# BSDB NEWSLETTER

No. 14
Autumn 1986

This issue contains the booking form and programme for the Spring BSDB/BSCB/COB Symposium meeting to be held in Oxford. It also contains a membership application form which you are encouraged to pass on to a colleague, perhaps pointing out that joining the Society for a mere £10 saves paying the £20 registration fee for the Oxford meeting!

## FORTHCOMING BSDB MEETINGS

### SPRING 1987

Oxford University, March 23rd-26th

The booking form for this meeting accompanies this Newsletter. Please note that it has been necessary to impose a late booking fee of £20 on forms received after January 28th. This is because the Universities have started introducing additional fees on bookings received after their deadlines, and on rooms booked but not occupied. The BSDB has no choice but to pass these costs on to the relevant section of the membership.

The Spring 1987 meeting is a joint meeting with the BSCB. It will consist of two major symposia together with three BSCB workshops, all of which should be of interest to developmental biologists. There will also be a poster session, in which a prize will be awarded to the best poster presented by a graduate student (see Announcements). Poster abstracts should be sent to Nigel Holder (address at back of Newsletter) before January 28th.

Registration for the Spring 1987 meeting will take place from 4 p.m. on Monday, 23rd March. Both the BSDB and the BSCB sessions will start on the morning of Tuesday, 24th March, with the BSDB sessions ending on Wednesday evening and the BSCB sessions ending at Thursday lunchtime. The conference dinner takes place on Wednesday evening, but please note that there is a limit of 250 people, so book early to avoid disappointment! To whet your appetites, Gillian Morriss-Kay, the local organizer, has sent a sample menu - wine is included in the price of £14:

Melon and Orange Cocktail
Darne of Salmon - Hollandaise Sauce
Vegetables in Season
Crème Brulée
Cheese and Biscuits
Coffee with cream and mints

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1. The BSDB/Company of Biologists Symposium is organized by P. Goodfellow, J. Wolfe and I. Craig, and is on:

THE MAMMALIAN Y CHROMOSOME: MOLECULAR SEARCH FOR THE SEX DETERMINING GENE

Peter Goodfellow writes:

The genetic and molecular analysis of development in Drosophila sp and Caenorhabditis sp has met with spectacular success. Unfortunately, similar genetic analysis of mammalian development has been hindered by both technical and conceptual limitations. The technical limitations, such as lack of adequate genetic maps and difficulties in cloning mammalian genes, have been largely solved by recent advances in molecular biology. The conceptual problem in recognising and defining regulatory genes has not been solved. One exception, however, is the male sex determining gene TDF (or Tdy in the mouse). This gene must play a central role in mammalian development. The meeting will consider the rapid progress that is being made towards cloning the TDF gene and elucidating its mode of action. It is hoped that the meeting will appeal not only to those with a direct interest in sex determination but will also interest those who wish to apply similar genetic and molecular techniques to investigate other developmental and cellular interactions.

The programme for this meeting is as follows:

Tuesday 24th March
Introduction : "Aims of the meeting" P. Goodfellow (ICRF, London)
Clues from other animals and theoretical considerations
Chairperson : A. McLaren (MRC, London)
Sex determination in Drosophila : R. Nothinger (University of Zurich)
Sex determination in Nematodes : J. Hodgkin (MRC, Cambridge)
X-inactivation and sex determination : M. Lyon (MRC, Didcot)
Sex determination in mice : E. Eicher (Jackson Laboratory, Bar Harbor)

Mapping the Y chromosome
Chairperson : P. Goodfellow (ICRF, London)
A map of the human Y chromosome : D. Page (Whitehead Institute, Boston)
Y specific polymorphic sequences : M. Fellous (Pasteur Institute, Paris)
Construction of a Y chromosome map : M. Ferguson-Smith (Glasgow)
Y chromosome mapping by chromosome mediated gene transfer : C. Pritchard (ICRF, London)
A map of the mouse Y chromosome : C. Bishop (Pasteur Institute, Paris)

Wednesday 25th March
Molecular analysis of structural features of the Y chromosome
Chairperson : J. Wolfe (London University)
BKm : K. Jones (Edinburgh University)
Repeat sequences on the human Y chromosome : K. Smith (Johns Hopkins, Baltimore)
Telomeres of the human X and Y chromosome : H. Cooke (MRC, Edinburgh)
The centromere of the Y chromosome : C. Tyler-Smith (Oxford University)
The human pseudoautosomal region : J. Weissenbach (Pasteur Institute, Paris)
The mouse pseudoautosomal region : P. Avner (Pasteur Institute, Paris)

Genes on the Y chromosome
Chairperson : E. Southern (Oxford University)
Genes on the X and Y chromosome: phenotypic correlations: A. de la Chapelle (University of Helsinki)
Mapping the H-Y gene : L. Simpson (CRC, London)
Role of the Y chromosome in spermatogenesis : P. Burgoyne (MRC, London)
Pseudoautosomal genes in man : P. Goodfellow (ICRF, London)

Summary and Perspectives : I.W. Craig (Oxford University)

2. The BSCB/Company of Biologists Symposium is organized by Joan Heaysman, Adam Middleton and Fiona Watt, and is:

THE SECOND ABERCROMBIE CONFERENCE ON CELL BEHAVIOUR

This meeting runs concurrently with three workshops:

| | |
|---|---|
| Cell Junctions | (organized by Nancy Lane) |
| The Nucleus | (David Lane) |
| Thresholds | (Lewis Wolpert) |

The programme for this meeting is as follows:

Tuesday 24th March
The two Abercrombie sessions are on 'Modelling and Analyzing Cell Behaviour In Vitro'. The Plenary Speaker will be Malcolm Steinberg (Princeton) and other speakers include Oster (Berkeley), Vasiliev (Moscow), Ireland (Oxford), Dow (Glasgow), Dunn (London), Wilkinson (Glasgow), Harris (North Carolina), Schor (Manchester), Mareel (Ghent) and Parish (Zurich).



