

British Society for Developmental Biology

NEWSLETTER - 3 November 1980

I. FORTHCOMING BSDB MEETINGS

BSDB Meeting, March 1981

The 43rd Meeting of the Society will be held at the University of Warwick, from 24th - 27th March, 1981. The following summary of plans for this meeting comes from the local organiser, Hugh Woodland:

"The general theme of the meeting will be GENETIC AND CYTOPLASMIC INTERACTIONS IN THE CONTROL OF DEVELOPMENT." Last year the March meeting considered translational control and this year we will move back a step in the central dogma to transcription. The enormous strides enabled by gene manipulation should make this particularly timely. The first session of the meeting will consider Lampbrush chromosome structure and function. Perhaps we will, at last, learn how these structures are establishing the molecular architecture of the egg - or indeed if they are relevant at all! The speakers who will reveal all include Callan, Gall, MacGregor and Scheer. The second session moves on the structure of the egg and the establishment of the first cell differences. The papers are intended to be of a review type, but the organisation of this part is still almost as embryonic as the content. J.C. Gerhart (Berkeley) will review the organisation of the amphibian egg; his results will cause many of us to change our undergraduate lectures, I suspect! The third session will concern transcription and speakers arranged so far are Gurdon, Flavell, Bird and Roberts. This session will probably spill over into the afternoon, with papers on DNA replication (Harland) and secretion from oocytes (Colman), but it is hoped that there will also be space for open papers. The final session will be on mammalian development and will be organised by David Billington. On one evening it is hoped to hold the inaugural meeting of the "Amphibian Development Group" which will be organised along the lines of the "Drosophila Group". John Gurdon is shouldering the burden of organisation. Finally there will be space for presenting work in the form of posters.

Members wishing to submit papers on related or other topics for oral or poster sessions, should submit titles and brief abstracts (50-75 words) to the meetings secretary: Dr. W.D. Billington, Department of Pathology, The Medical School, University Walk, Bristol, BS8 1TD. (Telephone Bristol 22041, Extension 2970) not later than Friday 12th December, 1980. Please indicate clearly if you wish to present a poster. Alternatively, interested members may contact the local organiser directly.

British Society for Developmental Biology

BSDB Meeting, September, 1981

This will be held at the University of Edinburgh from 9th - 11th September, 1981. Advance notice has come from the local organiser, Dr. Jonathan Bard:

"Subjects for discussion in this meeting will be:-
9th September - DEVELOPMENTAL GENETIC AND MOLECULAR SWITCHES
- organised by Dr. Mary Bownes, King's Buildings, Edinburgh University, Edinburgh, EH9 3JT.

10th September - THE PROCESS OF MORPHOGENESIS - organised by Dr. Jonathan Bard, MRC Clinical and Population Cytogenetics Unit, Western General Hospital, Crewe Road, Edinburgh, EH4 2XU.
11th September - DEVELOPMENTAL IMMUNOLOGY - organised by Dr. John Horton, Department of Zoology, University of Durham, Durham, DH1 3LE.

The first day will focus on two aspects: Differential gene expression mainly through the use of recombinant DNA technology, and re-evaluating the use of developmental mutants for understanding normal development.

The second day will be concerned with morphogenesis and will concentrate on the processes by which determinative instructions are carried out by cells as they generate normal structures. There may also be a session on the emergence of organisation within cells.

The final days topic of developmental and comparative immunology reflects the growing awareness of this important topic and we hope this will provide a focus for UK workers in this field to get together. Each session will include both invited and contributed papers.

There will be a poster and exhibition session on the evening of 9th September. We hope that at least one representative of every laboratory attending the meeting will show a poster. To encourage attendance at this session the Society will offer free refreshments and will award a prize for the best post-graduate demonstration. For the conference dinner we expect to organise a Cantonese banquet, and hope this will be both a pleasant change and relatively inexpensive.

Members interested in presenting talks or posters should send titles and abstracts either to the appropriate organiser or to the Meetings Secretary (Dr. W.D. Billington, address above) by the end of January 1981. For those wishing to present posters deadline for titles is February 1981 and abstracts by May 1981. Anyone can bring a poster unannounced but should bring their own abstract.

British Society for Developmental Biology

BSDB Symposium, London, 1982

At the Society's Symposium in Southampton this September, the Committee decided that sixth BSDB Symposium should be organised Drs. Anne McLaren and Chris Wylie under the title THE DEVELOPMENT OF THE GERM LINE. The Symposium will be held in London at St. George's Hospital Medical School, in September 1982. An outline plan of the Symposium and call for papers will be included in the next Newsletter. Meanwhile, suggestions from members would be most welcome.

