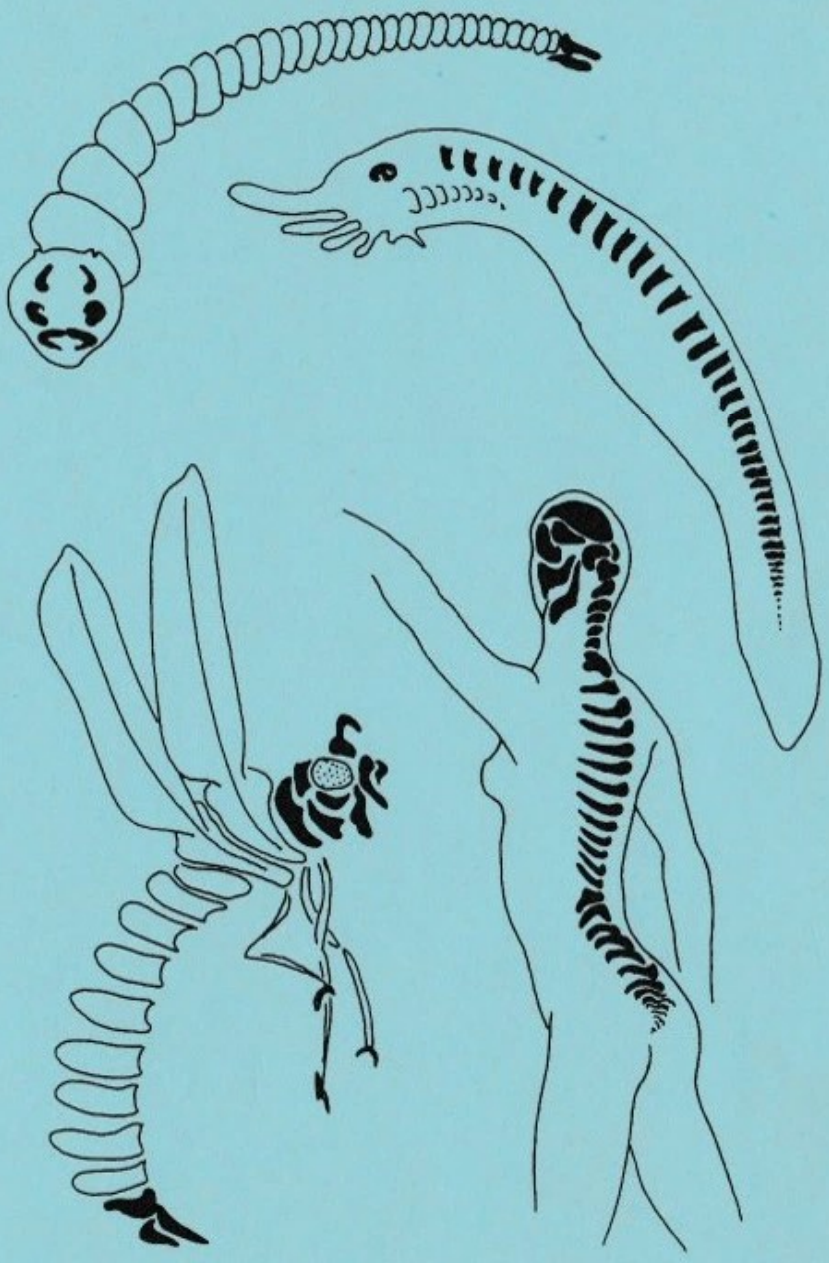
BSDB NEWSLETTER



No. 16

Winter 1987

Forthcoming BSDB Meetings

SPRING 1988
Bristol University, 12th-14th April 1988

As usual our Spring meeting is being held concurrently with that of the British Society for Cell Biology. The BSDB is organizing a Symposium on **Mechanisms of Segmentation** (to be published as a supplement to Development) as well as sessions on **The Regulation of Sperm Function and Fertilization** and **Teratomas**. There will also be a workshop on **Retroviruses as Lineage Markers**. The BSCB Symposium is on **Stem Cells**, and there will also be sessions on **Retroviruses, Gene Amplification** and **Second Messengers**. There will be a workshop on **In situ hybridisation**.

The booking form for this meeting is in the 'centre section' of the Newsletter, and details of the meeting are as follows:

MECHANISMS OF SEGMENTATION

This part of the meeting is organized by Vernon French, Phil Ingham and Jonathan Cooke. We thank the Company of Biologists Ltd. and American Airlines for sponsorship.

The programme is as follows:

Tuesday, 12th April

1.45	Introduction to symposium
	Session 1. SEGMENTATION IN ANIMAL DEVELOPMENT
	Chair: Prof. K. Sander (Freiburg, W. Germany)
1.55	K. Sander (Freiburg, W. Germany)
2.35	W. Dohle (Berlin, W. Germany)
3.15	D. Weisblat (Berkeley, USA)
3.55	TEA/COFFEE
4.25	Ch. Nusslein-Volhard (Tubingen, W. Germany)
5.05	H. Meinhardt (Tubingen, W. Germany)
5.45	DISCUSSION

Wednesday, 13th April

	Session 2. SEGMENTATION IN VERTEBRATES
	Chair: J. Cooke (London, U.K.)
10.00	C. Kimmel (Eugene, USA)
10.40	D. Davidson (Edinburgh, UK)
11.20	TEA/COFFEE
11.40	K. Mahon (Bethesda, USA)
12.20	P. Gruss (Heidelberg, W. Germany)
1.00	LUNCH
2.00	A. Jacobson (Austin, USA)
2.40	C. Stern (Oxford, UK)
3.20	DISCUSSION
	POSTER SESSION AND CONFERENCE DINNER

