development

9:40-10:05 Chuck Ettensohn (Pittsburgh): gastrulation in sea urchins

10:15-10:40 William Jeffery (Bodega Bay): 'Determinants of gastrulation and axis formation in ascidians'

10:50-11:20 coffee

**Chair: Chris Wylie**

11:20-11:45 J.P. Trinkaus (Yale): Convergent cell movements durin gastrulation in *Fundulus*

11:55-12:20 Ray Keller (Berkeley): Convergence, extension and gastrulation movements in the frog

12:30-2:00 lunch

**Chair: Ray Keller**

2:00-2:25 Hilde Bortier & Luc Vakaet (Ghent): fate mapping gastrulation in the chick

2:35-3:00 Rosa Beddington (Edinburgh): gastrulation in the mouse

3:10-3:35 Kirstie Lawson (Utrecht): cell lineage and mesoderm formation in the mouse

3:45-4:15 tea

***CELL ADHESION AND CELL INTERACTIONS***

**Chair: Jonathan Slack**

4:15-4:40 Urs Rutishauser (Case Western): cell adhesion molecules in morphogenesis

4:50-5:15 David McClay (North Carolina): cell interactions during gastrulation in sea urchins

5:25-6:50 Chris Wylie (Cambridge): manipulating cell adhesion in frogs

6:00-7:30 Poster session & trade exhibition

7:00-8:00 dinner

8:30-9:30 PLENARY: Salome Waelsch (New York): Life in Han Spemann's lab

### Thursday 9th April

***DEVELOPMENT OF EMBRYONIC POLARITY***

**Chair: Lewis Wolpert**

9:00-9:25 Maria Leptin (Tübingen): dorso-ventral polarity and cell interactions in fly gastrulation

9:35-10:00 Anne Warner (London): gap junctions and cellcommunication in early development of the mouse

10:10-10:35 Tom Fleming (Southampton): epithelial junction maturation during pre-implantation development and the development of embryonic polarity in mouse

10:45-1:00 poster session and trade exhibition

1:00-2:00 lunch

Joint BSDB and BSCB session:

***PGFs, ACTIVINS AND MESODERM INDUCTION***

**Chair: Rosa Beddington**

2:00-2:25 Jonathan Slack (Oxford): 'Dorsalization, anterior-posterior specification or both'

2:35-3:00 Jim Smith (London): Control of gastrulation by mesoderm inducing factors: is integrin 1 involved?

3:10-3:35 Claudio Stern (Oxford): relationship between axis formation and mesoderm formation in the chick

3:45-4:15 tea

***MUSCLE DEVELOPMENT***

**Chair: Jim Smith**

4:15-4:40 Michael Bate (Cambridge): muscle development in insects

4:50-5:15 John Gurdon (Cambridge): mesoderm formation and muscle development in frog

5:25-5:50 Tim Mohun (London): gene expression during early muscle development

6:00-6:25 Michael Krause (Seattle): *MyoD* and muscle development

7:30 for 7:45 Conference dinner

**Friday 10th April**

9:00-10:00 PLENARY: David Baltimore

10:00-10:30 coffee

***DETERMINATION/DECISIONS***

**Chair: Michael Bate**

10:30-10:55 Rudolf Raff (Bloomington): developmental decisions in sea urchin

11:05-11:30 Robert Ho (Oregon): transplantation of cells in zebrafish

11:40-12:05 Bernard Thisse (Strasbourg): Control of *twist* expression by *dorsal* in *Drosophila*

12:30-2:00 lunch

***NEURAL INDUCTION***

**Chair: John Gurdon**

2:00-2:25 Tabitha Doniach (Berkeley): mesoderm and neural induction in frog

2:35-3:00 Tony Durston (Utrecht): neural induction in frog: RA, cAMP and PKC

3:10-3:35 Jane Dodd (New York): the mesoderm and neural induction: chick/frog

3:45-4:15 tea

End of Main Symposium

## Parallel Sessions

**Wednesday 8th April**

***TELEOST DEVELOPMENT***

Organisers: N. Holder & P. Thorogood

Speakers: M. Schartl (Wurzburg), L. Timmermans (Wageningen), R. Ho (Oregon), C. Kimmel (Oregon), A. Fjøse (Bergen), T. Jowett (Newcastle), U. Strähle (Oxford), S. Wilson (London), S. Schulte (Tübingen), N. Maclean (Southampton)

### *Nematode Development*

Organiser: I. Hope

Speakers: J. Sulston (Cambridge), J. Thierry-Mieg (Montpellier), A. La Volpe (Naples), R. Plasterk (Amsterdam), E. Schierenberg (Köln), I. Hope (Leeds), J. White (Cambridge), R. Schnabel (Tübingen), J. Hodgkin (Cambridge), D. Thierry-Mieg (Montpellier)