II. MEETINGS OF OTHER SOCIETIES

We are now in contact with several other Societies of Cell and Developmental Biology, who are keen to have details of their meetings circulated to our members. Details given are as received here, and anyone wishing for further information should write direct to the local address given.

Society for Developmental Biology

Preliminary for 40th Annual Symposium of the Society for Developmental Biology, to be held June 8-10th, 1981, at the University of Colorado, Boulder, organised by Paul B. Green: DEVELOPMENTAL ORDER: ITS ORIGIN AND REGULATION. Topics and Speakers include:- 1. Theory based on known properties of molecules (L. Harrison, S. Inoue, R. McIntosh, M. Kirschner, L.A. Staehelin, T. Lacalli, N. de Terra, L. Jaffe.) 2. Theory based on reasonable input to and responses by cells, (A. Lindenmeyer, R. Haselkorn, C. Goodman, M. Constantine-Paton, M. Steinberg, B.E.S. Gunning, J. Slack.) 3. Coordinated development of the whole organism (H. Meinhardt, H. MacWilliams, P.B. Green, J. Cooke, S. Kaufman, E.B. Lewis.) There will be a poster competition for graduate students and young post-doctorals. For further information and registration contact; The Business Office, Society for Developmental Biology, Box 40741, Washington, DC 20016.

American Society for Cell Biology

I only have dates and places for forthcoming meetings. Those likely to be in the U.S.A. and/or who want further details write to the Secretary: Dr. Emma Shelton, American Society for Cell Biology, 4326 Montgomery Avenue, Bethesda, Maryland 20014.

1981 - Anaheim, California, November 9-13th.

1982 - Baltimore, Maryland, November 30th - December 4th.

Greater London Development Corporation (GLDC)

This is simply a series of informal evening meetings usually one per term, to which anyone within striking distance of London is very welcome. The next one will be held at MRC Development Unit, Wolfson House, 4 Stephenson Way, London NW1, (literally 100 yards from Euston Station) on 19th November, Starting about 6.30pm. There will be two principal speakers

British Society for Developmental Biology

Vernon French and Peter Lawrence and the general topic of the meeting will be CLONAL RESTRICTION IN DEVELOPMENT AND REGENERATION. Interested members should contact Nigel Holder Department of Anatomy, King's College London, Strand, London WC2R 2LS.

III. BOOK REVIEW SECTION

A new diversion for the Newsletter, this section is intended to help hard pressed teachers, their students, and interested scientists, to identify new books in their field. Since the old adage "One man's meat is another's poison" is particularly apt where books are concerned, no attempt is made to be over critical. Reviews are essentially descriptive and give indications of likely readership level and price. I hope members find this useful. The books represented here are simply those supplied by publishers, and do not represent any particular preference.

"Developmental Biology" by L.W. Browder, Saunders, 1980
ISBN 0-03-056748-3.

One of the most fascinating aspects of developmental biology; the enormous diversity of disciplines and approaches involved, is also the biggest headache for its teachers who find difficulty in feeling expert at all aspects. For the same reason no text book provides comprehensive coverage of the subject. This new text concentrating on cellular and molecular aspects of development, is a distinct contribution to developmental biology teaching. Largely ignoring descriptive morphogenesis (which in any case is covered adequately elsewhere e.g. Torrey "morphogenesis of the vertebrates") Dr. Browder concentrates largely on early development, and divides the book into five separate parts:

1. Historical aspects of the subject.
2. Molecular aspects of cell differentiation, including the structure of the genome, its expression and levels at which this may be controlled.
3. Gametogenesis.
4. Early development.
5. Generation of cell diversity. This includes some cellular aspects of morphogenesis.

The book is beautifully illustrated with clear diagrams, transmission and scanning E.M.s, and thoroughly referenced up to 1979. At a price of £11.95, this will undoubtedly become a strong competitor for the current standard texts. It is clearly aimed at advanced undergraduates, and post-graduates and post-doctorals coming into developmental biology, particularly molecular aspects, from other disciplines.

"Maternal Effects in Development" Eds. D.R. Newth & M. Balls.
Cambridge, 1979, BSDB Symposium No. 4. ISBN 0-521-22685-6.