Session 3. GENE INTERACTIONS IN INSECT SEGMENTATION
Chair: P. Ingham (Oxford, UK)

9.00	R. Lehmann (Cambridge, U.K.)
9.40	K. Howard (New York, USA)
10.20	E. Weischaus (Princeton, USA)
11.00	TEA/COFFEE
11.30	P. Lawrence (Cambridge, UK)
12.10	A. Martinez-Arias (Cambridge, UK)
12.50	LUNCH
1.50	M. Akam (Cambridge, UK)
2.30	DISCUSSION

Session 4. MOLECULAR MECHANISMS OF SEGMENTATION GENE ACTION
Chair: P. Lawrence (Cambridge, UK)

2.40	H. Jackle (Tubingen, W. Germany)
3.20	A. Laughon (Boulder, USA)
4.00	TEA/COFFEE
4.20	D. Ish-Horowitz (Oxford, UK)
5.00	T. Kornberg (San Francisco, USA)
5.40	DISCUSSION

THE REGULATION OF SPERM FUNCTION AND DIFFERENTIATION

These sessions will be held on Tuesday, 12th April in the morning and all day Wednesday, 13th April. The programme includes:

D.L. Garbers (Nashville). Signal transduction mechanisms in spermatozoa.

R. Christen (Villefranche-sur-mer). The role of ions in the regulation of sperm function.

J.-L. Dacheux (Nouzilly). The maturation of boar and of human spermatozoa.

H.D.M. Moore (London). The development of mammalian sperm-egg recognition processes.

R.M. Moor (Babraham). Protein re-programming, zona remodelling and inositide function in oocytes before and during fertilization.

Further information can be obtained from the organizer,

Dr. C. Ford,
Department of Obstetrics and Gynaecology,
Bristol Maternity Hospital,
Southwell Street,
Bristol BS2 8EG
Tel: 0272 215411 Ext. 268

Time is available for some free communications during this part of the meeting. Anyone who wishes to contribute a talk should contact Dr. Ford.

TERATOMAS - CELLULAR AND MOLECULAR STUDIES

These talks take place in the afternoon of Thursday, 14th April. The programme includes:

G.B. Pierce (Denver; CLIC plenary lecture). Teratocarcinoma cells as probes for regulation in the blastocyst.
P. Schofield (Oxford). Title to be announced.
M.F. Pera (Sutton). Stem cells of human teratomas.

Further information is available from:

Dr. K. Brown,
Department of Pathology,
University of Bristol,
University Walk,
Bristol BS8 1TD.
Tel: 0272 303030 Ext. 4980

The **RETROVIRUSES AS LINEAGE MARKERS** workshop is being organized by Jack Price and Mary Collins. It will take place in the evening of Tuesday, 12th April.

All parts of the meeting include poster sessions and, as usual, there will be a prize for the best poster by a graduate student. If you would like to present a poster, please enclose the title and an abstract of no more than 300 words with your booking form.

The BSCB Symposium topic is

STEM CELLS

The symposium is being organized by Mike Dexter, and the sessions are as follows:

Tuesday, 12th April

Morning: **STEM CELLS IN DEVELOPMENT** : Wolpert (London), Gardner (Oxford), LeDouarin (France), de Rooij (Netherlands).
Afternoon: **STEM CELL SIGNALS AND STEM CELL GENES** : Harrison (Glasgow), Verma (USA), Marshall (London), Klein (Sweden).

Wednesday, 13th April

Morning: **STEM CELLS IN DIFFERENTIATING SYSTEMS** : Johnson (Australia), Potten (Manchester), Owen (Oxford), Ferguson (Manchester).
Afternoon: **DIFFERENTIATION IN STEM CELLS** : Raff (London), Watt (London), Rudland (Liverpool), Bayreuther (Germany).

Thursday, 14th April

Morning: **TUMOUR STEM CELLS** : Lord (Manchester), Heath (Oxford), Steel (London), McCulloch (Canada).

Further information is available from:

Prof. T.M. Dexter and Dr. Brian I. Lord,
Paterson Laboratories,
Christie Hospital and Radium Institute,
Wilmslow Road,
MANCHESTER M20 9BX.
Tel: 061 445 8123

Other BSCB sessions take place on the following days.

Tuesday, 12th April

Morning: **RETROVIRUSES** : (organized by Chris Marshall, London); speakers include Pirie (London), Land (London), Collins (London), Evans (Cambridge), Price (London), Wagner (Heidelberg).

Afternoon: **GENE AMPLIFICATION** : (organized by George Stark, London); speakers include Wahl (San Diego), Debatisse (Paris) and Rolfe (London).

Thursday, 14th April

Morning: **SECOND MESSENGERS** : (organized by Robin Irvine, Babraham); speakers include Downes (Welwyn), Houslay (Glasgow), Siddle (Cambridge), England (Welwyn).

The **IN SITU HYBRIDISATION WORKSHOP** is being held on Tuesday, 12th April in the evening, and is being organized by Mike Akam.

