BSDB

NEWSLETTER

Spring 1986

No:13

N.B. THIS ISSUE CONTAINS THE BOOKING FORMS AND FULL PROGRAMME FOR THE AUTUMN MEETING AT UNIVERSITY OF SUSSEX. IT ALSO CONTAINS A MEMBERSHIP APPLICATION FORM WHICH YOU ARE ENCOURAGED TO PASS ON TO YOUR COLLEAGUES, AND AN UP-TO-DATE LIST OF OFFICERS AND COMMITTEE MEMBERS OF THE SOCIETY.

PLEASE RETURN BOOKING FORMS FOR THE AUTUMN BSDB MEETING TO CHRIS FORD BEFORE JULY 11TH 1986

BSDB Autumn Meeting, University of Sussex 4th and 5th September, 1986.

There will be two parallel topics at this meeting -

1) DEVELOPMENTAL NEUROBIOLOGY - Organised by Nigel Holder and Jonathan Bacon

Thursday 4th September, 1986

1000	Welcome to Sussex
1010	Alun Davies (St. George's London) - Neurotrophic requirements of sensory neurons in the chick embryo
1100	Short talks
1140	Gerd Technau (Koln) - HRP studies of early events in Drosophila neurogenesis.
1230	General Discussion
1240	LUNCH
1400	The Virgin Lecture (Sponsored by Virgin Atlantic). Rod Murphy (Albany, N.Y.) Development of sensory projections in insects
1500	Short talks
1530	TEA
1600	Bill Harris (San Diego) - Development of the retino-tectal projection in amphibians.
1650	General Discussion
1715	DINNER
1930	Short talks
2010	Stan Kater (Fort Collins, Colorado) - In vitro studies of synapse formation between identified snail neurons
2100	Discussion
2100	LATE BAR

Friday 5th September

0900 Jeremy Taylor (Edinburgh) - Pathway cues in the retino-tectal system

0950 Dennis Bray (London) - Movements of growth cones in culture.

1040 COFFEE

1110 Short Talks

1150 Professor F. Bonhoeffer (Tubingen) - Studies of neuronal specificity in culture

1240 General Discussion

THERE WILL BE SPACE IN THE PROGRAMME FOR 10 SHORT TALKS, GIVEN BY YOUNGER MEMBERS OF THE SOCIETY (PRIMARILY GRADUATE STUDENTS AND POST-DOCS.). WOULD THOSE INTERESTED PLEASE SUBMIT ABSTRACTS TO NIGEL HOLDER (SEE END OF NEWSLETTER FOR ADDRESS). THERE WILL ALSO BE A POSTER SESSION. ABSTRACTS TO NIGEL HOLDER BY THE END OF JULY PLEASE.

2) PHYSICAL CORRELATES OF MORPHOGENETIC PHENOMENA

Organisers B.C. Goodwin and R. Ransom, Open University

The object of this meeting is to explore a range of physical processes that may be involved in spatial organisation and morphogenesis, and the techniques that are available for studying them. The forces characteristically result in long range order in developing systems over distances of μm to mm within cells and cell sheets, and coordinate movements over similar dimensions.

Thursday 4th September, 1986

Morning Session: Chairman, B.C. Goodwin

0900 J. Clegg (Davis, California) Coherent excitations, long range order and cell architecture.

0950 C.W. Smith (Salford) Possible roles of electromagnetic fields in biological structure and function.

1040 Coffee

1100 M.S. Cooper (Berkeley) The control of cell motility and cell growth by external electric fields.

1150 C.D. Stern (Oxford) Mechanoelectrical events in early vertebrate development.

1240 LUNCH

Afternoon Session: Chairman, R. Ransom

1400 J. Lohman (Oxford Research Systems) In vivo imaging and localized NMR spectroscopy of the locust embryo Schistocerca gregaria.

1450 R.G. Ratcliffe (Oxford) NMR techniques for investigating the compartmentation of plant tissues.

1540 TEA

1600 B.C. Goodwin (Open University) The mechanochemistry of cyto-plasmalemma-cell wall interactions in plant morphogenesis.