This fourth and latest volume of the BSDB Symposium series illustrates ways in which the mother contributes to embryonic

British Society for Developmental Biology

development. The most obvious means whereby this is carried out, and which is given most attention here, is via the cytoplasm of the egg. Examples of this are: The provision of egg proteins (Knowland and Westly), organelles (Ford, Billett), informational molecules (Sommerville, Laskey, Gurdon, & Trendelenburg; Dohman and Verdonk; Smith and Williams; Warn). More subtle effects on the embryo by the mother are also described e.g. known mutations expressed during oogenesis and which effect embryonic development (Malacinsky and Speith; Beetschen and Fernandez), the contribution of the mother to the fetal and infants immune response (Billington and Wild), effects of maternal disease or exposure to teratogenic agents (Deuchar: Morris), the effect of alterations in placental circulation (Jones and Robinson). The rapidly expanding area of maternal effects in mammals is reviewed by Anne McLaren, and in the plants by Tilney-Bassett and Abdel-Wahab. A fine introduction to the field is provided by Jack Cohen.

All of these are excellent and well referenced review articles, which should make this a useful and authoritative source for many years. At £24 (members special reduction, poor unfortunates who are not BSDB members have to part with £35) this is not a cheap book, however, this is highly recommended library material.

"Cell Adhesion and Motility" Eds. A.S.G. Curtis & J.D. Pitts, Cambridge 1980. 3rd Symposium of British Society for Cell Biology. ISBN 0-521-22936-7.

This symposium brings together examples of the enormous diversity of research currently going on under the general headings of cell contact and cell motility. In fact, with a nod towards cell motility (in the shape of Graham Dunn's article on fibroblast locomotion) the volume concentrates almost exclusively on the various aspects of adhesiveness between living cells and their substrates. The coverage is wide, and includes physical considerations of cell adhesiveness, adhesive properties of widely differing cell types (e.g. bacteria, platelets, leukocytes, fibroblasts and slime molds), the involvement of specific molecules in the adhesion process (e.g. histocompatibility antigens, fibronectin, lectins), and lastly interactions between the cell surface and the intercellular cytoskeleton.

At £40 this is hardly a bedside companion. However, it serves the prime purpose of a Symposium well, to give authoritative and profusely referenced accounts of each topic. It is therefore a reference volume strongly recommended for library purchase.

"Cell Motility" H. Stebbings & J.S. Hyams, Longman 1979. Integrate Themes in Biology Series. ISBN 0-582-44380-6.

The field of cell motility has been elevated from the status of a microscopical curiosity to an active and important branch of biology, by the parallel advances of electron microscopy, the use of refined optics to study living cells and by the use of molecular methods to identify and study the cytoskeletal molecules concerned. Any attempt to comprehensively cover this field is now a herculean task and the authors are to be

British Society for Developmental Biology

congratulated on charting most of the major advances in a well written and concise account. In one hundred and ninety pages, the authors give accounts of:- the basis of muscle contractility, microtubules and microfilaments, organelle movements (e.g. cilia), cell movement, movement within cells (including mitosis and cytokinesis) and motile systems of protozoa. Although certain aspects will date in this fast moving field (for instance, there is no discussion on Keith Porter's recent work on the microfilamentous cell matrix), this will not detract from the books appeal as a well referenced introduction to the field. Directed primarily at advanced undergraduates, scientists at all levels should find it interesting. Price £4.50 soft back.

"Influences on Animal Growth and Development" by Roy A.L. Batt, Edward Arnold, 1980. Institute of Biology Studies in Biology No. 116. ISBN 0-7131-2769-4.

This short paperback is a useful and interesting introduction to certain aspects of animal growth. Written by a lecturer in Anatomy at the Royal Veterinary College it has a, hardly surprising, bias towards aspects of growth which affect mammalian growth and therefore useful to the field of animal husbandry. In a mere 59 pages the author presents concise introductions to: definitions of growth and measurement, external influences on animal growth, internal influences on animal growth, and means of promoting animal growth. At £2.40 an inexpensive and interesting book to students and scientists at all levels of their education.

"The Cellular Basis of Mammalian Reproduction" by J. Van Blerkom and P. Motta. Urban and Schwartzberg, Baltimore 1979. ISBN 0-8067-2041-7.

This unusual book is basically an ultrastructural atlas of events in the mammal which precede and follow fertilization. Using a combination of transmission and scanning electron microscopy the following cellular events are carefully documented: Oocyte and follicle growth, ovulation and transport in the female genital tract, sperm ultrastructure, fertilization, and pre-implantation development. The Quality of both scanning and transmission EMs is excellent, and I suspect that this volume will provide a rich source of illustrations for undergraduate teaching. The book is memorable not only for its illustrations however, since these are accompanied by a well written and profusely referenced text. Price unknown at present, this book is strongly recommended as a source of teaching material, and as an introduction to early mammalian development for established scientists.