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AUTUMN 1988

Proposed Teaching Course

As members will know from previous Newsletters, the Society had intended to run a course designed to assist teaching of Development Biology in Higher Education. Unfortunately, we were notified in October that a Symposium organized by the BSCB in Oxford clashed with our meeting. The subject of this meeting is "Differentiation - new perspectives", and a large number of distinguished overseas developmental biologists are speaking. It immediately became clear to us that many members of the BSDB, as well as potential lecturers and participants on our own course, would want to go to the Oxford meeting (details elsewhere in this Newsletter). We asked the BSCB if they could consider moving their meeting, but they were unable to do so. It likewise was not possible for us to change the dates of our course. The Committee was therefore placed in an extremely difficult position, not of its own making. We felt that we had no alternative, in light of the wider interests of the membership, to cancel our course this year. We have therefore

taken an option on the week September 18th-23rd in Brighton 1989. Would you let Chris Ford know whether you feel this date and location would be suitable.

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SPRING 1989

The Spring 1989 Symposium meeting wil be held in St. Andrews. The topic will be 'Towards the molecular basis of morphogenetic signalling' and the organizers are Rob Kay and Jim Smith.

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Other meetings of interest

Differentiation : New Perspectives, a special meeting of the British Society for Cell Biology, to be held in Oxford, 20th-23rd September 1988.
Organizers: Fiona M. Watt (ICRF, London)
Bruce M. Spiegelman (Harvard Medical School, Boston).

Speakers are as follows:

Keynote address:	D. Baltimore (Boston)
Differentiative Decisions:	E. Davidson (Pasadena) D. Bennett (London) H. Green (Boston) R. Schimke (Stanford) R. Horvitz (Boston)
Differentiation - inducing factors:	D. Kimelman (San Francisco) J. Smith (London) G. Eichele (Boston) J. Williams (London) M. Raff (London)
In vitro models:	G. Ringold (Stanford) E. Fuchs (Chicago) H. Weintraub (Seattle) D. Louvard (Paris) M. Dexter (Manchester)
Cis and Trans-acting factors:	W. Rutter (San Francisco) B. Speigelman (Boston) B. Nadal-Ginard (Boston) N. Rosenthal (Boston) S. Goodbourn (London) R. Tjian (Berkeley) H. Blau (Stanford) C. Emerson (Charlottesville)
Differentiation and Cancer:	H. Harris (Oxford)

A. Levine (Princton)
M. Greaves (London)
W. Bodmer (London)
H. Land (London)
L. Gudas (Boston)

Transgenic Mice:

R. Jaenisch (Boston)
H. Westphal (Bethesda)
D. Solter (Philadelphia)
M. Evans (Cambridge)
S. Tilghman (Princeton)

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Meeting reports

EDBO '87

The European Developmental Biology Organization (EDBO) aims to act as a clearing house for information exchange among European developmental biology societies and groups, as a sponsor of workshops and small meetings, and as a convenor of Congresses every 3-4 years. The latest Congress was held in Helsinki, in mid-June 1987. The U.K. contingent was small, partly because Helsinki is expensive to get to from Britain, but also because mid-June is not the most carefree time for anyone involved with the British university system.

Those of us who were able to attend the Congress enjoyed a wide-ranging scientific programme and a number of memorable social events, all impeccably organized by our Finnish colleagues. The extensive poster sessions were particularly rewarding. We were reassured to find that Britain is not the only place where it rains in mid-June, but the clouds cleared long enough for us to appreciate the beauty of the "White Nights".

The EDBO Board meeting in Helsinki approved a change in constitution, to appoint Dr. John Bluemink as honorary business manager. John Bluemink is the assistant director of the Hubrecht Laboratory, which had been agreed at the 1984 Southampton Congress to be the permanent seat for EDBO administration. His appointment should greatly facilitate this administration. Professor Signoret retired as President of EDBO, and since the BSDB's nomination of me as his successor was unopposed, I was perforce elected as the new president. Dr. Siegfried de Laat continues as Secretary/Treasurer.

On joining the Board I learnt with interest that the next EDBO Congress is to be in Israel in 1991 (the date has not yet been fixed but it will not be in June), that Australia and New Zealand are now constituent members of EDBO, and that the Chinese developmental biology society is an associate member. Clearly the boundaries of Europe are extending. It is of course important that developmental biologists throughout the world should be kept informed of one another's activities, and while no worldwide federation of developmental biology societies exists, it falls to EDBO to satisfy this need. But we see this as an interim role. The focus of EDBO remains in Europe. Western and eastern, northern and southern Europe share a common tradition of embryological

research that forms one of the corner-stones of developmental biology as we know it today.

Anne McLaren
President, EDBO.

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XENOPUS AND DEVELOPMENTAL IMMUNOBIOLOGY

September 1987, Durham, England

The goal of these sessions was to provide an update of immunological research that uses the Xenopus model system for probing important developmental issues. For this purpose the world's leading experts on Xenopus immunobiology were invited to Durham to review and discuss their ongoing research. The gathering of scientists from Denmark, France, Japan, Switzerland, U.S.A. and the U.K. promoted interactions beween research groups and provided a long overdue state-of-the-art review.

The first session reviewed the production of clonal Xenopus (with defined major histocompatibility complex (MHC) types) from interspecific hybrids and the generation of histocompatible X.borealis (a species that has the useful quinacrine fluorescence nuclear marker). Such Xenopus are becoming increasingly available for research and are proving invaluable, not only for immunological studies, but also for examining sex determination and tumour gene expression. The advantages of using amphibian embryos for elucidating early differentiation pathways was highlighted in the second session. Studies on the embryonic origins of lymphoid cells are revealing the early restriction of mesodermal precursors to T- and B-cell lineages. This session highlighted the uses of monoclonal antibodies to characterize the emergence of various haemopoietic cell lines and their associated differentiation antigens.

