British Society for Developmental Biology

Newsletter 8

Spring 1983

I FORTHCOMING MEETINGS

1983 - BSDB/BSCB Joint Meeting at University of Aberystwyth

September 14th - 17th

Wednesday	14th September		"Matrices & Differentiation"
Thursday	15th September	am	"Matrices & Differentiation"
		pm	"Aspects of the Cell Surface and its Junctions"
Friday	16th September	am a)	"Cell Surface" cont.
		b)	"Limb Development"
		pm a)	Contributed papers
		b)	"Limb Development/Cell Death in Development"
		Evening	POSTERS
Saturday	17th September	am a)	Contributed Papers
		b)	"Cell Death in Development"

The organisers have put together an excellent list of speakers provisionally:-

"Matrices & Differentiation" G. Cook (U.K.), T. Hardingham (U.K.) K. Yamada (Bethesda), Takeichi (Kyoto), V. Ruch (Strasbourg), J-P Thiery (CNRS), P. Sengel/M. Kierney (Grenoble), Ku Kuoyan (Shanghai), B. Hall (Halifax), J. Lash (Philadelphia), E. Courtois (Paris), E. Moczar (Creteil), J. Wartiovaara (Helsinki), J. Couchman (Bedford), K. Von der Mark (Munich), P. Thorogood (Southampton), E.D. Hay (Boston).

"Cell Surface" M. Raff (London), J. Weiss (Buffalo), R. Kemp (Aberystwyth), B.M. Jones (Aberystwyth), P. Armstrong (Davis), K.V. Rao (Delhi), M.J. Dunn (London), W.H. Evans (London), W. Muller (Mainz), A. Curtis (Glasgow), J. Pitts (Glasgow), Anne Warner (London), J. Overton (Chicago).

"Limb Development" J. McCabe (Tennessee), L. Iten (Purdue), P. Maderson (NY), M. Solursh (Iowa), L. Honig (California), M. Maden (Mill Hill), D. Summerbell (Mill Hill), C. Gribbin (Mill Hill), D. Edge (Glasgow), N. Holder (London), D. Wilson (London), J. Slack (London), J. McLachlan (Oxford), T. Horder (Oxford), H. Wallace (Birmingham), B. Yallup (Aberystwyth), R. Hinchliffe (Aberystwyth), R. Griffiths (Aberystwyth), O. Flint (Macclesfield), J. Smith (London).

"Cell Death" E. Kaprio (Helsinki), J. Hurle (Santander), A. Raynaud (Toulouse), J. Fallon (Wisconsin), R. Lockshin (NY), A. Wyllie (Edinburgh), I. Bowen (Cardiff), M. Snow (London), P. Farthing (Bath).

MEMBERS: are invited to contribute both papers and posters. abstracts should be sent to the Meetings Secretary:- Mike Snow, MRC Mammalian Development Unit, Wolfson House, 4 Stephenson Way, London, NW1 2HE. Abstracts should arrive no later than 31st June, 1983. There will be a combined social and poster session at this meeting. Contributions on any topic are welcomed. A prize will be awarded for the best graduate student poster.

1984 - European Developmental Biology Congress - University of Southampton - 2nd - 8th September

A first circular for this meeting is enclosed with this newsletter and gives details of the scientific programme: it also includes a tear-off reply strip which should be used to register on the mailing list for further information.

Programme planning is already at an advanced stage. There will be four parallel sessions running over a five day period and the topics to be covered are:

Developmental genetics of invertebrates and mammals
Feto-oncogenes
Early mammalian development
Pattern formation
Cell contact in development
Matrix interactions
Cell asymmetries
Growth factors
Theoretical models
Introduction of foreign genes into organisms
Gene Commitment
Developmental tumours
Plant development
Developmental immunology
Developmental neurobiology
Cell movements in development
Cellular basis of morphogenesis
Reproductive immunology
Specific genes and introduced genes
Human development
Specific genes in development

Confirmed session organisers and co-organisers are:-

Morata (Madrid)
Whittle (Sussex)
De Robertis (Basle)
Laskey (Cambridge)
Simmons (Heidelburg)
Hooper (Edinburgh)
Wolpert (London)
Iscove (Basle)
Walbert (Standford)
Dunn (London)
Sander (Freiburg)
Middleton (Leeds)
Wareing (Aberystwyth)
Gaze (London)
Le Douarin (Paris)
Gardner (Oxford)
Maclean (Southampton)
Buckingham (Paris)
Bard (Edinburgh)
Webb (Rehovet)
Garrod (Southampton)
Babinet (Paris)
Stern (Oxford)
Thiery (Paris)
Weiss (London)
Ceredig (Lausanne)
Wylie (London)
Jenkinson (Birmingham)
Heath (Oxford)
Gierer (Tubingen)
Edwards (Cambridge)
Cooke (London)
Johnson (Cambridge)