"DNA Tumour Viruses" by J. Tooze, Cold Spring Harbour, 1980, ISBN 0-87969-126-3.

Viruses have been directly linked to certain types of human tumour, including Burkett's lymphoma and nasopharyngeal carcinoma, although it is clear that the virus plays only a

British Society for Developmental Biology

part in the complex aetiology. Experimentally, many viruses can be used to produce tumours in animal model systems. Both the RNA and DNA classes of virus contain members of that oncogenic potential. The technique most commonly encountered is to infect cultures of cells with viruses and to select for morphological transformance; when these latter are injected into correct host animals they often produce malignant tumours.

This volume contains thirteen chapters covering the DNA tumour viruses. Those covered are SV40, adenoviruses, papovaviruses, papilloma, polyoma and herpes viruses. Not all chapters are restricted the transforming ability of the virus and the basic biology is often described including information on lytic cycles.

For a 1980 publication of this kind, all chapters are well up-to-date: while the bibliographies do not contain all pertinent 1979 references, there are not many significant omissions.

The volume is clearly an excellent reference for anyone concerned with transforming viruses. There is only one slight criticism, in that some one hundred and fifty pages are appendices, most of these containing nucleotide sequences, and it is unlikely that most readers consult such data. Price \$66 directly from the publisher.

"The Operon" Eds. J.H. Miller and W.S. Reznikoff, Cold Spring Harbour, 1980. ISBN 0-87969-133-6.

It is now a number of years since Monod and others won the Nobel prize for their original description of the lac Operon of *E. coli*. Essentially, an operon is a bacterial sequence of DNA which codes for a number of proteins which are under coordinate control. As well as the genes of structural proteins, certain sequences are concerned with regulation of expression; these sequences contain both message for regulator peptides and receptorsites. and it is via these that the external environment is able to control transcription. Since the description of the lac operon, a number of others have been found in bacterial systems. The contents of this volume stem from a Cold Spring Harbour meeting in 1976; it is a paperback reprinting of the original contents plus a few small additions. The chapters are essentially research summaries from a number of groups, the subjects covered are the lac operon and some of the other better characterised operons. The chapters are not completely up-to-date; most survey the literature up to 1976-77. Nevertheless the volume provides and excellent review and should be an excellent introduction to any graduate students entering this particular aspect of gene expression. Price for the paperback edition is \$21.60 direct from the publishers.

British Society for Developmental Biology

"Orban's Oral Histology and Embryology" Ed. S.M. Bhaskar.
Ninth edition, C.V. Mosby, 1980.

This book provides preclinical dental students with a comprehensive and current account of the embryology and histology of all the oral tissues. The ninth edition is an update of the eighth edition published in 1976 and shows few changes and the addition of 10 pages, from the previous edition which had undergone a major alteration.

The first two chapters give a simple account of development of the face and oral cavity and the development and growth of the tooth germs. These are both well illustrated with diagrams wax reconstructions, and photomicrographs of histological sections. The addition of scanning electron micrographs links to the original diagrams as a new feature, and an important change. There is a chapter on histochemistry of the oral tissues, which now includes electron probe spectra as an example of quantitation of calcium transport linked with cell and tissue ultrastructure. All the chapters on the dental and paradental tissues are comprehensive and illustrated with a good range of informative photomicrographs, EMs and diagrams. In a large student text, mistakes are inevitable. Some which may lead to confusion are the alternate use without clear definition of "tooth bud" "tooth germ" in the chapter on tooth development, the use of the term "enamel niche", and the accidental inversion of the scanning EMs of the enamel surface, giving a somewhat misleading impression of its structure. Price £16.50.

IV. ITEMS OF GENERAL INTEREST

Louie Hamilton Fund

Louie Hamilton, one of the founder members of this Society, died last year. A fund, made up of voluntary contributions, has been established and is administered by the Middlesex Hospital. Interest from this fund is to be used to help young scientists from the three London Colleges in which Louie Hamilton worked (University College, King's College and Middlesex Hospital Medical School) to attend meetings of the BSDB. Handicapped young scientists from all over the U.K. are also welcome to apply. Members who would like to apply to the Louie Hamilton fund are invited to contact Dr. F.T.C. Harris, School of Pathology, Middlesex Hospital Medical School, Mortimer Street, London, W1P 7PN.

Reduced Subscription rate for JEEM for BSDB Members

The full subscription prize for JEEM is £105 per year, however, there is a special concessionary rate for 1981 for BSDB Members only of £31.50. All correspondence should be addressed to: Cambridge University Press, P.O.Box 110, Cambridge, CB2 3RL.