Three sessions revealed the extent to which molecular and genetic characterization of the molecules of the Xenopus immune system are being probed by various laboratories. Thus the Xenopus MHC class I and II antigens appear to be very similar to equivalent mammalian glycoproteins. The tissue distribution of MHC antigens during development was described and the probable absence of class I MHC expression in the larva was highlighted. Immunoglobulin (Ig) diversity (Xenopus possesses 3 Ig heavy chain isotypes: IgM, IgY and IgX) was discussed at the protein and DNA level; mechanisms for differences between antibody repertoire of larvae and adults were suggested. The genomic organization of the Ig heavy chain cluster of Xenopus is proving to be similar to that of mammals (with multiple V_H regions, a few J elements and adjoining C region genes), but different from the mutliple V-D-J-C subunits existing in elasmobranch fish. Homology between Xenopus and mammalian complement component C_3 genes was also described. The production and characterization of Xenopus cytokines, in particular interleukin-2 (IL-2), was described. The extent to which IL-2 and its receptor are evolutionary conserved molecules is currently being explored by in vitro (flow cytometry) studies, using recombinant human IL-2 and anti-human IL-2 receptor antibodies, to assess cell-surface binding.

The immunology of metamorphosis - a time when the frog is needing to reassess the spectrum of antigens it must consider as self - was discussed at some length. The role of corticosteroids in causing altered immunoregulation

(e.g. inhibitory effects on IL-2 production) was highlighted and the effect of thyroxine and ageing on the immune system were considered. Altered susceptibility of metamorphosing Xenopus to a lymphoblastic lymphoma was also discussed. Studies on immune reactivity developing in larvally-immunized Xenopus are probing the mechanisms involved in the induction and maintenance of tolerance to xenogeneic proteins and alloantigens. In the final session the use of head/body chimeric Xenopus (that can be established with thymus epithelium and haemopoietic cells of different MHC haplotypes) to probe the role of the thymus in immune development was considered. This system is proving to be helpful for examining thymic education. This latter topic was also covered in the thymus workshop that successfully brought together amphibian and mammalian amphibian and mammalian immunologists for lively discussion.

A much more detailed review of the Xenopus session has been submitted for publication in the journal Development.

John D. Horton,
Department of Zoology,
University of Durham.

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CRANIOFACIAL DEVELOPMENT
September 1987, Bath, England.

How the vertebrate head develops and how it has evolved is a fascinating problem but one that has traditionally been avoided by many developmental biologists who have felt that the head is far too complicated a structure to study. One of our purposes in organising this meeting was to overcome this prejudice and illustrate not only that the head is amenable to developmental analysis but that very exciting work in this field is currently being carried out in laboratories around the world. Our intention in composing the programme was to bring together specialists from a number of different fields to provide a unique mixture of scientists and medics. To a large extent this worked and worked well. Over 130 people attended ranging from evolutionists right through to craniofacial plastic surgeons and travelling from as far afield as Japan and California. Clearly it was one of the first occasions on which European and American craniofacial developmental biologists had assembled together on such a scale.

The programe was organized around five major themes:

The evolution and morphogenesis of the head
The cephalic neural crest and placodes
Patterning of connective tissues in the head
Patterning of nerves and sense organs in the head
Abnormalities of craniofacial development

and included two workshops:

Cellular and molecular aspects of cephalic neural crest development
Strategies of head development.

Perhaps the underlying theme running throughout was an attempt to define those mechanisms which specify the patterning of the various tissues of the head, not simply the differentiation of the various constituent cell types. Emerging from this was also dicussion of just how changes in those mechanisms might underly evolutionary/phylogenetic change in organization of the head, and also generate the various human craniofacial abnormalities encountered by the clinician or surgeon. Several directions for future research emerged. Firstly, the question of lineage composition of the neural crest was raised on a number of occasions and is clearly going to be the focus of attention in several labs. Secondly, the old nineteenth century anatomists question of whether or not the head is a segmented structure now seems likely to be resolved by parallel developments in two different fields; somitomeres (nascent somites) have been identified in early head mesoderm before becoming obscured by subsequent developmental events, and also cDNA probes to homeobox-containing genes may be used to map their expression in the developing head by in situ hybridization techniques. And thirdly, we learnt of the achievements and potential of applying recombinant DNA technology as a diagnostic technique in screening for various familial craniofacial disorders, illustrated by the chromosomal mapping and imminent isolation of the gene involved in familial cleft palate.

We were blessed with active lively registrants who guaranteed good discussions, sunny and dry autumn weather and a pleasant campus setting adjacent to a beautiful old city. The meeting was organized under the auspices of the British Society for Developmental Biology and its success ensured by generous support from ISDB, the Royal Society, The Nuffield Foundation and the British Council. The proceedings of the meeting will be published by the Company of Biologists as a supplementary volume of Development in the Spring of 1988.

Peter Thorogood and Cheryll Tickle.