1650 J.D. Murray (Oxford) Complex spatial patterns from tissue interactions: an illustrative example.

SPRING 1987

BSDB/BSCB Spring Symposium Meeting

Oxford - 1987

This joint meeting will contain 2 symposia, sponsored by the COMPANY OF BIOLOGISTS.

BSDB SYMPOSIUM

SEX CHROMOSOMES AND SEX DETERMINATION

Organisers - Peter Thorogood and Jonathan Wolfe

Topics and speakers are provisionally as follows:

Sex Determination: Theoretical Considerations and Examples from Different Animal Groups (Chairperson - Anne McLaren) Nothinger (Heidelberg), Hodgkin (Cambridge), Lyon (MRC Oxford), Eicher (Bar Harbor).

Mapping the Y Chromosome (Chairperson - P. Goodfellow)
Page (MIT), Fellows (Pasteur Inst., Paris), Ferguson-Smith (Glasgow), Pritchard (ICRF, London), Bishop (Pasteur Inst., Paris).

Molecular Analysis of Y Chromosome Structure (Chairperson - J. Wolfe)
Jones (Edinburgh), Smith (John Hopkin's), Cooke (Edinburgh), Brown (Oxford), Weissenbach (Pasteur Inst., Paris), Avner (Pasteur inst., Paris).

Genes on the Y Chromosome (Chairperson - E. Southern)
de la Chapelle (Helsinki), Simpson (CRC London), Burgoyne (London), Darling (London), Craig (Oxford).

BSCB SYMPOSIUM

THE SECOND ABERCROMBIE CONFERENCE ON CELL BEHAVIOUR

Organisers - Joan Heaysman, Adam Middleton and Fiona Watt

1) Modelling and Analysing Cell Behaviour in Culture
Oster (Berkeley), Vasilier (Moscow), Ireland (London), Dow (Glasgow), Dunn (London), Wilkinson (Glasgow).

2) Quantifying Cell Behaviour in vitro Thorogood (Southampton), Keller (Berkeley), Kucera (Lausanne,), Wylie (London), Morris-Keay (Oxford).

3) Analysing Malignant Invasion Harris (N. Carolina), Schor (Manchester), Mareel (Ghent), Parish (Zurich).

4) Cell-Substrate Adhesion Grinnell (Texas), Burridge, (N. Carolina), Buck (Philadelphia), Hughes (London), Gieger (Rehovot).

5) Cell Shape Ben-Zeev (Rehovot), Spiegelman (Boston), Lisstizky (Marseille), Watt (London).

N.B. There will be a space available for Workshop sessions if anybody would like to organize them. Please contact Nigel Holder if you would like to arrange an evening workshop. Funds are available

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CALL FOR SUGGESTIONS

Concerning

Joint BSDB Meeting with the Materno-fetal

Immunobiology Group

Durham, September 18 & 19 1987

(Roger Sutcliffe, John Horton and Martin Johnson)

This two day workshop will cover the development, genetics, molecular biology and immunobiology of the feto:maternal interface, particularly of trophoblast and extraembryonic endoderm. Topics to be covered could include trophoblast markers and sub-populations, selective gene expression and X-inactivation in extraembryonic lineages, MHC expression, trophoblast-uterine interactions, cross-species implantations and chimaeras.

Your suggestions on speakers, topics, working sessions etc. are welcome. Please contact Martin Johnson.

BSDB TEACHING COURSE ON DEVELOPMENT - Autumn 1988

The Committee has proposed a 5-day course as an "Update in Development" aimed primarily at those who teach development.

Initial plans envisage 4 lectures per day supported by demonstrations and discussion. Each day would be led by 1 lecturer with perhaps 2 co-presenters.

CALL FOR HELP If you have suggestions concerning this proposal, or can suggest (and supply) teaching aids (VIDEO-LOOPS, FILMS) and class practical schedules that you have found successful, please write to Chris Ford, Biology Building, University of Sussex, Falmer, Brighton, BN1 9QG. A synopsis of the topics in your developmental biology courses would be welcomed.

OTHER MEETINGS OF INTEREST

AGEING WELL

BRIGHTON - SEPTEMBER 15 - 18 1987

The first European Multidisciplinary Conference on ageing will be held in Brighton in 1987. The Conference will bring together biological, clinical and sociological research workers to integrate new knowledge about the ageing process.