## BRITISH SOCIETY FOR CELL BIOLOGY SYMPOSIUM

## Transcriptional Regulation in Cell Differentiation and Development

*Scientific Organiser*: Peter Rigby *Local Organiser*: Sandy MacGillivray

### Provisional Programme

### Wednesday 8th April

| | |
|---|---|
| 9:00-9:05 | Introduction |
| 9:05-10:05 | B. Roeder (New York) |
| 10:05-10:45 | A. Bird (Edinburgh) |
| 10:45-11:15 | coffee |
| 11:15-11:55 | G. Felsenfeld (Bethesda) |
| 11:55-12:35 | D. Engel (Evanston) |
| 12:35-14:00 | lunch |
| 14:00-14:40 | H. Jäckle (Göttingen) |
| 14:40-15:20 | M. Levine (San Diego) |
| 15:20-15:50 | tea |
| 15:50-16:30 | R. White (Cambridge) |
| 16:30-17:10 | K. Nasmyth (Vienna) |
| 17:10-18:45 | Poster Session |
| 19:00-20:00 | dinner |
| 20:30-21:30 | Plenary Lecture: S. Waelsch (New York) |

### Thursday 9th April

| | |
|---|---|
| 9:00-9:45 | P. Gruss (Göttingen) |
| 9:45-10:30 | D.Lohnes (Strasbourg) |
| 10:30-11:00 | coffee |
| 11:00-11:45 | M. Busslinger (Vienna) |
| 11:45-12:30 | T. Graf (Heidelberg) |
| 12:35-14:00 | lunch |

### Friday 10th April

| | |
|---|---|
| 9:00-10.00 | Plenary Lecture: B. Baltimore (New York) |
| 10:00-10:30 | coffee |
| 10:30-11:10 | W. Schaffner (Zurich) |
| 11:10-11:50 | G. Schutz (Heidelberg) |
| 11:50-12:30 | U. Schibler (Geneva) |

### Joint BSDB/BSCB Session: Signal Transduction Pathways in Development

Speakers: Galione (Oxford), Otte (Utrecht), Green (Mill Hill), Runyan (Iowa), Müller (Heidelberg), Wilt/Livingstone (Berkeley)

# FUTURE BSDB MEETINGS

## AUTUMN 1992, Kingston Polytechnic: The Developmental Basis of Inherited Disorders

The Autumn 1992 meeting will be held at the Kingston Hill site of Kingston Polytechnic from the 9th - 12th September. The topic will be the Developmental Basis of Inherited Disorders and the meeting is being organised by Audrey Muggleton-Harris in collaboration with David Whittingham. Plans for the Scientific Sessions have now been finalised and the full list of speakers is as follows: Readhead (Caltech), Johnson (Cambridge), West (Edinburgh), Hastie (Edinburgh), Wood (Oxford), Stirling( King's, London), Caplan (St. Mary's, London), McLaren (UC, London), Burgoyne(UC, London) Rastan (Harrow), Williamson (St. Mary's, London), Tuddenham (CRC, Harrow), Patton (St. George's, London), Handyside (Hammersmith Hospital, London), Griffin (UC, London) Winter (Harrow), Cattanach (Harwell), Brown (St. George's, London), Monk (MDU, London), Hooper (Edinburgh), Scambler (St. Mary's, London), Surani (Cambridge), Goodfellow (ICRF, London), Bolton (King's, London), Whittingham (St. George's, London), Muggleton-Harris (St. George's, London). On the Friday evening there will be a Reception in honour of Anne McLaren followed by the Society Dinner.

The detailed Programme for this meeting will appear in the next issue of the Newsletter.

## SPRING 1993, University of East Anglia: Cell Communication in Development

Over the past few years, the genetic analysis of local cell signalling phenomena in Drosophila and the nematode has made significant progress, with a number of the genes involved being cloned and characterised. Not surprisingly, many of these turn out to encode homologues of well known vetebrate proteins; however, the genetic analyses have for the most part provided the first good examples of the roles of these proteins in normal development. Perhaps the most exciting outcome of these analyses to date is that they bring together groups of well known, yet in some cases, apparently unrelated molecules in a single developmental process; this is stimulating new lines of investigation amongst cell biologists and geneticists alike The Symposium, organised by Tony Brown (New York) Phil Ingham (Oxford) and Alfonso Martinez-Arias (Cambridge), aims to reflect this rapid convergence of disparate areas of investigation, by providing a forum for both cell biologists and developmental geneticists to meet and present the results of their research on different aspects of cell interactions. Details of the programme and of the invited speakers will appear in the next issue of the Newsletter.

# MEETING REPORT

**Genetic and Developmental Consequences of Insertional Mutagenesis:**
BSDB-Genetical Society Joint Meeting, Lancaster University , September 1991

I have had my arm twisted to write this report the day before the Newsletter copy deadline and nearly two months after the meeting so I apologise for any inaccuracies due to my *dunce*-like memory (see later)

Despite the eminence of the invited speakers and the opportunity to see the uses to which transposable elements are being employed in plants, flies and mammals, the meeting was poorly attended. However, this did give the more junior participants, such as myself, a chance to speak informally to several of the speakers during dinner and even more informally in the bar later. The talks were of a very high standard and accessible to an audience coming from such a wide range of backgrounds.

