B.S.D.B.

NEWSLETTER No. 9

MAY 1984

I. MEETINGS

EDBO Meeting September, 1984 - Southampton

All members and institutes have now received the final circular for this meeting. The contents of the meeting were published in Newsletter 8. Remember, all members should contribute at least one poster! In the unlikely event that you haven't received a booking form, or seen a circular, contact Dr. P. Thorogood, Department of Biological Sciences, Medical and Biological Sciences Building, University of Southampton, Bassett Crescent East, Southampton. (SOON!).

GLASGOW, SPRING 1985

Joint meeting with BSCB, University of Glasgow, March 25-27th 1985. Local Organiser Adam Curtis.

This will be a big meeting; the joint meeting of the two societies will immediately precede a "Tenovus Symposium" on the control of gene expression. Components of the meeting will be as follows:-

1) Symposium March 25-26th "Early Amphibian Development" - Organised by Jonathan Slack. This will be published as a supplement volume to JEEM in Autumn 1985. There will be a BSCB Symposium at the same time on "Growth factors".

2) "Cell Invasiveness Phenomena *in vitro*" Organisers: J. Lackie & J.V. Forrester.

3) "Cell/Environment Interactions in Cell Movement".

4) "Endothelial Interactions"

5) "Morphogenetic Movements"

6) Contributed paper session.

The following introduction to the 11th BSDB Symposium is from Jonathan Slack:

"The Symposium for 1985 will be on "Early Amphibian Development" to be held on March 25 and 26 in Glasgow. It is intended that the content will appeal not only to those who work with amphibian embryos but to all developmental biologists since the problems are often similar in different organisms but techically easiest to solve for a particular one.

Amphibian embryos are uniquely suitable for micromanipulation and, in contrast to other vertebrates, are readily accessible during the stages of embryogenesis in which the body plan becomes determined. After a period in which they have been relatively out of fashion, the application of modern techniques is once again putting them into the vanguard of developmental biology. In particular:

- New methods of cell marking (HRP, Bolton Hunter Reagent, fluorescent dyes) are allowing very high resolution fate maps to be produced and have made it possible to find the precise times of developmental decisions by clonal analysis.

- Modern methods (protein analysis, monoclonal antibodies, electrophysiology) are allowing direct observation of cellular states of determination in the early embryo.

- Molecular biology is producing data on stage and region specific regulation of single genes, soon to be taken to the single cell level with *in situ* techniques.

It is possible that major long standing problems of vertebrate embryogenesis will be solved in the next few years with the help of amphibian embryos. It is quite certain that there will be a major revival of interest in the field."

Jonathan Slack

AUTUMN 1985 Dates amd venue to be confirmed. Topics will include
Pattern formation
Limb development
Mammalian Development
Cell Recognition
Slime mould development

Third International Congress of systematic and Evolutionary Biology, 1985

The congress will be held on 4-10 July, 1985 at the University of Sussex, near Brighton, England

The following Congress Symposia are being organised:

Symbiosis in Evolution
Conservation of Tropical Ecosystems
Biogeographic Evolution of the Malay Archipelago
Adaptational Aspects of Physiological Processes
Co-evolution in Ecosystems in the Red Queen Hypothesis
Angiosperm Origins and the Biological Consequences
The Measurement of Rates of Evolution
Molecular Biology and Evolutionary Theory
Co-evolution and Systematics
Molecules vs. Morphology in Phylogeny :
Conflict or Compromise?
Random and Directed Events in Evolution
Biochemical Innovation in Microbial Communities

There will also be Special interest Symposia on other topics, as well as sessions for contribution papers, films and poster papers.

For further information write to:

Professor Barry Cox,
ICSEB Congress Office,
130 Queen's Road,
Brighton,
Sussex,
BN1 3WE, U.K.

II FROM THE SECRETARY

1. Changing Officers & Committee

The last six months has seen a considerable change amongst the officers of the Society. The terms of office for the Chairman, Chris Graham, the Secretary-Treasurer, Mike Balls and the Assistant Secretary-Treasurer, Chris Wylie were all due to end at Easter 1984. Chris Wylie has been persuaded to stay on as Publications Officer, a newly created post with responsibilities for Newsletter production and as chief editor for for symposium publications. A new arrangement for symposium publications is now being finalized (details elsewhere in the Newsletter).

With the retirement of the Secretary-Treasurer, it was agreed to split this job in two. It is a tribute to the efforts Mike Balls put into the Society that his duties are being transferred to two people. The Secretary (Chris Ford) will be responsible for minutes and agenda for AGM and Committee meetings, membership, mailing to members and general correspondence. The treasurer (Mary Bownes) will be responsible for collection of subscriptions, keeping accounts, travel awards and financial aspects of meetings. So now you know who to contact if your mail is going to the wrong address, or your subscription is due! In view of the extended service and unique contribution Mike Balls has made to the Society, he was elected an Honorary Member of the Society at the Leicester AGM.