A full programme of plenary and multidisciplinary sessions is being organised along with specialised biomedical research topics on ageing in vitro, the endocrine system, molecular information transfer, neurobiology, connective tissue changes, the immune system, the role of free radicals in the ageing process and the evolution of ageing. The second announcement of the Conference, together with a call for papers will be circulated to those who contact the Conference Secretariat at :- Christine Philbin,
Conferences Services Ltd.,
3-5 Bute Street,
London,
SW7 3E.

MEETING ANNOUNCEMENT

The Department of Molecular Biology, University of Edinburgh, will be celebrating its 21st birthday in 1986, and an international symposium entitled EDINBURGH MOLECULAR BIOLOGY SYMPOSIUM will be held to mark the event. It will be held from Sunday 21 September to Wednesday 24 September, 1986. The following people have agreed to speak:
P. Berg (Stanford), P. Borst (Amsterdam), S. Brenner (MRC Cambridge), J. Brockes (London), W. Gilbert (Cambridge Mass.), C. Graham (Oxford), A. Hall (London), R. Henderson (MRC Cambridge), D. Lane (London), P. Nurse (London), P. Rigby (London), R. Scheckman (Berkeley), J. Schell (Cologne), J. Shapiro (Chicago), P. Sharp (MIT), F. Stahl (Oregon), R. Symons (Adelaide), G. Warren (Heidelberg), C. Weissman (Zurich), D. Weatherall (Oxford) and C. Yanofsky (Stanford). They will cover a wide range of fields, reviewing current ideas and looking forward to likely future developments. The registration fee is £25 (£5 for registered postgraduate students). More information and application forms can be obtained from Miss Sheila Dickson, Department of Molecular Biology, King's Building, Mayfield Road, Edinburgh, EH9 3JR. The closing date for applications is June 30, 1986.

Provisional timetable is as follows:-

EDINBURGH MOLECULAR BIOLOGY SYMPOSIUM

Sunday pm

1. C. Weissman — Opening Address

Monday — Molecular Biology of Recombination

2. F. Stahl — Genetic recombination

3. P. Berg — Recombination in mammalian cells

Coffee

DNA Rearrangement

4. J. Shapiro — Genetic changes in bacteria; reflections on the past 21 years and some thoughts about the next.

5. P. Borst — Gene rearrangements controlling antigen variation in trypanosomes and other parasites.

Lunch

RNA Structure and Function

6. C. Yanofsky — Regulatory RNA sequences and structures

7. P. Sharp — Processing mRNA precursors

Plant Molecular Biology

8. R. Symons — Viroids - intriguing infectious agents of plants

9. J. Schell — Transfer and expression of chimaeric genes in plants

Tuesday — Molecular Biology of Membranes

10. G. Warren — Intracellular membrane traffic

11. R. Henderson — Structures of membrane proteins using high resolution electron microscopy

Molecular Biology of Yeast

12. R. Scheckman — Molecular components of the secretory pathway

13. P. Nurse — Yeast cell cycle control

Lunch

Wednesday — Molecular Biology of Cancer

14. D. Lane — Molecular Interactions between SV40 virus early gene products and the host cell

15. A. Hall — Cellular oncogenes and human cancer

Coffee

Molecular Biology and Development I

16. W. Gilbert — Title to be announced

17. J. Brockes — Cellular and molecular studies of amphibian limb regeneration

Molecular Biology and Development II

18. C. Graham — Growth of human multipotential cells

19. P. Rigby — Regulation of gene expression in tumour and embryonic cells.

Coffee

Molecular Biology and Medicine

20. D. Weatherall — Current place of foetal DNA analysis in the prevention of genetic disease.

21. S. Brenner — Closing address

Biological Council Symposium on:-

Identification and transfer of genes important in crop production

15 - 16 December 1986 at Rothamsted Experimental Station, Harpenden. Speakers to include: N. Federoff, J. Schell, C. Leaver, H. Lorz, J. Barber, M. Bevan.