As a fly biologist, I was surprised to learn of the power and flexibility of transposable elements in plants. Ken Feldman and Caroline Dean seem to be proving that *Arabidopsis* can be the fly of the plant world and although not approaching saturation, large numbers of T-DNA (Feldman) and selectable Activator induced Dissociation insertions (Dean) have been recovered, which affect a range of developmental processes. Jonathan Jones spoke of a similar Ac/Dc system in tobacco and tomato and even of a form of enhancer trapping a la flies. Enrico Coen described the conservative and temperature inducible transposition of some *Antirrhinum* transposons which he has been using to analyse the autonomy of mutations and as tools for cell lineage studies.

The session on *Drosophila* development was very varied with the bias firmly on techniques developed in flies but with applications to other systems. RAMBO - a temperature inducible cell ablation technique was described by my boss Cahir (Sylvester) O'Kane. WACSing - a method of sorting transposon-marked cell types to study cell-cell interactions - was presented by Mark Krasnow. Kim Kaiser showed the results of his site selected transposon mutagenesis to recover *dunce* like flies that forget that males can't mate with males. Kevin O'Hare demonstrated the power of *Drosophila* genetics by his analysis of suppressors and enhancers of mutations caused by the insertion of several different transposable elements that may identify loci involved in gene expression.

Unfortunately, due to a prior commitment to speak at a meeting organised by the SERC, I was unable to attend the session on mammalian development. However, by all accounts the quality of the meeting was maintained with Rosa Beddington and David Melton reporting on advances with mouse embryonic stem cells and John Mullins genetic dissection of hypertension using transgenic rats. Tension was indeed rising amongst the organisers as Frank Grosveld arrived only just in time to describe his model for the regulation of the globin genes.

The organisation of the meeting was excellent and thanks are due to Alan Shirras for keeping it all running smoothly. However, as he's a Scot and has obviously enjoyed the benefits at past BSDB meetings, I'm surprised that he didn't insist on a late bar to keep the scientific discussions running longer!

Ian Roberts,
Dept. of Biological Sciences,
University of Wawick

## BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

### FINANCIAL STATEMENT
### AUGUST 1990 - AUGUST 1991

| 1990 | INVESTMENTS | 1991 |
|---|---|---|
| £ 8,986.92 | National Savings | £10,109.99 |
| £ 584.38 | Treasury Stock | £ 584.38 |
| | **ACCOUNTS** | |
| £ 5,441.64 | Current | £ 6,811.92 |
| £14,876.53 | Deposit | £ 5,494.81 |
| £27,045.50 | High Interest deposit | £30,726.57 |
| £56,934.97 | Total Assets | £53,727.67 |

Represented by:

| | |
|---|---|
| Income | £30,645.45 |
| Expenditure | £33,852.75 |
| | -£ 3,207.30 |
| Balance from 1990 | £56,934.97 |
| Balance 1991 | £53,727.67 |

## INCOME 1990-91

| | |
|---|---|
| Manchester Symposium, Spring 1990 (Symposium balance from COB and Profits) | 7,957.00 |
| Leeds Symposium, Spring 1991 (Including 1st COB payment and BSDB session sponsorship) | 6,000.00 |
| Capitation Fee | 5,578.00 |
| Advertising Fees and Royalties | 265.40 |
| Returned Travel Grants | 230.00 |
| Membership mfees paid by cheque | 180.00 |
| Total through book | 20,210.00 |
| Membership by standing order | 4,943.89 |
| Treasury Stock dividend | 68.74 |
| Deposit Account Interest | 618.28 |
| High Interest Deposit Account Interest | 3,681.07 |
| Post Office Savings Account Interest | 1,123.07 |
| Total Income | 30,645.45 |

## EXPENDITURE 1990-1991

| | |
|---|---|
| Travel Grants | 8,298.80 |
| Newsletter | 3,102.01 |
| Manchester Symposium Speaker Expenses | 2,220.00 |
| Poster Prize, Manchester | 380.00 |
| Leeds Spring Symposium speaker expenses | 6,717.00 |
| Leeds speaker accomodation | 6,719.00 |
| Leeds Poster prizes | 100.00 |
| John Innes Symposium | 2,250.00 |
| Lancaster Autumn meeting advance | 150.00 |
| Sussex Symposium Advance | 500.00 |
| Secretarial expenses to Secretary and Publications officers | 550.00 |
| Computer Printer for Treasurer | 542.76 |
| Committee expenses | 868.35 |
| Auditing fee, 1989/90 | 75.00 |
| Refunds | 29.00 |
| Total through book | 32,501.92 |
| Payment for professional affiliations, EDBO | 432.50 |
| Bank commission | 403.33 |
| Leeds Speaker IMO | 515.00 |
| Total expenditure | 33,852.75 |

# CENTRE SECTION

This 'Centre Section' is designed to be removed without damaging the rest of the Newsletter. It contains a form for subscribing to **Development** (below), a membership application form, together with information for delegates and a booking form for the Sussex meeting.