Martin Johnson has been elected to succeed Chris Graham as Chairman. Chris has guided the society through a large number of successful symposium meetings and resigns at a time when the financial outlook of the society is good, particularly through the reorganisation of symposium publications. His efforts during the last five years have been greatly appreciated.

Drs. J.D. Horton and R.A. Laskey stand down after generously helping on the Committee for the last 5 years. Drs. H. Woodland and B. Hogan were elected unopposed.

New Committee Officers' Addresses:

Chairman	Dr. Martin Johson, Department of Anatomy, Downing Street, Cambridge, CB2 3DY.
Secretary	Dr. Chris Ford, School of Biological Sciences, University of Sussex, Falmer, Brighton, Sussex, BN1 9QG.
Treasurer	Dr. Mary Bownes, Department of Molecular Biology, University of Edinburgh, King's Buildings, Mayfield Road, Edinburgh EH9 3JR.
Meetings Secretary	Dr. Mike Snow, MRC Mammalian Development Unit, University College, 4 Stephenson Way, London, NW1 2HE.
Publications Officer	Dr Chris Wylie, Department of Anatomy, St. George's Hospital Medical School, Cranmer Terrace, London, SW17 ORE.

2. Travel Grants

Louie Hamilton Memorial Fund

The purpose of this fund is to help junior biologists working in any of the departments in which Louie Hamilton worked, or any severely disabled biologist to attend meetings of the Society and also to draw the attention of British Biologists to fields of developmental biology that may cast light on our knowledge of Multiple Sclerosis.

Priority for the award of bursaries will be given to participants in a meeting of the Society who at the time of the meeting are:-

a) Pre-doctoral research assistants who work, or have recently worked in any of:

i) The Department of Anatomy together with the Department of Biology as Applied to medicine of the Middlesex Hospital Medical School,
ii) The Department of Anatomy and Department of Zoology of University College, London.
iii) The Department of Zoology of King's College, London.

OR

b) professional biologists working in a British university or other College of Higher Education and disabled to an extent that effectively restricts them to a wheelchair.

Bursaries are only for travel within the United Kindgom for attendance at a meeting of the Society.

No person can receive more than two bursaries from the Fund unless effectively restricted to a wheelchair.

BSDB Tavel Grants

Some funds are available to help BSDB members with the cost of travel to attend meetings. The sum allocated in 1983 was £876. Priority in awarding travel grants will be given to graduates attending society meetings. Requests from postdoctoral BSDB members will be considered if funds remain after allocation to graduate applicants.

Applications for support from either the Louie Hamilton Memorial Fund or the BSDB Travel Grant should be made to:

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

Chris Ford

III. Publishing of Symposium Proceedings

For some time now, there has been some disquiet amongst the Committee concerning the way in which our Symposia are published. The disadvantages of publishing each one as a book are threefold: firstly publishers have to make an individual decision as to whether or not to publish each volume; secondly they are very expensive and thirdly production time for books is very slow. We have never managed to get our symposia published within a year of the meeting.

There are two fundamental reasons for publishing our proceedings; to provide an income for the Society, and to allow our members to read them. Neither of these are being provided by our current arrangement. Symposia (allowing for discount afforded to BSDB members) cost over £30, and the overall symposium account (Royalties received minus costs) is about £2,800 in deficit.

At its last meeting, the Committee agreed a new publishing arrangement, which will hopefully overcome both of these problems. An agreement is to be signed whereby the Company of Biologists will publish the symposium proceedings as a series of supplements to JEEM. The managing editor of the supplements will be the Society's Publishing Officer, currently C.C. Wylie. Each supplement will have different principal editors, who will normally be the organisers of the symposium concerned. The Company of Biologists will pay £8,500 to the Society for each supplement published. This represents a considerable increase in income. The Company of Biologists will sell the supplements direct to members of the BSDB for a special price of around £10. [Members should also remember that they can subscribe to JEEM, including our supplement issues, for £20.00 per year.]

The new arrangement will start in 1985 with the proceedings of the Symposium in Amphibian Development being organised by Jonathan Slack and Ron Laskey, and will run for 3 years in the first instance. We hope the new arrangements will allow members to buy the proceedings, and thus stimulate interest in the symposia generally.