Further details can be obtained from Dr. S. Bright, Biochemistry Department, Rothampsted Experimental Station, Harpenden, Herts., AL5 2JQ.

Animal (Scientific Procedures) Bill 1986

1 day course 9th July 1986 London

The provisions of the new Act are likely to exert considerable effect before the end of this year. With this in mind the Institute of Biology is running a one day course covering the following general areas: Current Home Office thinking; differences from present legislation; the main practical changes (project licensing); where responsibility lies; codes of practise. The course is aimed at senior license holders.

Cost £50 per person (£35 for M.I. Biol)
For further details write to P.N. O'Donoghue, Institute of Biology, 20 Queensbury Place, London, SW7 2DZ.

In addition LASA (Laboratory Animal Science Association) are pleasaed to make their knowledge on the impact and implications of the new Act available to all disciplines concerned with this subject. Information and advice can be obtained from the President, Dame Olga Uvarov,LASA, 20 Queensbury Place, London, SW7 2DZ.

Enlist a new member and help them and the BSDB

For each new member we recruit, we receive a per capita grant from the Company of Biologists. If we double our membership, we boost our income and have more cash for travel grants, visiting speakers, etc. PLEASE ENLIST A NEW MEMBER NOW - FORM ENCLOSED.

CHAIRMAN'S REPORT 1985-86

The past year has seen the successful launch of an appeal to secure more support for our activities. We have already announced and awarded a number of graduate student bursaries from TIGS, and elsewhere in this newsletter you will find encouragement to fly with Virgin Airways, American Airlines, Air UK, LOT Polish Airlines and Olympic Airlines. They are helping us, so do reciprocate by using them! Also, if any member is aware of Polish or Greek developmental biologists who would contribute to and benefit from our meetings do contact me. We may be able to help with travel.

The Society has also now put forward a BSDB scheme for EDBO to submit to the Council of Europe. We have proposed the establishment of long- and short-term EDBO Research fellowships. We are optimistic that this BSDB proposal will find favour and hope that it will prove possible to set the scheme in operation at the Helsinki EDBO conference next June. The Committee, the annual general meeting and the society membership at large are agreed in preferring such a scheme over the various "bricks and mortar" proposals made in the past year. We will keep you in touch.

Our joint Spring meetings with the BSCB continue - last year Glasgow, this year Norwich, next year Oxford, then Bristol. Both Societies are strongly committed to such a pattern. The officers are, however, conscious of the rough edges that can result from the co-organisation of the meetings. A group of us, made up of officers from each society, are currently considering how to improve these Spring Symposia meetings. Anything will be considered from

minor administrative changes to complete fusion of the two Societies. Nothing is decided, so let us have your views now when we are formulating our plans not criticism later when we have done so!

We have taken the decision to hold a fairly didactic teching course aimed at those who teach Developmental Biology at University and Polytechnic level. Some places will be reserved for scientific journalists and industrial research scientists. The course will be held in Autumn 1988 and we are presently considering its scope, and its style and its presenters. Send your ideas and comments to Chris Ford as soon as possible. We would like to know particularly about technical aids and film loops that might be useful.

The year has been active and we plan more activity. At a time when financial cuts and administrative uncertainty are making life difficult for many of us, Societies such as ours have an important role to play not least in sustaining our own collective morale but also in putting forward a vigorous defence of our discipline and by promoting our activities. The committee is trying to take the initiative in this area. Please support us by responding to the various requests for help, advice, opinions that you will find scattered through this newsletter.

Martin Johnson
Anatomy Department
Downing Street,
Cambridge,
CB2 3DY.

How can you save a friend £150.00?

Each friend that you persuade to join the BSDB, only pays out £10 a year but doesn't pay £40 in registration fees at meetings. The net saving over 5 years = £150.00.

Enlist a member now - form with this newsletter.

III SOCIETY BUSINESS

Goodbye & Hello

Mike Snow, Meetings Secretary for the past 5 years, retired at Norwich. Our thanks to Mike for all he has done for the Society. Nigel Holder takes over and welcomes suggestions for meetings. We are also sad to loose Dick Hinchcliffe from the committee but glad to welcome Audrey Muggleton-Harris (MRC, Carshalton) and Jim Smith (MRC, Mill Hill). The Committee members provide a direct channel for your views, so do talk with them about BSDB activities (full committee list in this newsletter).