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## Development

**Members of the BSDB are entitled to a £7 reduction in the subscription price to Development. The cost to non-members is £92 but for members it is only £85. This price includes the casebound Supplement volume which for 1992 will be the proceedings of the Gastrulation Symposium. The computer that handles subscriptions seems to have some difficulty in keeping track of individuals who are entitled to discounts, so if your renewal request asks for £92, simply mark the renewal "BSDB society discount", and save £7.00.**

.....

To: **Development**
Portland Press,
P.O. Box 32,
Commerce Way,
COLCHESTER,
Essex CO2 8HP.
U.K.

Please enter my subscription to **Development** for 1992. I undertake not to pass my subscription copies on to a library. I enclose a cheque for £85 made payable to Portland Press Ltd.

Signature: .....

Name: .....

Addresss: .....

.....

.....

**Other COB Journals, including BioEssays, the Journal of Cell Science and the Journal of Experimental Biology, are also available at reduced rates. JCS is £70, JEB is £65 and BioEssays is only £44. To subscribe, write to the above address with your cheque and a signed undertaking that you will not pass your individual copy on to a library.**

# SPRING MEETING UNIVERSITY OF SUSSEX
# 7-10TH APRIL 1992
# BRITiSH SOCIETY FOR CELL BIOLOGY
# BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

## ADVICE TO DELEGATES

**Brighton** is a leading conference town, and an entertainment and commercial centre for the region, on the coast 50 miles south of London. The University of Sussex is on its outskirts.

**Travel**

By road- the M23 which then becomes the A23 leads you to Brighton. Once at the edge of the city, follow signs for A27 eastbound to Lewes.The University campus is about 4 miles from the centre.

By rail- book to **Falmer**. Hourly fast and semi-fast British Rail trains leave London-Victoria for Brighton where you should change to the coastway eastbound service. Falmer is an 8 minute ride from Brighton. There are no taxis at Falmer station and the campus accommodation is an 8 minute walk away. Alternatively, book to **Brighton** and take a taxi to campus (approximate cost £ 7).

By air- London-Gatwick airport has a rail station and is only 30 minutes ride away by train. Buy a ticket to Falmer and travel via Brighton (see above). From London-Heathrow airport, travel by underground train to British Rail Victoria station inLondon and take a British Rail train to Falmer (see above).Total journey time 2.5 hours.

By bus- buses from Brighton city centre pass the campus,and service 25 enters the campus.

**A more detailed travel guide and campus map will be sent to all registered delegates with acknowledgement of your booking.**

**Travelling funds**

Junior members of both the BSCB and BSDB may apply for contributions towards the cost of attending this meeting via the Secretary of their Society.

**Accommodation**

This will be in single occupancy study bedrooms on campus within 10 minutes walk of the lecture theatres.

**Payment from Overseas**

Please make your payment in sterling in favour of The University of Sussex as either (a) a banker's draft drawn on a UK bank, or (b) a Eurocheque with your signature and Eurocheque number written on the reverse of the cheque

**Abstracts**

All Invited Speakers and those wishing to present posters must use the attached Abstract Form. Please note that there is a space limitation to 200 posters and preference will be given to early applications.

**Poster competitons**

The BSCB offers a prize of free attendance at the American Society forCcell Biology meeting for the best poster from a graduate student BSCB member.

The BSDB offers a prize of free attendance at the American Society for Developmental Biology meeting for the best poster from a graduate student BSDB member.

**Invited speakers**

The accomodation & subsistence costs of Invited Speakers will be paid by the Soceities but it is important for the organisers to know on the Booking Form exactly which accommodation and meals arerequired

**Conference dinner**

This is on Thursday 9th April and limited to 350 participants.A normal evening meal is offered as an alternative.

SPRING MEETING UNIVERSITY OF SUSSEX
7-10TH APRIL 1992
BRITiSH SOCIETY FOR CELL BIOLOGY
BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

# BOOKING FORM

Please use BLOCK LETTERS and ONE FORM for each person

Name _____ Male / Female _____

(Prof/Dr/Mr/Mrs/Ms/Miss) _____

Organisation _____

Address _____

_____ Post code _____

Telephone number _____ Fax number _____

Registration Fee includes administration charges,audiovisual services, the programme and abstracts, tea and coffee and the reception on Tuesday 7th. There is no fee for graduate students provided evidence of student status is returned with this form.

Accommodation will be in University study bedrooms,meals in the Refectory and the Conferennce Dinner will be on campus and limited to the first 350 bookings.

| | Tues 7th | Wed 8th | Thurs 9th | Fri 10th | **Total Cost** |
|---|---|---|---|---|---|
| Bed & breakfast £19.00 | | | | | |
| Lunch £6.50 | | | | | |
| Dinner £7.50 | *see below | | | | |
| Conference Dinner £20 | | | | | |
| **Registration** | Society Member: £30 | Non-Member: £50 | Graduate Student: nil | | |
| | | | | | |
| | *Tuesday evening cafeteria 6.30-8pm. For later arrivals a cold plate and salad can be specified here: Yes ☐ No ☐ | | | **Grand Total** | |

Make cheques payable to **The University of Sussex.** Application forms should be received by 7th February 1992. Accommodation cannot be guaranteed after this date. I understand that if I cancel my booking, full reimbursement may not be possible.