We do hope that you will be able to attend what promises to be a thoroughly enjoyable and stimulating meeting. Any enquiries

should be sent to Dr. Peter Thorogood, Department of Biology, Medical and Biological Sciences Building, University of Southampton, SO9 3TU.

1984 - BSDB Symposium Meeting at University of Leicester

April 2nd - 6th

10th BSDB Symposium "Genes & Chromosomes in Programmed Development"

Organised by Alma Swan & Herbert MacGregor

The 10th Symposium of the BSDB is designed to mark the turning point at which Developmental Biology finds itself in the 1980s. The search is on for answers at the molecular level to questions about simple ubiquitous developmental events. What is emerging is that many of the more mysterious and complex events and patterns of development are mathematically and formally inevitable consequences of much simpler events that happened long before.

The breakthrough has been facilitated by major technological advances in three areas: first, chromosome microtechnique, which reveals the significance of chromosome structure, arrangement and behaviour in relation to developmental processes; second, recombinant DNA and associated procedures, which provide a new range of sharp and incisive tools with which we can probe developmental complexities at the cellular level; and third, the introduction of computer technology for examining events in embryos, which is producing some truly amazing results.

The Symposium will focus on the role of chromosomes and the karyo type in relation to major developmental shifts, the nature of simple gene expression programmes for specific developmental events, and the usefulness of computer technology for identifying and investigating events which would seem to be truly "epigenetic". It will draw together some of the best investigators and communicators in the field, and should be a lively and exciting occasion.

The speakrers will include M. Bennett (Cambridge), U. Müller (Freiburg), A. Bird (Edinburgh), H. Horwitz (MIT), T. Hunt (Cambridge), W. Brammar (Leicester), A. Trewavas (Edinburgh), J. Ellis (Warwick), G. Oster (Berkeley), R. Ransom (Open University), H. Meinhardt (Tubingen), J. White (Cambridge), R. Matela (Open University), J. Slack (Mill Hill) and Herbert Macgregor (Leicester).

NEW BOOKS

This has been a vintage period for new volumes covering many aspects of development. Ten new books have been selected for our rather brief treatment. Apologies to the following for not being able to fit them in :-

"The Inconstant Gene" by L.S. Dillon, Plenum Press, 1983

"Genetic Engineering, principles & Methods" Vol. 4. Plenum Press 1982. Eds. J.K. Setlow & A. Hollaender.

"Biological regulation & development, Vol. 3A: Hormone Action"

Eds. R.F. Goldberger & K.R. Yamamoto. Plenum Press, 1982.

"Neuronal Development" Ed. N.C. Spitzer. Plenum Press 1982.

$45.00 ISBN 0-306-40956-9

Eleven chapters on subjects ranging from cell lineage analysis to mechanics of nerve fibre outgrowth comprise this excellent multi-author volume.

The subjects covered are:- Cell lineage analysis of the leech (Stent et al) and frog (Jacobson) nervous systems, monoclonal antibody analysis of embryonic ganglion cell development (Barald), genetic manipulation of sensory pathways in Drosophila (Palka), development of identified neurons in grasshopper (Goodman), nerve fibre growth and its guidance in cultured chick neurons (Letourneau) and in crickets (Edwards), mechanisms for the formation (Flaster et al) and elimination (Van Essen) of synapses, cell death in neuronal development (Berg) and lastly regeneration and regulation in the nervous system (Cowan and Finger).

This is an extremely topical book, which accurately conveys the drive and excitement currently being experienced in several areas of developmental neurology.

"Muscle Development: Molecular & Cellular Control" Eds. M.L. Pearson and F.H. Epstein. Cold Spring Harbor 1983. ISBN 0-87969-154-9.

$68.40 direct from CSH.

This multiauthor volume is the proceedings of a Cold Spring Harbor meeting held in September 1981. It is exactly what one would expect, a top-quality field of experts (52 papers), writing useful and short surveys of recent research. The volume is divided into sections on: "regulation of muscle proteins", "gene structure and expression", "membrane events", "embryogenesis", "morphogenesis of the cytoskeleton" "neuromuscular junction formation", and "muscle development and human disease". There is an excellent summary at the end by the editors.