Sponsorship of BSDB

Several airline companies have very kindly offered to sponsor speakers at our symposium. This is a tremendous boon to the Society. It keeps down the cost of meetings, and will ultimately benefit you directly, by preventing subscription rises and increasing the money available as travel grants

IN RETURN you can keep this cycle of events going, by using the following carriers where possible:-

Polish National Airlines (LOT)
American Airlines
Air UK
Olympic
Virgin Airlines

If you do, please take a minute to let us or the airline know why you are doing so, by dropping a short note to Martin Johnson, or the Publicity Department of the airline.

THE SOCIETY NEEDS YOUR HELP IN THIS. WE HAVE SAVED ABOUT £1,500 OF YOUR MONEY IN SPONSORSHIP. PLEASE RECIPROCATE!!!

How you can help a graduate student!

Persuade one developmental biologist to join the BSDB and we get a per capita grant from the Company of Biologists sufficient to send a quarter of a research student to a conference. Its less painful for the student, of course, if four of you each enlist a new member. Membership form with this Newsletter.

Zoology Liaison Group

The Zoological Society of London, together with the Heads of Zoology Departments have established a liaison group to work for the advancement of zoology within the wider interests of biology and the life sciences. The brief of this group is to consider the position of Zoology in Universities, Research Institutes and learned societies, to explore regions of common benefit and to propose initiatives of further development. It is intended that the group will form a focus for communication with the Secretariat based at the Institute of Zoology.

If you have comments, suggestions or require further details contact Professor J. Hearn, Institute of Zoology, Regent's Park, London, NW1 4RY.

IV NEW BOOKS

The Embryonic Development of Drosophila melanogaster
By J.A. Compos-Ortega and V. Hartenstein. Springer-Verlag. 1985. ISBN 3-540-15867-7. DM 248 (no sterling price given).

After many years preoccupied with the patterning of the adult fly, developmental geneticists have recently shown a renewed interest in the embryogenesis of Drosophila. A major stimulus of this renaissance has been the growing availability of molecular probes for the homoeotic genes, long recognised as key regulators of development. With the advent of new techniques for visualising specific RNAs and proteins in situ it is at last possible to study the deployment of these genes during early development. What many of the new breed of molecular embryologists will have discovered to their consternation is the relative paucity of the embryological analysis of Drosophila since Poulson published his account some thirty-six years ago. The appearance of this new monograph by Campos-Ortega and Hartenstein could not have been more timely.

Almost one quarter of the book is devoted to plates illustrating the temporal sequence of embryogenesis in both living and sectioned material. The technical advances in microscopy and histology since the 1950s are immediately apparent; every feature of the embryo referred to can be unambiguously identified in the photographs. One slightly disappointing feature of this section is the system of staging adopted by the authors. This lacks the precision afforded by that of Foe and Alberts and demanded by the analysis of early gene expression. Hopefully later editions will see the introduction of a definitive staging system which will be universally accepted.

The third and longest chapter of the book deals with histogenesis and organogenesis. Not surprisingly, given the authors' own research interests, they provide an extremely comprehensive account of the nervous system. Where Poulson could only make rough estimates of the numbers of neuroblasts which contribute to each segmental ganglion, Campo-Ortega and Hartenstein have arrived at precise numbers for each individual neuromere. The arrangement of these in the extended germ band is reproduced in detailed drawings to provide a plan of the developing nervous system which will be inavluable to anyone interested in neurogenesis. Such drawings are a recurring feature of this book which set it a part from previous works. Other examples include detailed descriptions of the peripheral nervous system as well as an excellent sequence illustrating the development of the gut, a source of much confusion in recent literature.