Please indicate here any dietary or mobility requirements

_____

Please return this completed booking form with payment in pounds sterling (and abstract form if relevant) to:

Dr A J MacGillivray,
BSCB/BSDB Conference, School of Biological Sciences, University of Sussex, Brighton BN1 9QG
Telephone 0273-606755 ext 2691 or 8509
Fax 0273-678433

SPRING MEETING UNIVERSITY OF SUSSEX
7-10TH APRIL 1992
BRITISH SOCIETY FOR CELL BIOLOGY
BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

ABSTRACT FORM

Abstracts from invited speakers and for poster presentations will be included in the Conference Abstract book. Please type your abstract in the box below in camera-ready format to be legible when photoreduced so that four abstracts fit on an A4 page. Type using a **12 point typeface**.Title in **CAPITAL** letters, names and addresses of authors in **Upper and lower case** (indicate authors attending the meeting with *). Leave a line blank between address and abstract.
**DO NOT** overlap the lines forming the box.
**Poster boards** are 1m by 1m, vertical extensions above and below the board are permissable, and attachment will be using Velcro which will be supplied.

PLEASE CIRCLE THE TOPIC, CATEGORY AND SOCIETY AFFILIATION BELOW.

**Topic**

Transcription factors

Gastrulation

Actin-binding proteins

Kinases & phosphatases

Tumour suppressor genes

Nematode development

Teleost development

Signal transduction

**Category**

Invited presentation

BSCB poster prize

BSDB poster prize

**Affiliation**
BSCB member
BSDB member
Non-member

Please return your abstract (**2 copies, not folded**) with your registration form and payment to:
Dr A J MacGillivray, BSCB/BSDB Conference, School of Biological Sciences, University of Sussex
Brighton BN1 9QG to arrive by 7th February 1992.

## Professor Ruth Bellairs: an appreciation on the occasion of her retirement

This is a landmark year for chick developmental biology, because of the retirement from official activities of two great figures: Ruth Bellairs (University College London) and Luc Vakaet (Ghent). Both are among those fortunate enough to have begun their work in the 1950s and to continue into the 1990s, and both have made enormous contributions to chick embryology. Both deserve recognition, but Ruth's involvement in the early days of this Society make her the special subject of this appreciation.

Ruth started her work in embryology as a graduate student with two eminent teachers: Sir Gavin de Beer and Michael Abercrombie. Since then, her work on avian development has extended from the ultrastructure of the vitelline and eggshell membranes and the chemical composition of the yolk to the cell biology of somite formation, the mechanism of directed cell migrations and cell interactions during early development. She was one of the first to use the electron microscope and time-lapse filming to study early development. One of her major findings that has stood the test of time is that the gut endoderm is derived from the ectoderm (epiblast) during gastrulation; this appeared in the very first volume of this Society's journal (Bellairs, 1953; J. Embryol. exp. Morph. 1, 115). It is remarkable that it has taken nearly 40 years for similar findings to be made in other higher vertebrate embryos.

Avian development is not her only passion. Apart from needlework and Oriental carpets, she is particularly fond of travel to exotic places. One series of such trips resulted in her published findings on the gregarious habits of an Indian millipede (V. Bellairs et al. 1983; J. Zool. 199, 31) as well as in a spectacular educational film of these habits.

But Ruth's influence on developmental biology goes considerably beyond her scores of publications. The many of us that were fortunate to spend some time in her lab have probably collected more fond memories there than anywhere else, and were influenced considerably by her ideas and attitudes, to both Science and people. One of her lessons, for which I found ample reinforcement in subsequent years, is that it is as important to be surrounded by pleasant people as by 'capable' people. Another is: 'be sure to respect your junior; some day she'll be your boss'.

Generations of preclinical undergraduates owe an interest in the mechanisms of development to her famous lectures. She often illustrates them with carefully thought out models such as a length of rubber tubing that will suddenly emerge from the folds of her white coat during a lecture on the development of the gut.

In her own lab she teaches by example, never by command; her stamina put us all to shame. Sometimes, after an undergraduate lecture or lengthy committee meeting, she would sit down to dissect 150 embryos, rise once to make herself a coffee, and finish apparently as fresh as when she started.

'Retirement' is not a word that Ruth herself would choose. Always an adventuress, I shouldn't be surprised if she chose to live her life all over again, but with the benefit of hindsight. For her, this is an opportunity to free herself from some administrative chores and to devote herself to new tasks. Among them, a new embryology book, and trips to Australia and India to study reptile development. We wish her the best of luck and look forward toreading the products of these new efforts.