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Announcements

A NOTE FROM THE CHAIRMAN

This year the Society has held three meetings. In the Oxford Spring Gillian Morriss-Kay undertook the considerable task of organising the combined BSDB/BSCB get-together. She did a wonderful job, undaunted by a crowd of gatecrashers and late registrants that made the meeting very cosy at times. There was a stimulating series of parallel sessions, and the social side of the meeting, centred as much of it was round the posters and industrial display, worked very effectively. Our grateful thanks to Gillian and her helpers. The Autumn meeting in Bath on cranio-facial development was a more compact affair, but organized and conducted with flair and precision by Cheryll Tickle and Peter Thorogood - our thanks to them for a successful meeting which wil result in a supplement for Development next year. In Durham this Autumn, John Horton hosted most of the world's experts on Xenopus developmental immunology together with a parallel get together of mammalian embryologists and members of the

materno-fetal immunology group of the British Society for Immunology. It was a fascinating and very successful three days - we thank John for his energy and very effective organization (Northumbrian pipes appreciated!) and also Virgin Atlantic and Air U.K. for their sponsorship. As ever, we are indebted to the Company of Biologists for their support in Oxford and Bath.

We welcome to the committee three new members elected at Oxford: Phil Ingham (flies in Oxford), Michael Whitaker (sea urchins in London) and Ken Giles (plants in Glastonbury) who enlarge the range of scientific skills and interests on which the committee can draw when planning meetings. If you fancy organizing a big Spring symposium, a smaller Spring parallel session or an Autumn special topic meeting, we have some pennies to spend and would like to help. So let Nigel Holder know (address at the end of the Newsletter). We plan to increase our activities and numbers of meetings/workshops held and are now looking at Autumn 1989 and Spring and Autumn 1990.

Finally, go out and persuade a colleague to join! If we can double our membership, we increase our cash grant from C.O.B. and can plough the money back into meetings and bursaries.

Martin Johnson

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ANNUAL GENERAL MEETING

The next AGM of the Society will be held in Bristol on Wednesday, 13th April at 4.00 p.m.. The agenda is as follows:

1. Minutes from previous meeting.
2. Matters arising.
3. Chairman's Report.
4. Treasurer's Report.
5. Secretary's Report.
6. Meeting Secretary's Report.
7. Election of officers: the following are willing to serve for a further year:

Chairman	: Martin Johnson
Treasurer	: Mary Bownes
Meetings Secretary	: Nigel Holder
Publications Secretary	: Jim Smith

   Peter Thorogood is willing to serve as Secretary.
8. Election of two committee members for 5 years each. Nominations, with a proposer and seconder, and the signature of the nominee indicating that she/he is willing to serve, should be sent to Chris Ford before 1st April, 1988.
9. Any other business.

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GRADUATE STUDENT COMMITTEE MEMBERS

There is a vacancy for a graduate student representative on the BSDB committee. Nominations, with proposer and seconder, should be sent to the Secretary,

This 'Centre Section' is designed to be removed without damaging the rest of the Newsletter. It contains a form for subscribing to Development, a membership application form, and a booking form for the Bristol meeting.

DEVELOPMENT

Members of the BSDB are entitled to a reduced subscription to Development. For only £40 you will receive twelve normal issues and 2 casebound supplements. In 1988 the Supplements will be Craniofacial Development (edited by Peter Thorogood and Cheryll Tickle) and Mechanisms of Segmentation (edited by Vernon French, Phil Ingham and Jonathan Cooke).

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TO: Development.
c/o The Biochemical Society Book Depot,
P.O. Box 32,
Commerce Way,
COLCHESTER,
Essex CO2 8HP,
U.K.

Please enter my subscription to Development. I am a member of the BSDB, and undertake not to pass my subscription copies on to a library. I enclose a cheque for £40 made payable to the Biochemical Society Book Depot.

Signature:. . . . . .

Name and Address (BLOCK CAPITALS, PLEASE):. . . . . .

. . . . . .

. . . . . .

APPLICATION FOR MEMBERSHIP

FULL NAMES (in block capitals) .....

TITLE ..... DEGREE(S) .....

PROFESSIONAL ADDRESS .....

.....

.....

.....

POSTAL CODE .....

*I wish to apply for ordinary (£10)/student (£5) membership of the Society.

Applications must be supported by two members of the Society, who should sign below:

.....

.....

RESEARCH INTERESTS .....

.....

.....

.....

Please return this form, together with the completed Banker's Order form overleaf, to the Secretary: Chris Ford, School of Biological Sciences, University of Sussex, Brighton BN1 9QG.

For Society's Use

Received ..... Acknowledged .....

Subscription ..... Mailing List .....

Elected ..... Informed .....

*Delete as applicable.

TO: The Manager,

..... (Bank),

..... (Address)

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Please pay to the British Society for Developmental Biology,
Account No. 00867675,
Barclays Bank Limited,
Oxford Circus Branch (20-64-88),
15, Great Portland Street,
LONDON W1N 6BX.

the sum of £ (pounds) on 1st October, 198
and on the same day each succeeding year unless this instruction is altered in writing by me.

Signature ..... Account No. .....

Name ..... Date .....

Address .....

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.....

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Chris Ford (address at back of Newsletter). All graduate students are eligible, except those supervised by a current member of the Committee.

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POSTER PRIZES

A poster prize was awarded at the Bath Cranio-facial development meeting. The judges were Jim Bee, Nigel Holder and Jim Smith and the prize of £50 was shared between M. Dixon and P. Holland.

A prize of £50 will also be awarded at Bristol in April.