Nancy Lane's 'Junctions' sessions will run concurrently with these talks, and extend into the evening.

Wednesday 25th March
The morning Abercrombie session will be on 'Quantifying Cell Behaviour during Development'. The Plenary Speaker will be Ray Keller (Berkeley) and other speakers include Thorogood (Southampton), Kucera (Lausanne), Wylie (London) and Morriss-Kay (Oxford).
The afternoon Abercrombie session will be on 'Cell Shape and Gene Expression'. Speakers include Ben-Ze'ev (Rehovot), Spiegelman (Boston), Watt (London), Mauchamp (Marseille) and Bissell (Berkeley).
David Lane's 'Nucleus' talks also take place today, and the Conference Dinner is in the evening.

Thursday, 26th March (morning only)
The Abercrombie session is on 'Cell-substrate adhesion molecules'. Speakers include Grinnell (Texas), Burridge (N. Carolina), Buck (Philadelphia), Hughes (London) and Geiger (Rehovot).
Lewis Wolpert's 'Thresholds' session also takes place this morning.

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AUTUMN 1987

Next September the BSDB is holding two meetings, one in Durham and one in Bath. Full details of both meetings will be announced in the Spring Newsletter.

The Durham meeting is organized by Martin Johnson, and takes place on 16th-18th September. Martin writes:

The outline programme for this special topic Autumn discussion meeting will be finalized over the next month or two. The meeting will include a joint session with the Feto-maternal Immunology Group covering topics related to the materno-fetal interface, particularly the origins and properties of the "front-line" endoderm and trophectoderm tissues, and the influence that events at or shortly after fertilization have on the segregation of these two cell lineages and on the nature of nuclear "imprinting". Accompanying this joint session we hope to have workshops on in-situ hybridization in mammalian embryos and on the technical aspects of making transgenic mice. There will also be a mammalian development session. The Feto-maternal Immunology Group will also have a session of their own at which BSDB members will be welcome. In addition, the BSDB will run a major session on Developmental Immunobiology in Xenopus with speakers from the USA, Japan, Switzerland, Belgium and the U.K. Suggestions for contributions to this meeting should be sent to Martin Johnson (address at back of Newsletter).

The Bath meeting is the BSDB/COB

SYMPOSIUM ON CRANIOFACIAL DEVELOPMENT

This meeting will be published as a supplement to Development (JEEM). It is organized by Peter Thorogood and Cheryll Tickle, who write:

The development of the vertebrate head is a challenging and fascinating problem. It is challenging because the entire basic repertoire of cell behaviour, ranging from migration to differentiation, is called into play. The head is fascinating because it not only houses the major sense organs but

also because the face has a key role in human social interactions, allowing the recognition of individuals and the mirroring of emotions. The first BSDB conference on Craniofacial Development will take place on 21st-23rd September, 1987 at Bath University.

The purpose of the conference is two-fold: first, to bring together research workers in the field from this country and to invite outstanding experts from abroad, both from the US and Europe; second, to be educational and provide an outline of the current status of research on the head and face. This will serve to demonstrate that craniofacial development is not impossibly complicated and will highlight general principles of development that have traditionally been studied in other systems. The conference thus aims to appeal not only to those actively working on craniofacial development but to developmental biologists in general. In addition, the subject is relevant in a broader medical context, particularly to dentistry and orthodontics.

Sessions will include the following topics:

Evolution and morphogenesis of the head
Neural crest and placodes
Patterning of muscle and connective tissue
Patterning of nerve and sense organs
Abnormalities of craniofacial development.

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## SPRING 1988

This will be a joint BSDB/BSCB/Company of Biologists Symposium meeting, to be held in Bristol. The local organizer is Beverly Randle. The two Symposia are:

1. The BSDB/COB Symposium on 'SEGMENTATION', organized by Vernon French, Jonathan Cooke and Phil Ingham.

2. The BSCB/COB Symposium on 'STEM CELLS', organized by T.M. Dexter.

Other sessions will be announced later.

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## AUTUMN 1988

For September 1988 the Committee has proposed a 5-day course provisionally entitled 'Brush up your Development'. This meeting is intended to allow teachers of developmental biology to catch up with the latest advances, both in our understanding of development and in the techniques used to study the subject.

In the 'Announcements' section of the Newsletter Chris Ford makes a request for practical protocols, videos and teaching films that may be useful for this course.

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## SPRING 1989

Neither the location nor the topic of the March 1989 Symposium have been decided. Suggestions for both are welcome, and should be sent to Nigel Holder (address at back of Newsletter).

## OTHER MEETINGS OF INTEREST

### 1. Group Travel to E.D.B.C. at Helsinki

The above meeting takes place in Helsinki between 14th and 18th June, 1987. An outline programme is presented below, but details and registration forms may be obtained from:

E.D.B.C. Congress Secretariat,
Congress Management Systems,
P.O. Box 189,
SF-00171 HELSINKI,
Finland.