Subsequent chapters provide information about the number and timing of mitoses in various larval primordia, the morphogenetic movements of gastrulation and the later movements which accompany cephalogenesis. On the question

of head segmentation it seems there is as much uncertainty as ever. The origin of various head structures is often stated though not convincingly demonstrated, and the number of head segments remains unclear. The authors settle for five, though acknowledge that they cannot identify a corresponding number of neuromeres. This uncertainty illustrates the inevitable limitations of the techniques employed here; the question of head segmentation may only be settled when we arrive at a comprehensive molecular anatomy of the embryo. Already, as the authors point out, molecular probes have provided some novel insights into the segmental organisation of the embryo, and doubtless more surprises are in store for us. The strength of this book however is that it presents a comprehensive atlas of the embryo, and, like any good map, whilst boundaries may shift from time to time, it will continue to provide a reliable topography by which the investigator may be guided.

Phil Inghams

The Cell in Contact: adhesions and junctions as Morphogenetic determinants. Eds. G.M. Edelman & J-P. Thiery. John Wiley 1985. ISBN 0-471-83872-1. (no price given).

In todays fierce competition for publications, it is always difficult to decide whether the subject of a collection of reviews is merely a publishers coathanger, or a genuine and carefully thought out theme. In this case, the latter seems to be the case, once one gets over its startling premise that the world is divided into CAMs, SAMs and CJMs (which stand for cell adhesion molecules, substrate adhesion molecules and cell junction molecules, respectively) that these each are composed of the products of related genes, and are coordinately expressed to give the connection between "the genetic and epigenetic mechanical events in morphogenesis". If the editors are looking for such a connection, then the lack of any formal treatment of the interaction of the cytoplasmic matrix and the cell surface (with the exception of the desmosome!) is surprising.

However, despite such personal prejudices this is a useful way of looking for guiding themes in development, and does stimulate ideas and experiments; for example to look for causal corrections between the expression of CAMs, SAMs and CJMs on the one hand, and molecules involved in determinative decisions on the other.

There are some 21 excellent reviews here, divided into five sections: 1) morphology molecules and membrane structures, 2) some determinants of animal form (strangely named this, mostly about examples of cell interactions), 3) cell adhesion molecules, 4) extracellular matrix and

cell-substrate adhesion, 5) specialized junctions. These are uniformly of a high standard, and together comprise a useful reference volume.

C.C. Wylie

A Colour Atlas of Life before Birth - Normal Fetal Development. By Majorie England. Wolfe Medical Publications. £25.00. ISBN 0-7234-0775-4.

The increasing time constraints in medical teaching make it harder nowadays to give an adequate practical embryology course. This, combined with the scarcity of human material for students to look at, makes this volume a very useful library addition. I doubt if students will buy it (unless to educate their parents!) since it makes no attempt to replace any of the conventional text material, It is, however, a comprehensive collection of photographs of developmental anatomy, often supplemented by histological preparation of the same organs. Very useful indeed for student browsing, since it shows what developing organs actually look like, rather than the simple line diagrams that lecturers are necessarily reduced to.

C.C. Wylie

Genetic Analysis of Animal Development. By Adam Wilkins. John Wiley 1986. ISBN 0-471-87662-3 (hardback) 0-471-87664-X (paperback) £71.55 (hardback, paperback price not given).

Depsite its staggering price, this is an excellent textbook, with all the advantages of a single author text; those of continuity, a reflective style, and no overlap between chapters.

The first part of the book is a historical introduction, particularly in the way it shows the early establishment of a relationship between genetic and developmental approaches, and their tortuous interaction since. The second part gives a general and also comparative account of the degree to which early development is programmed in the oocyte. The next two parts are the meat of the volume, and comprise detailed descriptions of the development of three organisms regarded by the author as the principle dramatis personae of current developmental biology, Caenorhabditis, Drosophila and the mouse. These organisms are treated separately, each chapter containing both descriptions of development, some analysis of developmental mechanism by experimental embryology, and genetic analysis. Lastly the author considers pattern formation, current methods of molecular analysis of the genome, and finishes with a thoughtful chapter on ways forward. A glossary of terms and genetic maps of the three organisms are a distinct bonus.

The style of the volume is excellent, very readable and understandable to the non-specialist. In a market increasingly dominated by multi-author volumes of often only loosely linked articles, this stands out as a genuine book to be read, rather than just scanned. It's a shame about the price.