"Molecular Biology of the Cell" Bruce Alberts, Dennis Bray, Julian Lewis, Martin Raff, Keith Roberts, James D. Watson. Garland Publishing 1983. ISBN 0-8240-7283-9

This 'magnum opus' is the cell biology textbook of today. It is divided into three parts. Parts 1 and 11 cover traditional cell biology course material including basic biochemistry, cytology, experimental methods, mechanisms and heredity, membrane biology, etc. These chapters encompass a vast field, bringing the subjects right up to date without losing the reader's interest or understanding. This is achieved by a combination of clarity in presentation - chapters divided into short, headed paragraphs with frequent summaries - and also by very frequent use of illustrations, diagrams and micro-graphs. The quality of these illustrations is impressive.

Part 111 of the book is devoted to the behaviour of cells in multi-cellular organisms. Here, the scope of the book broadens beyond a basic cell biology course textbook to include developmental biology, histology, immunobiology and neurobiology. Detailed reference lists are not included although authors of major discoveries and their original papers are cited in references at the end of each chapter.

"Molecular Biology of the Cell" can be strongly recommended as a standard text book for any first course in cell biology, and also as a refresher course for working scientists.

"Cell Biology for Technicians" by N.A. Thorpe. Longman, 1982

ISBN 0-582-41580-2. £5.95

This short (pp260) paperback is a useful addition to the laboratory bookshelf. It is aimed primarilyat the formal courses taken by technicians at polytechnics, but is also useful general reading. The book covers the biological background to many experimental techniques of the modern cell biology lab., such as light and electron microscopy, cell fractionation and cell culture. The only drawback is that the author sticks very much to cells at the expense of molecules. A chapter on molecular fractionation would have been extremely useful.

"Atlas of Human Reproduction by Scanning Electron Microscopy"

Eds. E.S.E. Hafez and P. Kenemans. MTP Press Ltd. £37.50

This atlas results from a symposium held in Mijmegen in 1981. However it is much more than a collection of papers. There is a good range of contributions covering most aspects of the reproductive tract of the human.

This is a book to dip into, the pictures are usually superb especially those of the endometrium but as one would expect from a multi-author book, they vary in quality. The placental pictures are particularly disappointing. Infuriatingly some of them have magnification bars upon them. Surely now the authors would have been persuaded that the field width is the way to communicate size.

There is a vast amount of information, but not much that is more than morphological research. This is a great attraction to the reader. Everywhere research projects pop out of the script and one is almost overwhelmed by the amount of exciting research that is suggested by the text. The authors must be very busy men to have stopped where they have in this book.

This book is an enjoyable insight into the necessary ground work that must be done before the physiological and biochemical studies reveal the explanations of many of the recurrent and unique features illustrated in this book.

"Medical Embryology" 4th Edition. Williams and Wilkins. £15.75

What does one say when asked to review a later edition of a classic. Firstly its better than the previous editions, especially so with the introduction of beautiful, clear and concise coloured diagrams. The whole book has a feeling of luxury. The joy of the rich array of material, the fine prose and the clear statements of what is known makes the book hard to put down. The author is to be much congratulated that he has not done like so many people before him and increased the size of the book into a massive tome.

The rewriting has introduced several insignificant printing errors and mismatches in the text but it is still the best book for medical students and their teachers. It is a good initial reference source for all common clinical embryological conditions and should attract many to study embryology more deeply.

"Insect Ultrastructure"Vol. 1. Eds. R.C. King & H. Akai

Plenum Press 1982. ISBN 0-306-40923-2. £55.

At first sight a most unlikely source of interest to members of this society, there is in fact much in this volume for the developmental biologist, hence its inclusion. There are 15 chapters, each documenting the ultrastructural aspects of insect cells, under three section headings; I The Ultrastructure of Gametes, II The Ultrastructure of Developing Cells, and III the Ultrastructure of the Differentiation of Specialised tissues and organs. Although entirely dedicated to insect systems, there are some excellent reviews here on the Ultrastructure of gametes, germ cell-somatic cell interactions, the architecture of eggs and their chorions, transcription in embryos, morphogenesis of the imaginal discs and many others.

"Stability and Switching in Cellular Differentiation" Eds. R.M. Clayton and D.E.S. Truman. Advances in experimental medicine and biology Vol. 158. Plenum Press 1982. ISBN 0-306-41181-4. £62.50.