There are direct scheduled Finnair flights to Helsinki from Heathrow, with connector flights to Heathrow from Aberdeen, Belfast, Birmingham, Edinburgh, Glasgow, Humberside, Leeds, Liverpool, Manchester, Newcastle, Norwich and Teeside. The scheduled air fare is about £500.00 A Eurobudget fare with a fixed outbound reservation and open return is about £386.00. Members of the BSDB have been offered a package inclusive of return flight from Heathrow plus 6 nights (13th-18th June) hotel accommodation in twin rooms with shower plus breakfast, in a hotel adjacent to the congress for £446.00 (single room supplement £121.00). The minimum number of bookings required for this deal is 11 passengers.

In order that we can take advantage of this offer, would all members who wish to make a reservation through the BSDB please:

1. Notify Chris Ford (our EDBO representative) that they wish to do so by 15th December at the latest, and include a £45.00 non-returnable deposit. Specify whether there is a particular person with whom you wish to share, or if you want a single room at extra cost.

2. Send Chris the balance by 1st March, 1987.

3. If you wish us to try and negotiate a reduced rate departing from other U.K. cities please indicate before 15th December.

Note the address to write to is:

Chris Ford,
School of Biological Sciences,
University of Sussex,
BRIGHTON BN1 9QG.

## SCIENTIFIC PROGRAMME FOR EDBC

### PLENARY LECTURES

| | | |
|---|---|---|
| A. | Chairman: | Tokindo S. Okada, Okazaki |
| | Speaker: | John B. Gurdon, Cambridge |
| B. | Chairman: | Sergei G. Vassetzky, Moscow |
| | Speaker: | Nicole Le Douarin, Paris |
| C. | Chairman: | Aron A. Moscona, Chicago |
| | Speaker: | Frank Constantini, New York |
| D. | Chairman: | Edward Kollar, Farmington |
| | Speaker: | Klaus Kratochwill, Salzburg |

### SYMPOSIA

1. Developmental tumours and embryogenesis

| | |
|---|---|
| Chairman: | Chris Graham, Oxford |
| Co-Chairman: | Eero Lehtonen, Helsinki |
| Invited Speakers: | Brigid Hogan, London |
| | Erwin Wagner, Heidelberg |
| | Masatoshi Takeichi, Kyoto |

2. Extracellular matrix in differentiation

| | |
|---|---|
| Chairman: | Erkki Ruoslahti, La Jolla |
| Co-Chairman: | Antti Vaheri, Helsinki |
| Invited Speakers: | Klaus von der Mark, Martinsried |
| | Edward Reich, Basel |
| | Ruth Chiquet-Ehrismann, Basel |

3. Genetic control of Drosophila development

| | |
|---|---|
| Chairman: | Walter J. Gehring, Basel |
| Co-Chairmen: | Leevi Kaariainen, Helsinki |
| | Veikko Sorsa, Helsinki |
| Invited speakers: | Robert A.H. White, Cambridge |
| | Elaine Mohier, Strasbourg |

4. Cytoskeleton and cytodifferentiation

| | |
|---|---|
| Chairman: | Werner W. Franke, Heidelberg |
| Co-Chairman: | Ismo Virtanen, Helsinki |
| Invited Speakers: | Elias Lazarides, Pasadena |
| | Benjamin Geiger, Rehovot |

5. In vitro fertilization and human embryology

| | |
|---|---|
| Chairman: | Robert G. Edwards, Cambridge |
| Co-Chairmen: | Juhani Rapola, Helsinki |
| | Markku Seppala, Helsinki |
| Invited Speakers: | Richard Gardner, Oxford |
| | Anne McLaren, London |

6. Oncogenes and growth factors in development

| | |
|---|---|
| Chairman: | Bengt Westermarck, Uppsala |
| Co-Chairmen: | Kari Alitalo, Helsinki |
| | Irma Thesleff, Helsinki |
| Invited Speakers: | Inder M. Verma, La Jolla |
| | Rolf Olsson, Oslo |



7. Regulation of sex differentiation

| | |
|---|---|
| Chairman: | Nathalie Josso, Paris |
| Co-Chairmen: | Ilpo Huhtaniemi, Turku |
| | Lauri J. Pelliniemi, Turku |
| Invited speakers: | Peter N. Goodfellow, London |
| | Alfred Jost, Paris |
| | Anne Grete Byskov, Copenhagen |

8. Regulation of gene expression in animal cells

| | |
|---|---|
| Chairman: | Charles Weissman, Zurich |
| Co-Chairman: | Ralf Pettersson, Stockholm |
| Invited Speakers: | Riccardo Cortese, Heidelberg |
| | Robert Tjian, Berkeley |

9. Cell surface and cell differentiation

| | |
|---|---|
| Chairman: | Gerald Edelman, New York |
| Co-Chairmen: | Leif Andersson, Helsinki |
| | Carl G. Gahmberg, Helsinki |
| Invited Speakers: | Wolfram Ostertag, Hamburg |
| | Martin C. Raff, London |

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2. European Society for Human Reproduction and Embryology. Cambridge, 28th June - 1st July, 1987.

The ESHRE is holding its third annual meeting in Cambridge next summer. The BSDB is organising a session on early embryology and teratocarcinoma cells, and other sessions encompass grafting of fetal tissues, sexually transmitted diseases, ovarian stimulation, chronobiology, prenatal diagnosis, puberty, infertility and in vitro fertilization. Details of the meeting and booking forms can be obtained from:

Professor R.G. Edwards,
Physiological Laboratory,
Downing Street,
CAMBRIDGE CB2 3EG.