Future Meetings

Whilst on the subject of Symposia, I would like to repeat my annual call for suggestions from potential organisers. Remember a symposium is held at the Spring Meeting each year, and in future will appear as a supplement to JEEM the same Autumn. Any ideas for topics and organisers are welcome, and will be put before the Committee at the next meeting. Suggestions to Chris Wylie or Mike Snow please. Any member who feels we are neglecting a particular discipline in our meetings should take issue with Mike Snow, who will attempt to put the matter right. It is

the aim of the Officers and Committee to represent everyone's interests. However, the pressure to do so has to come from the membership.

C.C. Wylie

IV. B O O K S

"Molecular Biology of Egg Maturation" Ciba Foundation Symposium 98, Pitman 1983, ISBN 0-272-79730-8

This symposium is much more wide ranging that the title suggests. It consists of 14 review articles, roughly grouped into various general areas. Only four papers consider the maturation process itself, in particular the possible factors incuding maturation (Kanatani) control of protein synthesis (Moor & Osborn), hormone receptor proteins (Baulieu & Schoderet-Slatkine) and the induction of chromosome replication (Laskey et al). Another group of papers concerns oocyte-specific function such as the regulation of yolk protein synthesis (Bownes et al., Tata et al., Wallace et al.), the information content of oocytes and its inheritance by the subsequent embryo (Davidson et al., Pratt et al.), the oocyte as a secretory cell (Colman et al) and the molecular basis of sperm-egg interaction (Rossignal & Lennarz). Papers falling outside these two general categories are on the introduction of viral DNA into the germ line (Jaenisch), expression of the ovalbumin gene family (Stumph et al.) and vitamin carrier proteins during embryogenesis (Adiga & Murty).

The reviews are of high quality, and the whole volume is enhanced considerably by publication of the often lively discussion (e.g. over the possible involvement of cyclic AMP in oocyte maturation) which follows each paper. This discussion is free-ranging and of extremely high standard. It is difficult to bring scientists together from diverse backgrounds and to promote sensible discussion. The result here is a great success.

C.C. Wylie

"Molecular Neurobiology" Cold Spring Harbor Symposia on quantiative biology Vol. XLVIII. Cold Spring Harbor Lab. ISBN 0-87969-048-8 ($81.00) (Also available as 2 hard back volumes in the traditional format at $125.00)

We seem to be in an era when it's fashionable to criticize the continual stream of published meeting proceedings. It seems to me that as developmental

biologists we should welcome as many volumes in the field as publishers are prepared to produce, and let the market (us) sort out the wheat from the chaff.

Under any circumstances this series represents the wheat, and has for many years, represented all that is best in published proceedings. Apart from the scientific content, a welcome innovation is the appearance of what used to occupy 2 large hard-backed volumes in a handleable (just) paperback at a price the individual can (just) afford.

Although at first sight molecular neurobiology is not a subject one would expect in this information service, there is an enormous amount here for both molecular and cellular developmental biologists. There are several papers in each of the following rough groupings:

Cell lineage analysis in the developing nervous sytem
Gene expressoin in the diversity of neuron types
Chromatin changes during neuronal differentiation
Cell surfaces changes in neuron differentiation (including neural adhesion molecules, neuronal differentiation antigens and other surface markers.
Navigation of neurons and their processes during nervous system assembly
Role of extracellular matrix components in neural differentiation and migration

The nervous system probably expresses about four times the number of structural genes than in any other tissue; and on histological and connectivity evidence there may be as many 10,000 different neuron types. This is clearly tricky ground for the molecular biologist, made worse by the fact that although many monoclonal antibodies show neuron diversity, few have been used yet to characterize the respective gene products. This seems to be the stage reached at the time of the meeting. Undoubtedly there will be a surge of work on the characterization of different neuron specific proteins. The more difficult step will be to relate these to function, and to identify the mechanisms whereby this extraordinary genetic diversity is achieved.

This volume also contains an enormous amount of new information on the molecular biology of known neuron proteins (e.g. Na^+ channel protein) and on some fairly simple behaviour patterns in invertebrates.

In summary, this volume is extremely valuable addition to the library.

C.C. Wylie

History of Staining. Clark, G. & Kasten, F.H. (1983) Williams & Wilkins (Publ), Baltimore/London. ISBN 0-683-01705-5.

Louis Pasteur believed "it is by reading what discoverers have done that we lift and maintain the sacred flame of discovery". That is probably a good enough reason for writing a book on the history of staining. In documenting the important events and personalities in the development of staining this book also chronicles, in part, the development of modern cell biology. It traces the use of biological stains from the work of Hooke and Leeuwenhoek up to the evolution of fluorescence microscopy and modern protein and nucleic acid histochemistry. Interspersed between chapters on the history of different dyestuffs and techniques are short biographies of some important investigators, such as Hill, Von Gerlach, Mayer, Ehrlich and Flemming.