This volume is based on a workshop held in Edinburgh in September 1981. Many short papers from the workshop are reproduced, under the general section headings of:- (1) classification of problems, (2) molecular basis of differentiation and competence (3) reversible malignancy, transdifferentiation and related topics (4) the strategies of regulation: external signals, receptor, and effector systems, (5) quantitative regulation of gene expression, and a final discussion on the differentiated state and its regulability.

It is impossible to review the entire contents in this short space. However, this is a particularly well written-up meeting account. By insertion of general discussion sections, as well as introductory reviews to the sections, the editors have preserved the lively 'feel' of the meeting so often lost in the transfer to paper.

This is an excellent volume for references for advanced students on current thoughts in molecular differentiation.

"Cytoskeletal elements and plasma membrane organisation" Eds. G. Poste and G.L. Nicolson. Cell Surface Reviews Vol. 7. North-Holland. ISBN 0-44-80201-0. Price $109.00 (@£76.00).

Although priced beyond the pocket of even the most ardent cyto-skeleton buff, this is by any standards a collection of excellent review articles. It provides comprehensive surveys of microtubules and intermediate filaments in cultured cells (Osborn and Weber) a general essay on intermediate filament types (Goldman et al), relationships between fibronectin and the cytoskeleton (Hynes), actin gelatin and the structure and movement of cortical cytoplasm (Stossel et al), interactions between the cell surface and cyto-skeleton in cleaving sea-urchin eggs (Gerrard et al), and lymphocyte trans-membrane interactions (Loer).

Although each is a well written review article in its own right (particularly by Schroeder-hurrah for a real biological system!), the book does not come across as a coherent entity; due mainly one suspects, to that fact that no coherent theory yet exists for the functional interrelationships between filament types and each other on the one hand, and the cell surface on the other. Despite this, and the fact that the book will date quickly, it is an excellent reference source, and introduction to each field.

"Cell Interactions and development" Ed. K.M. Yamada. Wiley 1983.

ISBN 0-471-07987-1. £33.00

To attempt to focus a compilation of reviews on this subject, at this time, is an act of pure optimism. It is obvious to all developmental biologists that specific interactions occur between different cells, and between cells and their matrices. However, no unifying features have yet emerged as to how these interactions either allocate cells to particular pathways, or alter their developmental behaviour.

It is perhaps best therefore, to view the title as merely an excuse to produce a series of reviews on various aspects of cell behaviour in various developmental systems. Some of the essays concern bona fide "cell interaction" systems e.f. fertilization (Wasserman), embryonic induction (Kratochuil), plant cell interactions (Dazzo), Gamete interactions in yeast and green algae (Goodenough and Thorner). Others concern the interaction of cells with their surroundings during characteristic developmental events e.g. cell adhesion (Roth), cell migration and guidance (Harris), neural crest migration (Weston), cell-matrix interactions(Toole and Underhill). Lastly, two essays approach the sort of molecules which may mediate "interactional" signals, fibronectin (Yamada) and lectins (Barondes).

Despite the rather tenuous links between these three groups (each of which surely merits a volume in its own right), it has to be admitted that the quality of each of these reviews is extremely high. Albeit Harris' review stands out as particularly thoughtful and constructive.

III GENERAL MATTERS

1. Subscriptions to "Company of Biologists" Journals

The Company of Biologists (COB), who currently own J. Exp. Biol., J. Cell Biol., and JEEM have recently taken over the publication of these journals, formerly carried out by Cambridge University Press.

COB are offering the following subscription prices to BSDB members for 1983:

J. Exp. Biol.	Vols. 102-107	price to members £35
J. Cell Sci.	Vols. 59-67	price to members £45
JEEM	Vols. 73-79	price to members £40

These represent considerable savings over the regular subscription prices, (approx. 60% reduction). For those members wishing to open a subscription to any of the above journals, please send the appropriate order and payment to:- The Biochemical Society Book Depot, PO Box 32, Commerce Way, Colchester, CO2 8HP. U.K.

2. Embryological Films

Roger Downie (Zoology Department, University of Glasgow) has recently compiled an extremely useful list of films, which he has kindly offered for circulation with this Newsletter. If other members have such items which they think may be of general interest, I will be happy to circulate them in later Newsletters.

C.C.W.

BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY: APPLICATION FOR MEMBERSHIP

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