## ANNOUNCEMENTS

This is the first Newsletter produced by the new BSDB Publications Officer, Jim Smith. I should like to thank the former incumbent, Chris Wylie, for all the help and advice he has offered me during the change-over, and wish him well in his latest venture as Editor-in-Chief of Development. Many BSDB members know that Chris has played an important part in the success of the Society over the years, and this is acknowledged below by Martin Johnson.

### Chris Wylie

Chris Wylie dons his new hat as Editor-in-Chief of the revamped JEEM elsewhere in this Newsletter, but before the old hat is put away, those of us who have worked with him on the BSDB Committee would like to dust it down a little. It's a hat that's been in use for so many years now that none of us, including Chris, can recall when it was first worn. Chris has had a reassuring permanence about him at Committee meetings, but it's not his admirable durability that will be missed, but the skill, experience, flair, sheer hard work and attendant good nature that accompanied it.

At various times he has been Assistant Secretary/Treasurer, Publications Secretary, i/c Symposia publication, Editor of the Newsletter (which he founded), i/c travel grants, our representative on the Board of the Company of Biologists and on the Biological Council. Perhaps his most important single achievement was to steer the Society in its rather difficult negotiations through various rival publishers to a successful conclusion with the Company of Biologists - the securing of a rolling contract to fund and publish our Symposia. This deal gave us rapid publication, a good financial return and a wide audience. It is fair to say that the Society was dangerously close to financial insolvency when the deal with clinched and there is no doubt that the current healthy financial position achieved by Mary Bownes has depended on our COB contract.

It's reassuring to know that with Chris as Editor-in-Chief of JEEM we will have someone sympathetic to the problems and aspirations of our Society and its membership. Each of us owes a debt to the scientific community for the stimulus and support it gives us. Few in Developmental Biology have paid off that debt so handsomely and so willingly. Our warm thanks to Chris for all he has done, and our best wishes for his future at JEEM.

Martin Johnson
(on behalf of present and
past Committees and the
Membership).

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### Changes to JEEM

As many members may know, the Editorial Board of JEEM has been restructured recently. A new Editor-in-Chief and two American Editors have been appointed. The panel of Editors is now:

| U.K. Editors | U.S. Editors |
|---|---|
| Chris Wylie (London) (Editor-in-Chief) | Richard Hynes (MIT) |
| Richard Gardner (Oxford) | Doug Melton (Harvard) |
| Mike Gaze (Edinburgh) | |
| Peter Lawrence (Cambridge) | |
| Hugh Woodland (Warwick) | |



In addition, there are several new names on the Editorial Advisory Board. These include:

| | |
|---|---|
| Martin Raff (London) | Bill Jeffery (Texas) |
| Gary Struhl (Harvard) | Matthew Scott (Colorado) |
| Gail Martin (San Francisco) | Judith Kimble (Wisconsin) |
| Robert Horvitz (Harvard) | Brigid Hogan (London) |
| Mike Akam (Cambridge) | |

The aim of these changes has been to improve the breadth of coverage of the Journal, in particular to improve the coverage of cellular and molecular techniques in development. With this aim in mind, we have made several changes to the Journal:

1. The name will change to 'DEVELOPMENT'

2. The Journal will be produced more attractively, in large format, and will appear monthly.

3. We will introduce a 'Reviews' section, and a regular 'Book Review' section.

The name change has been in the air for a long time, and has been precipitated by the need to encompass more of the research into development. Experimental embryology has always been JEEM's strength, and I hope this will continue to be so (especially since I am an experimental embryologist!) However, the growing interfaces between molecular biology, experimental biology and genetics means that the Journal should broaden its scope, and the new name offers the simplest possible indication of this.

We are particularly keen to improve our coverage of plant development, particularly in the light of recent work on the role of the cytoskeleton in plant development, transgenic plants and mobile genetic elements. We are currently discussing this possibility with plant developmental biologists.

Naturally we see these changes as improvements to the Journal. We hope it will reflect all that is best in all aspects of current research into development.

DEVELOPMENT will offer contributors and readers excellent value. The publication time is now down to 13 weeks (from acceptance to publication), there are no page charges and 200 free reprints, the reviewing time is better than most other journals (current coverage 3-4 weeks). Subscription prices are low. Personal subscription price for 1987 for BSDB members will be £35, which includes the symposium volume FREE. These prices can be offered because the Company of Biologists is a non-profit making organisation run by active professional biologists.

And lastly, if you have a colour or black and white photograph which is of developmental significance, and of which you are particularly proud, perhaps you would let me know, and I will consider it for one of the first covers of the Journal.

Chris Wylie

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BSDB Poster Prizes

In 1983 the BSDB offered a prize for the best graduate student poster at the BSDB Symposium meeting at St. George's. For some reason this idea did not catch on, and we haven't had any prizes for the last four meetings. We should like to revive this scheme with effect from the BSDB Symposium meeting in Oxford. A prize of £50 worth of books (or the cash) will be awarded for the best graduate student poster displayed in Oxford. If you would like your poster to be considered for this prize please notify Nigel Holder when you send him your abstract.

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Developmental Biology Films

Teachers of developmental biology may be interested in an updated check-list of films published in the Journal of Biological Education 20, 68-71 (1986) by Roger Downie and Lynne Alexander. A limited supply of reprints is available from:

Roger Downie,
Department of Zoology,
University of Glasgow,
GLASGOW G12 8QQ.

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BSDB Teaching Course on Development - September, 1988. Practicals, Videos, Teaching Films.