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DEVELOPMENT

One of the many advantages of membership of the BSDB is a reduced subscription to Development. For just £40 members will receive twelve issues, as well as the proceedings of the Bath Craniofacial Development meeting and the Bristol Segmentation meeting. To make it simple to subscribe the tear-out 'centre section' of the Newsletter includes a Development subscription form. There is also a BSDB Membership application form: for non-members it's cheaper to join the BSDB and subscribe to Development for £40 than to not join and have to pay £55!

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TRAVEL AWARDS

At its last meeting the committee decided to increase the amount of money to be allocated to travel awards from £1,000 to £2,500 per annum. Our priorities will remain the same:

1. Ph.D. student members to attend BSDB meetings.
2. Ph.D. student members to attend other meetings related to developmental biology either in the U.K. or abroad.
3. Postdoctoral fellows to attend BSDB meetings.
4. Postdoctoral fellows to attend other meetings related to developmental biology either in the U.K. or abroad.

We hope to be able to fund all applications in category 1 and make a contribution to a high proportion of those in category 2. Funding for those who have obtained their PhDs will probably still be infrequent.

Please either request an application form or send details of the meeting, its cost, its relevance, whether or not you will present a paper/poster, if you have applied for other financial support, and a note of support from your supervisor to:

Dr. M. Bownes,
Treasurer, BSDB,
Department of Molecular Biology,
University of Edinburgh,
Darwin Building, King's Buildings,
EDINBURGH EH9 3JR.

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POLITICAL ACTIVITIES ON BEHALF OF SCIENCE

Recent events have made it all too clear to many members of the society that science and politics can become inextricably and painfully mixed. Those of us who have become involved in day to day contact with the politicians, who increasingly determine the direction that science is taking and how science policy is being applied, are very aware that most M.Ps are extremely sensitive to the contents of their post bag from constituents. Both the quantity and quality of the mail they receive, and the persistence with which arguments are pursued in follow-up letters, do influence their actions, and the general sentiment of the House. There are topical issues on which members of the society should consider engaging the M.Ps who represent both work and residential constituencies.

The first, and most obvious, is the funding and organization of science research and higher education. Most of us will have evidence of the unreasonable consequences of current Government policy, whether that unreasonability derives directly from the policy or from the response of the universities or research councils to it. Wherever responsibility lies, the casualty is higher education, and this should be pointed out to M.Ps. There is already considerable unease amongst M.Ps of all parties, and we can increase this by maintaining their awareness. Tackle your M.P. and don't let the subject drop. Don't just moan; point out what is happening, what the consequences will be, and how little money and effort would be involved to change things.

The second issue concerns reseach on the early human conceptus. A free vote on this issue will be held in the House in the New Year. It is expected that M.Ps will be given a choice between two clauses. One would allow experiments on the early conceptus provided that (i) the conceptus was replaced in the uterus to develop, and (ii) the experiment formed part of a therapeutic treatment in which the outcome was intended to be beneficial to the conceptus in question. Working scientists and doctors have pointed out the ambiguities and difficulties of interpreting such a clause in the clinic and laboratory, and the fundamental misunderstanding of the process of medical research that it embodies. The alternative clause would set up a statutory licensing authority to regulate research under license and with inspection, and would also make certain sorts of work (and any unlicensed work) a criminal offence. There are considerable problems with this clause as the Society has already pointed out (see elsewhere in the Newsletter). It is important to point out to M.Ps the consequences of their votes. In particular, it seems probable that the further development of recent advances in techniques for preimplantation diagnosis would be put at risk (see references below).

It may seem a waste of time to write to your M.P., but in fact each letter has a disproportionately large effect on her or him, because relatively few constituents write on such issues. Have a go!

Some references: Monk, Handyside, Hardy and Whittingham, Lancet (ii) August 22 (1987). McLaren, Prenatal Diagnosis, 5, 85-90 (1985).

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INDUSTRIAL LIAISON

The BSDB is considering whether it has a useful role to play in promoting or facilitating liaison between BSDB members and relevant industries. Such an activity might, for example, take the form of a day course in how to go about setting up a liaison, patent law and procedures, establishing studentships etc.

We would like any member with views on what would or would not be useful, or with experience in this area, to contact Rob Kay (address at end of Newsletter) with ideas, suggestions etc. as soon as possible.

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HUMAN INFERTILITY SERVICES AND EMBRYO RESEARCH

The following statement represents the response by the British Society for Developmental Biology to the Government consultation document on Human Infertility Services and Embryo Research:

The British Society for Developmental Biology is concerned that the Government appears to be departing from even-handedness in the way it proposes to draft legislation on research involving human embryos. The course proposed by the Government is to assist Parliament by offering alternative sets of draft clauses, one giving effect to relevant recommendations of the majority of the Warnock Committee, and a second having the broad objective of the Unborn Children (Protection) Bill.

The British Society for Developmental Biology is of the view that circumstances have changed considerably since the publication of the Warnock Report, and that neither set of clauses adequately reflects current knowledge, understanding or administrative structure. The Government position could therefore be thought to be weighted against those in the scientific and medical community that support and practice assisted reproduction in its various forms. The Society therefore requests that, in the interests of fairness, the Government should draft a third set of clauses based on the current, highly effective working practices of the Voluntary Licensing Authority. The Society believes that the working practices of the VLA differ sufficiently from the proposals contained in the Warnock Report as to warrant a separate set of draft clauses. The Society believes that this would be a valuable course of action since the VLA has the respect of both scientists and the public at large, and thus should usefully serve as a model for legislative proposals. It also has two years of working practice.