C.C. Wylie

Human Embryology By F. Beck, D.B. Moffat & D.P. Davies (1985). 2nd Edition. Blackwell. ISBN 0-632-01041-X £12.50.

This short, softback text is designed for medical embryology courses. It represents an excellent alternative to the more expensive, but glossier, American texts with which it will find itself in competition. It has very few half tones, no coloured diagrams or trendy scanning EMs of the developing embryo. However, it offers sensible line drawings and sketches, and concise well written accounts of most aspects of modern embryology courses. It has a longer than usual introduction to genetics, but this actually complements, rather than detracts from, the embryology that follows. The book concentrates on developmental anatomy. This is complemented nicely by sections on major congenital malformations. There is even a nod in the direction of fetal physiology here and there, which is to be strongly encouraged. The only component which I felt was lacking, and which should be stressed more to medical students, is the area of developmental mechanisms. For this, the reader is given a brief (5 page) synopsis, and referred to some very out of date texts. I feel it is vital to show the next generation's obstetricians that we need to understand developmental mechanisms before we (or they) can make the link between disruption of function at critical periods in development, and resulting congenital defects. However, since no current medical embryology text adequately covers this area, this criticism will not make this excellent and inexpensive volume any less competitive.

C.C. Wylie

Growth Factors and Transformation (Cancer Cells, Vol. 3).

Eds. J. Feramisco et al. Cold Spring Harbor Laboratory, 1985. $70. ISBN 0-87969-178-6.

This conference is on one of the most topical themes of current cancer research, the relationships between growth factors and oncogenes. No doubt many developmental biologists would have been interested, even before the news of sequence homologies between some growth factors and homoeotic genes (not featured here).

As usual the level of presentation is for a broad audience, not just for those in the field, although equally not for the unaided undergraduate. The book provides a well-designed and (generally) focussed survey of the field. It is divided into sections on EGF, insulin (that well known growth factor), PDGF, lymphokines, oncogenes and kinases. This proves to be somewhat arbitrary; there has evidently been so much cross-fertilization lately that articles often deal with all three: growth factors, oncogenes and kinases.

One grouse is that the meeting was not very international. The numbers of first authors are:- U.S.A. - 49, Europe - 6 (U.K. - 1) and elsewhere - 2. Most of the non-American papers had American co-authors. I shouldn't be chauvinistic, but nor should organizers of a prestigious conference. And surely this isn't really the distribution of good cancer research?

The weakest section is the last, called "Futures", but miscellaneous and not especially futuristic, in that it generally contains no more novel ideas and directions than other sections. On the other hand, (for BSDB members) it does feature the in situ mapping of the cellular homologue of an oncogene protein in chick development, with speculations on its involvement in determination of the nervous system.

On balance, well worth having in your library, if it is not already subscribing to the "Cancer Cells" series.

Dot Bennett

Eukaryotic transcription: the role of cis - and trans-actins elements in initiation Cold Springer Harbor. 1985. ISBN 0-87969-186-7. $30.00 direct from CSH.

This is a collection of "extended summaries" of talks given in March 1985, at Cold Spring Harbor, 30 of them in all, packed into a 200pp pocket sized volume. This format of meeting publication is refreshing, in that it dispeneses with all the usual background noise ("abstract nonsense" as Klaus Kalthoff calls it) and simply presents the results.

Enhancer sequences represent a particularly exciting and rapidly growing subject at the moment and one of direct interest to developmental biologists, as their identity and sequence is commonly identified, at least in higher eukaryotes, by inserting constructs into the embryo, and looking for tissue-specific expression. Thus the regulation of tissue specific expression in embryos, long since the holy grail of developmental biologists, is now amenable to study. Most of the attention of the meetings was devoted to the DNA sequences since the factors that may bind to them to

activate transcription are still largely unknown, although foot printing techniques have now enabled some binding proteins to be identified. Enhancer sequences were only identified about 5 years ago, as cis-actin transcription-activating sequences with the ability to act over long distances (>1000bp) upstream or downstream and independent of orientation in the DNA molecule. Since then, many such sequences have been identified in eukaryots from yeast to man. One of the most interesting facts presented is that such enhancer sequences are quite long, and probably "modular" in that they contain short sequence "motifs" which appear to be able to substitute functionally for each other since they can survive considerable trauma at the hands of the investigator. The presumption is that these sequence motifs confer different functions e.g. inducibility, tissue specific expression. Also described was the nature of the enhancer areas, which appear to be at DNAase hypersensitive, nucleosome-free areas, which makes them attractive as binding sites for nuclear regulatory proteins.