Although the teaching course will not have a large practical component, we would like to show teaching videos and make available details of lab protocols which have been 'tried and tested' on undergraduates. The sort of information I am looking for in the 'lab protocols' has two components. Firstly, a list of instructions, equipment, solutions etc. that you would use (or give to a class lab technician) in order to set up the practical, and secondly the protocol that would be given to the student. The intention of presenting this information is to show the sort of labs that are feasible, and provide instructions for lab organisers who may not have research familiarity with the system used.

If you have any material that would be appropriate please let me know.

Chris Ford,
Biology Building,
University of Sussex,
Falmer,
BRIGHTON BN1 9QG.

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To Peter (whichever you may be) with apologies to Paul Simon: a message from Chris Wylie

Due to less than eagle-eyed proofreading of the last Newsletter, I managed to change Peter Goodfellow's name to Peter Thorogood. Many apologies to Peter Goodfellow, who has missed out on all the telephone calls that Peter Thorogood has been getting to enquire about the Symposium on sex chromosomes he is organizing!

For the record, it is Peter Goodfellow who is organizing the Sex Chromosome Symposium. My profuse apologies to both.



Stephen P. Meier

Many members of the BSDB will know, sadly, that Stephen Meier died earlier this year. Michael Solursh and Elizabeth Hay write:

Dr. Stephen Meier (39), Associate Professor of Zoology at the University of Texas at Austin, passed away on the morning of January 9, 1986, at Seton Hospital in Austin. Dr. Meier had been suffering from meningitis. He is survived by a daughter Kathleen of Austin, his parents, Milton and Alice of St. Louis and two sisters. Dr. Meier was raised in St. Louis and received the B.A. and M.A. degrees from the University of Missouri. He received his Ph.D. at the University of Iowa under the direction of Dr. Michael Solursh and from 1972-75 was a post-doctoral fellow in the laboratory of Dr. Elizabeth D. Hay at Harvard Medical School. Prior to joining the faculty in Texas, Dr. Meier served as an Assistant Professor at the University of Southern California.

The death of a young member of any community is a tragic event. In our own scientific community, this tragedy means for many of us the loss of a friend as well as an imaginative scientist embarking on his most productive years. For those who knew him personally, Steve was a warm and witty man, generous with his time and ideas and quick to make you laugh. He will be remembered for his pioneering work on the role of extracellular matrix in tissue interactions and cell differentiation, and more recently for his studies on segmentation of head mesenchyme, where he discovered the heretofore unvisualized meromeres that he named "somitomeres". The latter accomplishment is a tribute to Dr. Meier's innate sense of order and pattern in developing systems and the accuracy of his vision. His contributions and presence in developmental biology will be sorely missed.

Dr. Meier's daughter is a 17 year old National Merit Scholar, who will enter the college of her choice in the Fall of 1986. Contributions to a fund established for her education are requested in lieu of other rememberance:

THE KATHLEEN MEIER EDUCATION FUND,
c/o Dr. Antone Jacobson,
Department of Zoology,
University of Texas at Austin,
Austin,
Texas 78712,
U.S.A.

## TREASURER'S REPORT

We decided that the accounts of the society should be published in the newsletter each year. Those presented are for 1985.

As you can see the society is improving financially, our total assets rose from £15,000 in 1984 to £23,000 in 1985. We would like to have enough "in hand" to honour our commitments for symposia and meetings for 3 years should our income from the Company of Biologists, both per capita and for publishing our symposia, cease for some reason. Our aim is to reach 30,000 total assets. All income above that will be returned to the society members in the form of good symposia and meetings, and travel awards to our young members.

Our subscription income aims to cover the costs of running the society and the newsletter. At the moment we are still receiving income from the royalties of symposia published with Oxford and Cambridge University Press. Our new system of publishing symposia as special issues of JEEM (DEVELOPMENT) provides us with a generous fixed sum at the time of publication. This is very beneficial to the society but obviously means that we are in a particularly favourable position with respect to income from symposia at present.

There are still some funds for travel awards left this year. Priority is given to Ph.D. students attending BSDB meetings, and when sufficient funds are left we help Ph.D. students attend overseas meetings and untenured postdocs attend BSDB meetings. Application forms are available from the Treasurer.

Mary Bownes



# British Society for Developmental Biology

*Tel.* 031–667 1081
*Extn.* 2706

*From the Treasurer*
Dr. Mary Bownes
Department of Molecular Biology
University of Edinburgh
King's Buildings
Mayfield Road
EDINBURGH EH9 3JR

## FINANCIAL STATEMENT FOR YEAR 1985

CHARITY REG. NO.: 270863

### Balance Sheet

| 1984 | | 1985 |
|---|---|---|
| | **Investments** | |
| £3421.98 | National Savings Investments | £4251.99 |
| 1000.00 | Borough of Redbridge Bond (Ann.Interest to Dep.Ac.) | 1000.00 |
| 584.38 | Treasury Stock (Ann.Interest to Dep.Ac.) | 584.38 |
| £5006.36 | | £5836.37 |
| | **Accounts** | |
| £ 4495.29 | Current | £1176.85 |
| 4191.67 | Deposit | 14516.15 |
| 1500.00 | Investment | 1656.13 |
| £10186.96 | | £17349.23 |
| £15193.32 | TOTAL ASSETS | £23185.50 |
| | Represented by:- | |
| | Income | £22134.58 |
| | Expenditure | 14143.56 |
| | Balance from 1984 | 15193.32 |
| | | £23184.34 |

## 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, 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)

.....