Claudio D. Stern
Department of Human Anatomy,
University of Oxford

# BOOK REVIEWS

## 'Biology of the chemotactic response'.

J.P. Armitage & J.M. Lackie (eds.).Society for General Microbiology Symposium No. 46,together with BSCB. Cambridge University Press, Cambridge.1991. 404pp. Hardback, £55. (ISBN 0 521 40313 8)

It is always difficult for editors of conference proceedings such as this to produce a volume that provides a balanced view of the whole field while presenting a coherent story. They are often the victims of their contributors. Some editors are more dictatorial, and either demand a specific approach from their contributors, or even edit the submissions ruthlessly. At first sight, this book seems to lack the chemoattractant. However, the editors have benefited from having invited some very good writers and insightfu thinkers to their meeting.

The book gets off to a very good start with Graham Dunn's provocative introduction, which defines kinesis and taxis and discusses some of the problems that recur in the book very lucidly. This introduction is worth the entire book; everyone interested in directional migration or growth should read it.

Virtually all the remaining chapters are very well written. The obvious model systems like bacterial chemotaxis, *Dictyostelium* and leukocytes are all well covered; there are also two chapters on the theoretical aspects of taxis and kinesis (one of which is very readable), and each entry is provocative enough. But there is nothing on tissues or embryos. The question of whether and if so how chemotaxis might be important in development does not even arise in the editor's Preface. One is puzzled by the statement in this Preface that the 'final level of complexity' is the 'behaviour of leucocytes in a pathological process in Man'. Unfortunately, therefore, the book lacks the some of the 'Biology' promised in the title and concentrates rather on mechanisms. At £55, I don't think that this is a book you want to advise your students to buy. But it is not a bad reference volume for your library.

**Claudio Stern**
**Department of Human Anatomy, University of Oxford**

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## Pattern Formation in Plant Tissues .

Tsvi Sachs Cambridge University Press Feb. 1991
234 pages Hardback £42.50
(ISBN 0521 248655)

Most animal developmental biologists are guilty of knowing very little about plant development. My own forays into plant territory have consisted of going to the occasional Enrico Coen talk - good to know they've got homoeotic genes also - and a surprisingly successful attempt to grow a banana plant from a tiny seedling in the kitchen at home. I hoped that Tsvi Sachs little green book would drag me from ignorance to enlightenment in one quick read! His book is conveniently split into 13 fairly self-contained chapters, so I was able to choose four sample chapter whose titles looked the most interesting. After reading the chapters I did not feel particularly enlight-

ened. A chapter on cell lineage begins with a confusing and wordy definition of lineage, goes on to explain how the variation in variagated leaves means that lineage plays little role in plant patterning, and then rather feebly discusses numbers of stem cells in meristems. There is a beautifully illustrated chapter whose main theme is spacing of stomata on the underside of leaves, but it too is frustratingly vague, telling us little more than that stomata are not just randomly thrown onto leaves, but are spaced by some sort of cell:cell interactions. I found the chapter on callus and tumour formation to be the most entertaining of the chapters I read. I was interested to discover that uncontrolled growth in plants, just as in animals, is correlated with a release from the requirement for, or unrestricted expression of, the very same factors that direct normal development - clearly plant hormones and tumour formation will be an exciting field to be researching in the future.

It was a mistake for me to guess this book would be a crash course in plant developmental biology for the uninitiated; as the author points out in his preface it is meant more as a theoretical framework upon which to hang current and future experimental studies of plant patterning. Maybe those scientists with expertise in this field will discover gems of information that were hidden from me in the book; they will most certainly appreciate the very extensive and fairly up to date bibliography.

**Paul Martin,**
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**University of Oxford.**

## From Egg to Embryo. Second edition

J.M.W. Slack
Cambridge University Press 1990
417 pages £45.00 (hardback ; ISBN 0-521-40108-9); £14.95 (paperback: ISBN 0-521-40943-8 )

I like this book; it is a good reference and a great read. I would recommend it to any undergraduate interested in early development and pattern formation and would be surprised not to see it on the shelves of any graduate student or researcher working on development.

The central four chapters contain descriptions of most of the embryos which are currently popular objects of study: amphibians and sea urchins; molluscs, ascidians and C. elegans; mouse and chick; and finally with an extensive and adulatory chapter all of their own, the insects with Drosophila at the fore. I found these crisp summaries of both the facts and history of each organism's development informative and interesting. I suspect that many like me who work exclusively with one organism will enjoy these chapters and find them very useful. Unfortunately, studies of the Zebra fish, an organism of immense current interest which has already produced much of great worth, are dealt with only briefly in the second introductory chapter in the context on clonal analysis. Slack does not deal in depth with the evolutionary relationships between all these different embryos. Although necessary in such a compact volume, this is a little disappointing, especially given the new and tantalizing suggestion that homeo-domain genetic codes may be homologous in widely divergent organisms.

These descriptions follow three opening chapters: a brief introduction and two substantial chapters dealing with

concepts and theory. These are in many ways the most stimulating parts of the book. The second chapter on concepts clears the ground perhaps a little too thoroughly, and I was left wondering if any of the terms I use have any meaning at all. The third chapter dealing with the theoretical work on patterning is a concise summary of most of the major ideas (although mechanical models get little time) and has the benefit (for me) of never getting very far beyond the verbal. Here Slack emphasizes and illustrates the fact that in order to understand developmental systems we need to understand not only the molecular and cellular mechanisms, but also their dynamics.