One can't help but get the feeling from this excellent short and informative book that fundamental answers in development will emerge from the field of enhancers.

C.C. Wylie

Intermediate Filaments By P. Traub. Springer-Verlag, Berlin, Heidelberg, New York, Tokyo. 1985. ISBN 3-540-15105-2 266 pages. DM 168 (no Sterling price given).

Ten years ago few scientists had heard of intermediate filaments and really only during the last five years have they impinged upon the consciousness of many cell biologists. This is in spite of them being major cellular constituents and in many vertebrate cells intermediate filament proteins are at least equally as abundant as actin and tubulin, the building blocks of the other two better known cytoskeletal elements. In spite of their late arrival as a topic of research, the literature is now at the point where interested parties are reading only selected papers and so it is timely to have a comprehensive work on the subject.

This book is a comprehensive review and is well organized. It begins with a description of the five main classes (cytokeratin, desmin, vimentin, glial filaments and neurofilaments) along with their distribution and appearance in early differentiation. However, the work covers really all of the other aspects of intermediate filament research carried out to date. For example, there are discussions on topics such as structure, putative associated proteins, involvement in cellular pathology, interactions with other organelles, post translational modification. Peter Traub also makes a creditable stab at summarizing those experiments which may bear upon intermediate filament

function, about which the lack of knowledge is still something of an embarrassment to those working in the field. On the whole this will be a useful book for the cell biologist with an interest in the cytoskeleton. The bibliography does not have any serious omissions, making the book a very good starting point for those entering the field. It is not a suitable undergraduate text but a useful source of information for the teacher.

Brian Anderton

Genetic Manipulation of the Early Mammalian Embryo. Banbury Report 20. Eds. F. Constantini and R. Jaenisch 1985. Cold Spring Harbor. ISBN 0-87969-220-0

This book is a collection of papers given at the Banbury Conference in October, 1984. They are divided into four group headings: developmental genetics, endogenous viruses and viral vectors, introduction of cloned genes into the mammalian germ line and non-mammalian systems. The papers are quite short and by no means comprehensive but the book does nevertheless accurately reflect the current trends in mammalian embryo research.

"Developmental Genetics" includes papers on the t haptotypes, x-chromosome inactivation, expression of alpha foetoprotein genes and genomic requirements for successful development. "Endogenous viruses and viral vectors" includes papers on EK cells and the production and use of retrovirus infected EC and haemopoietic stem cells.

The largest section deals with the introduction of genes into the mammalian germ line and by far the most popular method is by microinjection of DNA into pronuclei of zygotes. DNA injection apparently causes mutations with high frequency compared with virus infection. These paper analyse the effect of the introduction of a variety of gene constructs in transgenic mice. The final paper in this section describes a system for microinjecting DNA into the pronuclei of cattle and sheep zygotes obained by surgery. In cattle the pronuclei are masked by yolk and are therefore identified by a DNA stain prior to microinjection. Using this technique 2 bovine offspring were produced but no data were available on germline integration of injected DNA. The aim of improving livestock using this technique is, no doubt, a noble one but the methodology involved makes the whole process seem positively heroic. How much will butchers charge for transgenic steaks?

The final section has a paper each on the sea urchin, Xenopus and C. Elegans. By and large the papers are well presented and informative and probably would serve as a good primer for undergraduates or students entering this field of investigation. It is a nice collection of papers; however the conference was in Autumn 1984 and so the work is now nearly two years old.

P.J. Donovan

Erratum

The Biology of Reptiles, Vols. 14 and 15 (ISBN 0-471-81358-3 and 0-471-81024-8), reviewed in the last Newsletter, were incorrectly credited to Academic Press. They were, in fact, published by John Wiley & Sons Ltd. I hope this has not led to any confusion.

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