.....

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 .....

.....

.....

.....

Sheet 2.

Prepared by:- MARY BOWNES,
TREASURER.

8th Feb. 1986.

Auditor's Report

I have examined the balance Sheet and the statement of Income and Expenditure for the year 1985 and report that they are in accordance with the records and vouchers I have examined.

7th May, 1986.

Accepted by Committee on

29th Sept 86

Signed Chairman,
M. Johnson

Secretary
C. Ford.



Sheet 3.

Statement of Income and Expenditure for the year 1985.

Income

| | | |
|---|---|---|
| Subscriptions | | £ 3413.24 |
| Mailing Leaflets | | 247.25 |
| B.S.D.B. Symposium from C.O.B. | | 8500.00 |
| C.O.B. Grant | | 5247.00 |
| Royalty advances (Metamorphosis) | | 500.00 |
| Royalty previous symposia | | 1543.48 |
| Elsevier/TIGS Travel Award | | 1000.00 |
| Refund E.D.B.O. conference | | 215.00 |
| Treasury Stock dividend | | 68.74 |
| Redbridge Bond dividend | | 89.25 |
| National Savings interest | | 830.01 |
| Deposit Account interest | | 324.48 |
| Investment Account interest | | 156.13 |
| | TOTAL INCOME | £22134.58 |

Sheet 4.

Expenditure:

| | |
|---|---|
| Travel Grants | 1166.00 |
| Appeal Fund Float | 200.00 |
| Norwich Meeting Float | 500.00 |
| Glasgow Meeting | 1364.58 |
| Amphibian Symposium | 4292.66 |
| Trent Park Meeting | 4178.94 |
| Biological Council Sub. | 17.50 |
| Audit Fee | 40.00 |
| Committee/Officers expenses | 308.00 |
| Metamorphosis Symposium | 300.00 |
| Newsletter | 763.75 |
| Printing, postage, photocopying | 837.13 |
| Secretarial work | 175.00 |
| TOTAL EXPENDITURE | £14143.56 |



## BOOK REVIEWS

Growth Factors: Structure and Function
Eds. Colin R. Hopkins and R. Colin Hughes.
COB, 1985. ISBN 0-950-87099-4. £15.

Developmental biologists are keen to discover the nature of the signals that pass between cells and act to determine cell fate: the molecules that Turing called 'morphogens'. It is fair to say that of the signals we know to be involved in early vertebrate development, however, not one has been identified and characterized: embryos are just too small to provide an efficient source of morphogenetic factors. A reasonable alternative approach then, might be to study the nature and mode of action of a group of molecules that have known effects on other systems, and then to ask how the lessons learnt might apply to the study of morphogens. This book is the proceedings of the BSCB/COB meeting in Glasgow last year, and it covers the structure and function of the cell growth factors. Are there useful lessons for the developmental biologist here?

The book is divided (roughly) into three parts. The first covers different growth factors: epidermal growth factor, insulin-like growth factors, platelet-derived growth factor and the growth factors of the haemopoietic and nervous systems. There follow sections on growth factor receptors and on the transduction of the extracellular signal from receptor to nucleus. This last section, although the shortest, is perhaps the most interesting because it seems that several different growth factors, acting on a range of different cell types, elicit a rather small number of early intracellular responses. These include changes in intracellular pH, calcium ion concentration, cAMP, cGMP, diacylglycerol and inositol (1,4,5)-trisphosphate. It seems worth asking whether embryonic cells use a similar set of responses after receiving a morphogenetic signal, and such an approach might even give a clue as to when the elusive inductive interactions take place.

But an even more compelling reason for the developmental biologist to take an interest in growth factors is the possibility that these molecules are themselves related to morphogens. This is suggested by the observation that both the Drosophila Notch and the Caenorhabditis lin-12 homeotic loci encode proteins with homologies to epidermal growth factor (EGF) (see Cell 43, 559). Seven of the twenty articles in this book deal with EGF or its receptor and they are all worth reading - particularly the 'introductory' chapter by Graham Carpenter. With the possibility that molecules related to other growth factors will also play a role in early development, every chapter is of potential interest, and at £15 the volume represents excellent value.

Jim Smith

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## Biology of Fertilization

Ed. Charles B. Metz and Alberto Monroy in 3 volumes.
Academic Press, 1985.

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| Vol. I | Model Systems and Oogenesis | £57 |
| Vol. II | Biology of the Sperm | £65 |
| Vol. III | The Fertilization Response of the Egg | (price not supplied) |

This three volume treatise is an expanded and broadened sequel to Fertilization published in the late 60's with the same editors. The three volumes provide a wide ranging approach to oogenesis, spermatogenesis and the fertilization response of the egg. Published in 1985 these three volumes suffer from what appears to have been delayed publication. Most articles have references up to 1983, though the article by Malacinski states that the literature is surveyed up to 1982. An addendum to the chapter by Whitaker and Stenhardt covers literature for 1984, which is a bonus. However, the combination of articles in these three volumes is stimulating and valuable reference material.

The first volume deals with general considerations and then arbitrarily with oogenesis. Of the general topics (evolutionary implications, signal reception and transduction and fertilization in Paramecium), the chapter on signal transduction is comprehensive and readable. The section on oogenesis is headed by a short general consideration of gametogenesis by Monroy and followed by eight chapters on aspects of oogenesis and oocyte maturation in a range of organisms. The review by Masui addresses the variety of timing of meiotic arrest points illustrated by different organisms. It emphasizes the continuity of the sequence of events which, wherever arrested, are restarted by fertilization. Consequently the separation of topics results in some anomalies. Synthesis, accumulation and utilization of macromolecules during oogenesis and maturation is considered by Smith and Richter in Volume I, but maternal messenger RNA and its expression in embryos (reviewed by Raff and Showman) is in Volume III. Establishment of polarity in insects (Gutzeit and Sander) and amphibian embryos (Malacinski) are also in different volumes.