Before outlining the principal content of such a draft set of clauses, the

Society wishes to make it clear that its presentation of the case for this third set of clauses does not imply that members of the Society, individually or collectively, would necessarily support the clauses. The Society does, however, feel strongly that the full spectrum of views on this issue should be included in draft legislation, in the interests of fully informed and fair discussion.

The Society proposes inclusion of a set of draft clauses along the following lines:

1. A Statutory Licensing Authority (SLA) should be established with a membership broadly along the lines of the current Voluntary Authority.

2. The SLA should be served by a body of Inspectors organised along the lines of the current Home Office Inspectors involved in the licensing of Experimentation on Animals.

3. The SLA should be given broad and general powers of inspection and licensing in connection with the regulation of research involving the human conceptus.

4. The SLA should also be issued with a set of non-statutory guidelines relating to what are felt by Parliament to be currently acceptable and non-acceptable practices.

5. The SLA should be required to present an annual report to Parliament, which should include clear statements, detailing and justifying to Parliament any proposal to change working practices in the coming year that might conflict with the guidelines.

6. All individuals and establishments engaging in work involving fertilized human conceptuses will be required by law to be licensed by the SLA, both individually and by projects.

7. The only punishable offence shall be, as for the licensing of experimentation on animals, the pursuit of unlicensed experiments.

The Society makes this set of proposals for the following reasons:

1. The proposals broadly follow procedures established by the VLA and the Home Office, and as such are known to be workable.

2. The proposals avoid the incorporation of detailed scientific terminology in legal phraseology. This is of particular importance since it became clear during the discussion of both the Warnock Report and the Unborn Children (Protection) Bill that few scientists, politicians and lawyers hold clear ideas of the legal meaning of many of the technical terms used. Moreover, the understanding of particular scientific terminology is modified periodically as a result of continuous research. Such a confused situation puts all work involving the human conceptus, whether therapeutic or experimental, at risk, since only by case law are clear definitions established. For example:

   (a) The use of the term "embryo" was unclear.

   (b) It was likewise unclear whether part of an embryo was to be treated in the same way as a whole embryo, and if not, what constituted a part of an embryo.

   (c) It was unclear whether the definition of a period of 14 days from fertilization applied only to whole embryos or also to parts of embryos.

   (d) The definition of "Research" was not clear; all newly developed therapeutic procedures involve a research component to a greater or lesser extent. If the clinician were required to demonstrate in court that modifications to existing procedures were undertaken with the "intent" to benefit an individual embryo, then undoubtedly innovation would be frustrated.

3. The setting up of an SLA with discretionary power but with a requirement to report directly, and to justify, to Parliament any proposal to change working practices ensures an informal and flexible arrangement that nonetheless is left under close scrutiny.

The Society is of the view that proposals along these lines are sufficiently distinct from those proposed by the Warnock Committee that they should be given Government support in drafting a set of clauses and should not be left to the vagaries of amendment at the committee stage.

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Book reviews

The Phylogenetic System : The systemization of Organisms on the Basis of their Phylogenies

Peter Ax (Wiley, 1987). ISBN 0 471907545 £40

The most popular current schools of biological classification are numerical taxonomy, evolutionary taxonomy, cladism and transformed cladism. Of these, only the cladists believe that taxonomy should represent phylogenetic relationships as accurately as possible. A good comparative review of the different schools is provided by Ridley's 1985 book "The Reformation of Cladism" (Longmans). Ridley, like an increasing number of biologists, comes down in favour of cladism.

Each of the methods produces a taxonomy which can be represented by a branched tree, and the only justification for such a tree is modification by descent in independently evolving lineages. With few exceptions, there is no exchange of genetic material between lineages. This would not be true for, say, motor cars where new technology is rapidly assimilated into the design of various companies. So a classification of motor cars would not naturally be of the branching tree type. If, then, the justification of all techniques of

biological classification rests on phylogeny, it seems reasonable to expect classification to represent phylogeny. Will Hennig's classic 1966 book "Phylogentic Systematics" (Illinois Press, Chicago) set the ground rules for phylogenetic systematics, although many are deterred from teaching or adopting his system because of the cumbersome verbage employed (symplesiomorphy, apomorphy, synapomorphy, and the like). Peter Ax has not helped matters.

Ax's book aims to show how Hennigian techniques can actually be used and it is aimed at the student. Unfortunately, its development of the logical structure of phylogenetic systematics is almost unreadable (and certainly unteachable) except for those with a peculiar bent for learning new language. (This is not to criticise Dr. R.P.S. Jeffries from the British Museum who translated the text from German. He seems to have done a good job against almost impossible odds). In addition to defining all Hennig's words, Ax carefully uses those words in definitions of his own. The book develops a pure logical structure which will be valuable for phylogenetic systematists, but not to biologists in general who will not much care that "Descent communities are not definable - any more than a concrete evolutionary species or a biological individual are definable". Unfortunately, we all work with individuals and species so we have to accept working definitions. A structure that will not accept those definitions seems some distance from general applicability.

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Molecular Biology of DNA Repair

Ed. A. Collins, R.T. Johnson and J.M. Boyle (COB, 1987)
ISBN 0 948691 06 X. £15 (353 pages).