The theoretical bent is continued in the appendix which provides a description of the development of an hypothetical organism, the Credonian snapper. Here, Slack illustrates how embryos are made without the difficulties inherent in considering any one of the real examples he has described. I found this helpful, informative and fun. Perhaps there will be a time when we will walk up to our Slackstation, draw our organism and wait for it to emerge from some distant relative of the oligo machine. There are even mutants of this strange creature, one with heart transformed into gonad!

I am not sure if this kinky appendix or the chapter on insects and Drosophila only found in the new edition make the £45 (hardback) worth it if you already have the first edition. But at £14.95, the soft cover edition should be snapped up by all.

**Ken Howard**
**Roche Institute of Molecular Biology,**
**Nutley,**
**New Jersey, U.S.A.**

# From Abdomen to Zygote

## 'Torrey's Morphogenesis of the Vertebrates'.

A. Feduccia & E. McCrady (eds.)
John Wiley and Sons, New York.
5th edition,1991. 517pp. (Hard cover: ISBN 0-471-62314-8)

The editors of this classic book have undertaken the huge responsibility of producing a new edition. They have achieved the remarkable feat of shortening the text. Remarkable because the last edition was published in 1979. Perhaps not much of importance has happened in the meantime. Well, who really wants to know about induction of the mesoderm, in a book on morphogenesis of all places? In fact, all you need to know is included in the relevant section (p. 129): 'Recently, marking experiments have shown that some amphibians, notably Xenopus, separate the involuting mesoderm from the endoderm at the site of the dorsal lips of the blastopore.'. End of entry.

This book appears to be intended for students of comparative anatomy and embryology: 'Fortunately, many schools, including ours, have not been so shortsighted, and still offer traditional courses in the evolution and development of morphology.' (Preface). I do sometimes wish that ours did too. But not to make a living, growing, exciting subject look and feel like 18th Century Anatomy. For those of us interested in Comparative Embryology and in Evolution of Development, the volume contains some pieces of interesting information, and is especially useful if you want to find out the meaning of some archaic terms that you may find in the older literature. The new Glossary, which has also been short-

ened, is possibly the only place where you will find concise definitions of such terms, like: Bigeminal 'Referring to a doubling or twinning.'Embolomerous 'Referring to vertebrae with two-part centra.' Splenial 'A structure overlapping another structure; specifically, the splenialbone.'

This book is an insult to our discipline. I just hope that the bookshops of North Carolina have more sense than the Editors and stock numerous copies of Slack's and Gilbert's new books.

**Claudio Stern**
**Department of Human Anatomy,**
**University of Oxford**

## Books Received:

"Gene Structure and Expression".
2nd Edition.
J.D. Hawkins Cambridge Universioty Press 1991.
Hard back: £35.00, paperback: £13.95

"An Introduction to Centrifugation"
T.C. Ford & J.M. Graham
Bios Scientific Publishers 1991
Paperback: £12.95

If you would be interested in reviewing a book for future editions of the *Newsletter* please let me know. (You get to keep the book!)

# Summer Schools in Developmental Biology

**"MODERN TECHNIQUES IN DEVELOPMENTAL BIOLOGY"**
**A PRACTICAL COURSE**
**Oxford, 25th August - 7th September 1991**

Developmental biology is a complicated subject. Especially since the relevant events seem to occur in so many different ways in different organisms and, even worse, to be studied by different approaches in each system. The aim of the course was to provide practical experience with this diversity, by introducing a variety of experimental methods applied to studies of various developmental systems in different organisms, including fly, fish, frog, bird and mammal. A brief list of the techniques taught at the practical level demonstrates how this diversity was represented :

* Applications for molecular analysis (Western and Southern blots, PCR),
* Techniques to visualise developmental events, structures and distributions of molecular markers (bright-field, dark-field, phase contrast, Nomarski and laser confocal microscopy, time-lapse video, sectioning of frozen and wax-embedded material, immunohistochemical staining, in-situ ß-galactosidase staining, radioactive and non-radioactive in-situ hybridisation on tissue sections and whole mounts),
* Fate mapping methods (single-cell dye injection and lineage tracing in zebrafish and Xenopus embryos),
* Microsurgical manipulations (dissections, organiser grafts and animal cap explants in Xenopus, polarising ZPA

grafts in chick limb buds, Hensen's node transplants, cytoplasmic and nuclear transplantations in Drosophila, neural plate and paraxial mesoderm rotation in the chick),

* Embryo culture with Xenopus and chick embryos,

* ES cell manipulations (preparation of and culture of ES cells, blastocyst injection, in-vitro differentiation and embryoid body formation).