The chapters on oogenesis also cover an immunologic perspective on vertebrate sex determination (Nakamura and Wachtel), oocyte growth and maturation in starfish (Kanatani), ionic regulation of oocyte maturation (Moreau, Guerrier and Vilain) and aspects of mammalian oogenesis. The volume on the biology of the sperm (Volume II) is subdivided into three parts, spermatogenesis and sperm physiology; chemotaxis; and gamete recognition and binding. The editors indicate that their intention is to assemble various lines of current research in related fields which impinge or are likely to influence thinking on aspects of gametogenesis or gamete interaction. Consequently in Volume II there are chapters on chemotaxis in bacteria (Haxelbauer) and in slime molds (Maruta). There is however no chapter on the genetic analysis on sperm differentiation.

Volume III covers events at fertilization and the events of early embryogenesis which it releases. There are chapters on cortical granules (Schuel), formation of the fertilization membrane (Kay and Shapiro), calcium explosions, waves and pulses (Jaffe), ionic signalling in sea urchins (Whitaker and Steinhardt), DNA synthesis (Benbow) and protein synthesis in mammalian oocytes and embryos (Van Blerkom) amongst others. This volume is, to me, a valuable compilation, since it brings together the various aspects of fertilization responses from cortical granule release to the regulation of protein synthesis and events of the cell cycle.

The three volumes together provide detailed reviews and comprehensive



references mostly up to 1983. They will remain a valuable reference set and well worth the library purchase.

Chris Ford

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## Prospects in Cell Biology
20th Anniversary volume of the Journal of Cell Science.
Eds. A.V. Grimstone, H. Harris and R.T. Johnson (1986). £15

In this volume the editors invited contributors to assess the present situation and likely future developments in their fields, rather than provide comprehensive reviews of what has been achieved. The volume is sub-divided into six sections; structure and function in subcellular systems; signals and controls; cells and tissues; regulation of gene activity; cells in development and cells and disease. Within these broad titles the coverage is necessarily not comprehensive. From what I have read the authors have followed the request to discuss avenues of future progress and for this the volume is unusual and valuable. The current rapid advances in molecular dissection of cell cycle controls in yeast are reviewed by Hayles and Nurse, and provides a valuable counterpoint to the review of regulation of cell proliferation by Pardee, Coppock and Yang. The discussion of gap junctions (Pitts and Finbow) includes consideration of recent microinjection of antibodies as a means of probing the role of gap junctions in development. To me the prospects of reassembling the cell nucleus (discussed by Laskey) show considerable potential (but then I'm biased!) Perhaps the use of cell homogenates from Xenopus eggs may provide a route to improving nuclear transfer results.

This is a stimulating volume, unusual in its scope and aims and well worth purchasing.

Chris Ford

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## Calcium and the Cell
CIBA Foundation Symposium 122
Eds. D. Evered and J. Whelan, 1986.
Pub. Wiley ISBN 0 471 91088 0. £27.50

The central role of calcium in the control of cellular activity has long been recognised. This collection of short papers brings together leading workers in a number of aspects of calcium metabolism and attempts a broad overview of recent developments in this important field. As alluded to by several of the authors the level of free calcium in the cell can be altered by two prime mechanisms - entry from without or release from within. Both of these pathways are discussed in the first half of this book. Considerable attention is given (notably Berridge) to the involvement of inositol phosphates in the release of calcium from intracellular stores. This theme is picked up again in the contributions from Moolenaar's and Nishi Zuka's laboratories. The role of transient calcium fluxes in the action of growth factors and the synergistic activation of the calcium-dependent protein kinase C by the other product of phosphatidylinositol phosphate turnover,

diacylglycerol, are discussed. The classical actions of calcium in regulating protein phosphorylation via calmodulin are not ignored. Several papers describe the detailed molecular characterization of calcium binding and transporting proteins. Molecular biology has provided the means to obtain the sequence of otherwise intractable hydrophobic proteins and the wealth of information which can be derived from this knowledge is elegantly illustrated in the paper of Green et al. proposing a model for the structure and mechanism of calcium ATPases. Finally, some functional consequences of changes in calcium levels on cytoskeletal organisation and exocytosis are presented, and for developmental biologists the theories of Jaffe (from the U.S. National Vibrating Probe Facility!) regarding calcium and morphogenetic fields round off the book on a thought-provoking note. Inevitably in a publication of this kind many interesting aspects of the biology of calcium are left out. This reviewer would particularly have appreciated some discussion of the role of calcium in cell adhesion. Nevertheless, it serves its purpose in providing a relatively up to date and useful synthesis of many of the important concepts and will lead the interested reader to the appropriate sources for more detailed information. Now drink your milk.

Tony Magee
Lab of Cell Surface Interactions
NIMR.

---ooOoo---

Nuclear Structures : Isolation and Characterization
A.J. MacGillibray and G.D. Birnie
Pub. Butterworths, ISBN 0 407 003231. £30.