Arguably the major international DNA repair meeting of 1986 was held in Manchester under the auspices of the DNA Repair Information Network and the British Society for Photobiology. The proceedings of this meeting are now published as the "Molecular Biology of DNA Repair" and reflect the high quality of many of the presentations. The proceedings are not intended as a comprehensive account of DNA repair. Nevertheless, of the twenty-two articles presented, several do provide excellent summaries of the status of leading projects with an emphasis on eukaryotic systems. Excision repair is particularly well covered. Cloning programmes for human and yeast genes are well advanced (Freidberg, Hoeijmakers et al.). Mechanisms of action are detailed (McCready et al., Peterson et al.) and recent observations of preferential repair of viral or transcribed sequences are reviewed (Smith, Mullenders).

Three other research articles describe the relationship between repair activity, DNA synthesis inhibition, chromosomal alterations and cell killing (Ventura et al., Painter and Young, Johnson et al.). There are also "state of play" reports of long term projects with DNA repair mutants of Drosophila (Boyd et al.) and Chinese hamster ovary cells (Thompson et al.).

As a first step in cloning an ionising radiation resistance gene, Green

et al. report the isolation of a gamma ray resistant transformant of the human radiation sensitive line, Ataxia telangiextasia. Debenham et al. have found restitution of enzymatic breaks in plasmid DNA transfected into Ataxia telangiectasia cells to be abnormal. There is also an update on the development of SV40 and Epstein-Barr virus shuttle plasmids for mutagenesis studies (Mench et al.). A particularly useful article tabulates the properties of the known higher eukaryotic cell lines sensitive to DNA damage (Collins and Johnson).

The three papers of prokaryotic systems each give useful summaries. One reviews plasmid and bacterial genes providing mutagenic DNA repair activity (Strike and Lodwick). A second concerns the neglected topic of the toxicity, mutagenesis and stress responses produced by peroxides in E.coli (Linn and Imlay). The third E.coli chapter details the repair of alkylation damage and its regulation (B. Sedgwick). Accounts of alkylation repair in mammalian cells include studies of individual enzyme activities (Boyle et al., Helland et al.) and the expression of cloned E.coli genes in mammalian hosts (Margison and J. Brennand). A thorough review by R. Day addresses the rather contentious question of the relative biological importance of differentiation alkylation lesions.

For a student of DNA repair this is clearly a worthwhile book to have. However, the book's roots as symposium proceedings mean that on the whole it would be an inappropriate first choice as an introduction to the field.

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Biological Membranes : A Practical Approach

Eds J.B.C. Findlay and W.H. Evans (IRL Press, 1987)
ISBN 0 947946 83 7. Paperback £18 (319 pages).

This is the latest in the highly successful 'Practical Approach' series, published by IRL Press. The emphasis is naturally on 'how to' rather than 'why', but the mammoth reference list at the end of each chapter allows you to find out 'why' if you can be bothered to look it up. Several chapters give step-by-step protocols and all have useful tables or figures.

The topics covered are remarkably broad, ranging from the isolation of membranes and organelles from plant and animal cells to measuring the biophysical properties of individual membrane components. There are chapters on the purification and analysis of membrane lipids and proteins; and methods for solubilising and reconstituting membrane proteins. I was surprised that the chapter on immunological methods even includes techniques for preparing polyclonal and monoclonal antibodies and for screening cDNA expression libraries. There are several useful appendices at the end of the book with information that includes the properties of density gradient materials; enzyme markers of subcellular membranes; receptor assays; and protein modifying agents.

With each chapter written by different authors there is bound to be some variation in style and quality, but the editors have done a good job, and there is extensive cross-referencing between chapters and a comprehensive index. The book is useful both for looking up details of one specific technique and for browsing to get an idea of a range of different methods. Of course, a methods book is like a cookery book - the real test is when you try out some of the recipes!

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Neurochemistry : A Practical Approach

Eds. A.J. Turner and H.S. Bachelard (IRL Press, 1987)
ISBN 1 85221 027 3 Paperback £17 (293 pages)

For those readers who have already come across IRL's 'Practical Approach' series, this new volume will look very familiar. The format is the one tried and tested over more than 20 volumes. There are nine chapters, each covering a single technique or approach, and each written by a group of workers with extensive experience of the neurochemical technique involved. The idea is clearly that these authors should have the intimate knowledge required, not only to describe the methods in detail, but also to point out the pitfalls of any approach. One of the virtues of this series for me is that the authors get down to the nitty-gritty of each technique. The methods are laid out in cookbook fashion down to the smallest detail. They really can be followed actually at the lab bench. As a consequence, the book is of use, not only to novices seeking to learn a new technique. It will also be a great source of 'tips' for those who are already familiar with the methods. I certainly learnt new things in reading chapters covering areas that I considered I knew.

The nine chapters of this volume cover a variety of techniques that can be considered 'neurochemical' in a broad sense. In fact they range from the 'cellular' techniques of how to culture various classes of brain cells through to the distinctly 'molecular' approaches for the functional expression of mRNAs in Xenopus oocytes. The more overtly neurochemical chapters include a number that consider means of assaying and purifying membrane receptors and two chapters on sub-cellular fractionation, one of cell nuclei and the other of synaptosomes. Of the two remaining chapters, there is one on immuno-cytochemical techniques and one on the use of bioluminescence. For workers intending to use any of these techniques, I would say that this book would be a valuable investment.

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