Two things are striking about this narative. Firstly the serendipitous nature of research. Perkins, for example, discovered one of the first aniline dyes whilst actually trying to synthesize quinine! Secondly, the personalities of the invetigators. Schlieden, acknowledged architect of the cell theory, has been described as one of the strangest scientific personalities of his time. In a fit of depression over his lack of success as a lawyer he shot himself. Fortunately he failed to kill himself and went on to greater things. Paul Ehrlich on the other hand comes across as a giant amongst his contemporaries. He discovered trypan red as an agent against trypanosomes and developed neutral stains that were to prove important in our knowledge of blood leukocytes. Is this the stuff to light the flames of discovery today?

Peter Donovan

Developmental Biology. An Afro-Asian Perspective
Eds. Suresh C. Goel and Ruth Bellairs
Indian Society of Developmental Biologists, Department of Zoology, University of Poona, India, 1983.

Twenty five authors from 10 countries contribute to this very interesting volume, the Proceedings of the International Conference on "Teaching and Research in Developmental Biology in Afro-Asian Countries: A Review and Strategy for the Future" held in Poona from 23-26 November, 1982. Eleven are from the host country, 2 from China, 1 from Iraq, 3 from Japan, 2 from Kenya, 1 from Nepal, 1 from Russia, 1 from South Africa, 2 from U.K. and 1 from U.S.A. Roughly half of the papers are concerned one way or another with problems of teaching the subject: some present views on "What" and "how" (Balinsky, Goel, Jacob, Truman); some deal with particular local problems and their solution (Al-Ani, Bania, Magon, Okada - particularly on language; Pandit); others concentrated on the use of locally available

materials (Khare, Yoneda). There is much of general interest in all of these.

Fourteen of the papers review particular research areas: early embryonic induction (Grunz); Transdifferentiation and induction (Lopashov); Pigmented epithelial cell differentiation in vitro (Eguchi); Gap junctions in amphibian development (Zeng); gap junctions in vertebrate limb development (Kelley); agglutination factor from rabit muscle (Shih and Liang); metabolism in regenerating rabbit tails (Magon); ontogeny of flutamine synthetase in rat (Chatterjee and Sakar); regeneration studies (Niazi); plant cloning technology in India (Jagannathan); tissue culture resarch in India (Wagh); cell surface in development (Rao); Differentiation in the mammalian testis (Ramaswami); radiation effects on mammalian development (Srivastava).

All of these reviews are useful in themselves, but more than that, they indicate the range of interest and activity in developmental biology in the countries represented and in particular the excellent basis for expansion that the subject now has in the Afro-Asian countries.

Donald Ede

Automation in Animal Development

Rosine Chandebois & Jacob Faber.
In Mongraphs in Developmental Biology 16. Ed. A. Wolsky.
Karger, 1983. ISBN 3-8055-3666-6

This monograph presents a unified model of embryonic development which tackles the progression from egg to organism at both the molecular and cell level. It compares the activity of a cell with that of a computer, with the DNA as the arithmetical circuits, and the cytoplasm as the cell's memory and the route through which input (extracellular information) and output (information to other cells) pass. The book draws widely on experimental data, both classical and modern, and does not restrict itself to a theoretical approach.

It is divided into two parts: the first a treatment of cell determination, differentiation and development of pattern, and the second a discussion of the programming of early development. Central to these issues is the time-honoured concept of cytoplasmic control of cell activity and of extracellular influence on this control.

The book makes stimulating reading for al developmental biologists, particularly at a time of renewed interest in the classical and unsolved problems of determination, differentiation and pattern development.

Janet Heasman

Cells Into Organs The Forces that shape the Embryo
2nd Edn. J.P. Trinkaus, Prentice-Hall, 1984.
ISBN 0-13-121632-5

This revision of the 1968 book is, in Trinkaus' words "so extensive that it is almost a new book". The title "Cells Into Organs" is slightly misleading, in fact, as organ formation occupies only one chapter. The subscript "The forces that shape the embryo" is more representative of the content of the book. After an introductory section describing the types of cell movement that occur in embryogenesis and in adult organisms, the book concentrates on three major topics - cell adhesion, cell movement and its control in vitro, and the mechanism and control of cell movement in vivo. The final chapter discusses the mechanism of spread of cancer cells.

The book forms a stimulating and extensive survey of cell movement studies, and as such is ideal as an introductory text for students or research workers new to the field. The emphasis is on cell rather than molecular biology and highlights many of the unsolved problems.

The author writes in the preface that "This book was emphatically not written for colleagues working on cell motility". It may be difficult for this group of people to resist the temptation to look at it. Certainly the chatty, questioning style makes easy reading, although the deliberate restriction to "selected references" might prove frustrating for those involved in the field.

J. Heasman