The images of the cell nucleus found in celebrated text books are more easily recalled than any attempted integration of esoteric experimental information that is now emerging. The editors of this book have undertaken a careful scrutiny of experimental approaches to the isolation and characterization of the nuclear substructures found in those well known pictures. They have presented lucidly and unambiguously what they believe to be the best experimental route to the characterization of these structures. In this objective they have largely succeeded and have produced a book which will be useful to anybody embarking on biochemical investigations of nuclear organization. As it is now obvious that the future of the enzymology of information transfer and cytology are to be inextricably linked, this is a book that may be widely used.

There are eleven contributed chapters, each concerned with one rather narrowly defined topic and are frankly directed at experimental matters but include a discussion of relevant background material. One group of 3 chapters is on nuclear matrix, nucleoids and nuclear envelopes; a set of topics which overlaps operationally to a greater extent than the authors admit. Another 3 chapters cover RNA-containing structures of the nucleus and which are amongst the most interesting in the book. Other topics covered include metaphase chromosomes, polynucleosomes and hormone receptors. Two other chapters include isolation of DNA-binding proteins and nucleic acid. The chapter on DNA-binding proteins contains protocols for preparation of populations of putative DNA-binding proteins from chromatin but contains insufficient detail to be really useful to an experimentalist.

An unsatisfactory part of the book for the general reader is that because the authors have deliberately eschewed speculation, there is hardly an aspect of their discussions that foreshadows the major conceptual or experimental



advances in nuclear cytology of the 2 years since the bibliography was compiled. Just a few examples of these are (i) reconstitution of nuclei and mitosis in Xenopus egg extracts; (ii) demonstration of a precise three-dimensional architecture of interphase chromosomes of salivary glands of Drosophila; (iii) identification of sites of synthesis of specific transcripts adjacent to the nuclear membrane; (iv) identification of sequence-specific scaffold attachment sites flanking transcriptional domains. While it is no great surprise to find the authors did not indulge in prophecy and speculation, I had certainly expected more discussion of the status of transcription and replication complexes within the nucleus. This is illustrated by their treatment of the paradoxical sensitivity to DNAase of actively transcribed DNA. Thus it is well known that actively transcribed DNA is particularly sensitive to DNAase at low salt concentrations and yet matrix or nucleoid preparations prepared using high salt treatments followed by DNAase treatment are enriched for transcribed genes. Other examples could also be mentioned where unresolved paradoxes have been ignored.

In short, this is a book written in the great tradition of recipe books (of the culinary or scientific kind) that offers some very clear choices without much prevarication or reflection on the legendary 'feasts' of former times.

Michael Sargent
Laboratory of Embryogenesis
NIMR

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Structural Glycoproteins in Cell-Matrix Interactions
Frontiers of Matrix Biology
Editors: J. Labat-Robert, R. Timpl and L. Robert.
S. Karger AG, Basel, Switzerland. £55.70

Structural glycoproteins is the term given to an increasing number of components identified in extracellular matrices. The term is misleading not only in the sense that all molecules are inherently structural but because the glycoproteins often are minor matrix constituents that have clearly-defined biological activities. Some of the glycoproteins operate at very low concentrations to promote for example cell adhesion and motility, quite distinct from any role as "structural" elements in forming a matrix. This comment is the only negative one in my review. Volume 11 of the series on Frontiers of Matrix Biology is an excellent and up-to-date account of an important, and presently exciting area of research.

L. Robert opens the book with a short, mainly personal, historical review of his studies on non-collagenous proteins extracted from several connective tissues and J. Labat-Robert discusses briefly the binding properties of fibronectin, the identification of which in the extracellular matrix did much to advance studies on the matrix glycoproteins. The key features of fibronectin, characteristic of several matrix glycoproteins, are emphasized. These are their multi-domain character with many ligand-binding activities. The additional concept of biologically active fragments of matrix glycoproteins, specifically fibronectin fragments with transformation-enhancing activity is introduced by Barlati et al. The molecular structure of basement membranes including the glycoproteins laminin, nidogen and entactin is next reviewed by Paulsson et al., illustrating the remarkable structural detail obtained for the group of molecules by classical protein chemistry backed up by electron microscopic techniques. The interactions between the

various basement membrane components are covered adequately, but disappointingly - there is little attempt to present models of basement membrane organization.

Several chapters deal with matrix glycoproteins that are so far less defined than fibronectin or basement membrane glycoproteins. These include hyaluronectin, a glycoprotein with specific affinity for hyaluronic acid, and several glycoproteins from aorta and lung and elastic fibres. The confused nomenclature in the field is indicated by the inclusion in this book of an excellent chapter on Type VI collagen by Ranterberg et al. This minor but widely distributed component of extracellular matrices contains relatively short collagen-domains and other features more akin to non-collagenous glycoproteins. Many hybrids of this type are being identified e.g. Types IX and X this year and any future revision of this chapter could usefully include these components.

The important roles of matrix glycoproteins and collagen in cell adhesion are covered in several sections. Obrink reviews the CAMs (cell adhesion molecules) and Mollenhauer and von der Mark review their studies on "anchorins", cell receptors for collagens or laminin and presumably involved in cell interactions with matrix. Regretably, the recent progress in identification of fibronectin-binding molecules receives little attention. Cell-matrix interactions are also considered in two interesting chapters concerned with epithelial-mesenchymal contacts with specific reference to odontoblast differentiation and between tumour cells and the extracellular matrix, important for understanding tumour invasion.

In summary, a useful book that should interest biochemists as well as cell and developmental biologists involved in various aspects of the structure and function of the extracellular matrix.

R.Colin Hughes
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