Laboratory sessions formed the core to the course. These provided a very informative first contact and practice with the techniques, and an understanding of the potential uses and practical limitations of each (demonstrating how many eggs need to be broken before sufficient experience is gained). The experiments were flexible enough to allow everyone to play on different variations to these methods; to such extent that Hensen's node transplant was attempted on a hard-boiled egg! Practicals were accompanied by seminars and presentations on relevant research topics, which focussed mostly on aspects of more general interest and made reference to particular techniques. The broad scope of methods and organisms covered provided a good overview of common and diverse research practices and a useful basis for a broader understanding of ongoing research in the field. Bringing together in one course such a diverse range of topics and experimental approaches inevitably brings together people, teachers and students, representing a wide variety of backgrounds, interests and experience. The success of the course then depends on how well these can interact. The opportunity for continuous interaction and discussion throughout these two weeks was, for me, the most stimulating aspect of the course. From all of us who participated in the course a big thank you to everyone who contributed to this diversity, and most of all the organisers Peter Holland and Claudio Stern, who brought everything together.

Michalis Averof,
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Cambridge.

## Urchins, Lobsters and more!!
## Cell Differentiation and Gene Expression in Early Development
## Woods Hole, Mass., 28th June - 2nd August 1991

There are many places in the world where you can spend an afternoon learning the finer points of embryology. There are, however, few places where you can round the afternoon off with a meal of fresh lobster. Indeed, there are few places where you can then head off to an impassioned discussion about segmentation in embryos, before ending the day with a midnight splash in a quiet cove.

One such place is the Marine Biological Laboratory at Woods Hole. Every summer, students and instructors from all over the US and various parts of the world descend onto this small town to participate in a course on embryology. This course has gained a well-deserved reputation as one of the finest training grounds for embryologists.

With five intense weeks of lectures, discussions, arguments and experiments, there is ample opportunity to learn about many different aspects of developmental biology. Topics range from the migration of primary mesenchyme cells to kinetics of transcription factors, from axis formation in

frogs to cell lineage in worms. A wide range of embryos are studied, including sea urchins, ascidians, squids, nematodes, chicks, frogs and flies.

Lectures start at ten in the morning. If you miss breakfast at the dining centre, you can still catch coffee and donuts. A discussion follows the lecture. Afternoons are reserved for lab work. After dinner, there sometimes is an informal discussion session, which for some obscure reason is termed a rump session. In the evenings, you are free to continue you experiments in the lab or amuse yourself in whatever way you desire. The course is divided into four modules. Each module runs for just over a week and comes with its own set of instructors. The first module in the 1991 session was entitled "Cell Specification in Diverse Embryos" and featured Richard Whittaker and Paul Sternberg. The second module was run by Dave McClay, Scott Fraser and Marianne Bronner-Fraser and was on "Cell Lineage and Cell Interactions". Chris Wylie and Janet Heasman ran the third module, which looked at the cytoskeleton in development and at induction in Xenopus. For the final module, the course veered towards molecular biology as transcription factors were examined, under the guidance of Rick Firtel, Steve McKnight and Eric Davidson (who is the course director). Mike Levine was present for the final week, hounding everyone for data on their *Drosophila* experiments!

The emphasis on originality is central to the success of the course. Students are encouraged to come up with their own ideas for experiments, utilizing whatever equipment and expertise happens to be around. Each instructor brings what is needed for the particular technique he is introducing, which may be cut and paste embryology or antisense knock-outs. The lab itself is very well equipped with microscopes andimaging instruments, tissue culture facilities, microinjection apparatus and a myriad of other equipment. With this rich mixture of resources, many ideas can be tested successfully, sometime with outstanding results.

There is a lot more to the summer at Woods Hole than doing science. The midnight trips to Gansett Beach, to watch the
dinoflagellates fluoresce as you splash in the water, can be just the thing after a hard evening at the bench. Or you might prefer to just sit on the beach and gaze at the Milky Way, sipping a beer taken from the well-stocked fridge in the lab.

There are plenty of evenings out for dinner or just for a drink. On Sundays, preparations for the traditional softball match against the physiology class takes precedence. The course ends with a party at Eric Davidson's place. This is a lively evening, capped off by dancing the Virginia Reel with Eric on the banjo.

When you leave the small town of Woods Hole, you find that your horizons have expanded. The field of developmental biology looks very much bigger than you imagined. But the field is now also familiar and friendly because of the many other embryologists who were at Woods Hole that summer.

Suresh Jesuthasan
ICRF Developmental Biology Unit,
Department of Zoology,

# BSDB Committee members and other useful addresses

The main function of the BSDB Committee is to organize our meetings, from deciding on appropriate topics to arranging organizers and venues. If you have any ideas as to what will make a good meeting, or a good venue, don't hesitate to let a committee member know. The Officers of the Society have specific functions. Mike Akam (Chairman) keeps us all in order; Peter Thorogood (Secretary)deals with the membership list; Liz Jones (treasurer)handles subscriptions and awards travel grants; Rosa Beddington (Meetings Secretary) does most of the work in arranging meetings and deciding on venues; Philip Ingham (Publications Secretary) assembles this Newsletter and helps edit the Symposium volume. These Officers will be happy to answer any questions relating to theirsubjects.

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