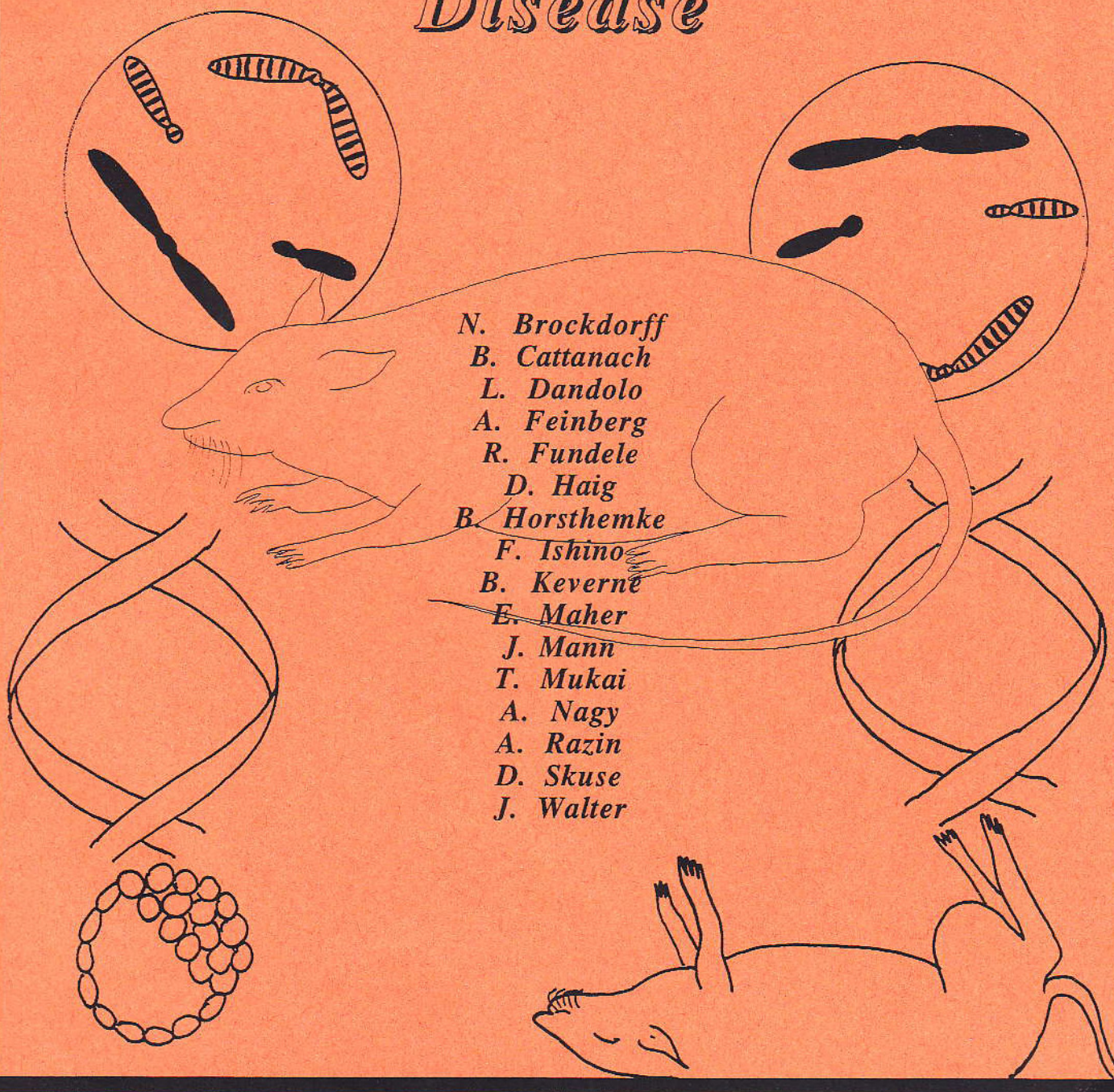
BSDB

BRITISH SOCIETY FOR DEVELOPMENTAL BIOLOGY

SUMMER 1997 - No. 35

AUTUMN MEETING 1997
4-7th SEPTEMBER - UNIVERSITY OF CAMBRIDGE

GENOMIC IMPRINTING
its role in Development & Disease



N. Brockdorff
B. Cattanach
L. Dandolo
A. Feinberg
R. Fundele
D. Haig
B. Horsthemke
F. Ishino
B. Keverne
E. Maher
J. Mann
T. Mukai
A. Nagy
A. Razin
D. Skuse
J. Walter

BSDB Newsletter
No. 35 Summer 1997

GENOMIC IMPRINTING -
ITS ROLE IN DEVELOPMENT AND DISEASE
University of Cambridge

The **Registration Form** can be found in the 'detachable' **Centre Section** of the Newsletter.
Further details appear on page 2 .

From the Treasurer

TRAVEL GRANTS

The BSDB awards three types of grants to its members, with preference given to graduate students and postdocs.

BSDB Spring and Autumn meetings: These are the only UK meetings for which there is BSDB support, and grants cover basic travel and conference expenses (but not conference dinners). We are currently able to fund demand but, if numbers increase, preference will be given to members who present posters (but see comment on foreign meetings).

Practical courses: Support of up to £300 is available for these courses and, at the moment, all applicants are funded. If more than about 8 members a year apply, however, a selection procedure will be introduced.

Foreign meetings: This is the category for which there is greatest demand and we cannot fund everyone. Rather than give members grants that are too small to be useful, current policy is as follows:

* About £400 will be available every month and awards will be made, as a contribution towards travel expenses, at the end of the month.
* No more than two people from one Department or one person from a group will be awarded a grant to go to a particular meeting, and preference will be given to members presenting work.

To apply for a travel grant, members should write to the **Treasurer** giving details of the proposed visit and the breakdown of the amount of money requested. They should enclose with the application a letter of support from their supervisor or laboratory head and, if apppropriate, the abstract of the poster or talk they intend to present.

Application 3-4 months in advance is advised so that the BSDB contribution (£150 max) can be used as a lever to prise the rest of the money from other sources.

Please note: no-one will be awarded more than one travel grant per year.

Small Meetings

Members may approach the **Treasurer** for seed funding to help with organising developmental biology events (eg one-day meetings) that involve other institutions and at which students and postdocs are encouraged to attend and present work.

Louie Hamilton Fund

There is a small amount of money available from the Louie Hamilton Fund to provide travel support for handicapped members. Applicants should contact the **Treasurer**.

Goodbye - some ex-members who had not upgraded their subscription to **£20** have been humanely culled. A further 56 suspect Ph D students are being contacted (student-rate members who are pre-1993 or who are suspiciously called "Dr" - oops!)

Jonathan Bard, Treasurer

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BSDB Autumn Meeting
Corpus Christi College, University of Cambridge, 4-7 September 1997

'GENOMIC IMPRINTING: its role in Development and Disease'

Organisers: Anne Ferguson-Smith, Wolf Reik, Paul Schofield and **Azim Surani**

SPEAKERS:
N. Brockdorff (London, UK)
B. Cattanach (Harwell, UK)
L. Dandolo (Paris, France)
A. Feinberg (Baltimore, USA)
R. Fundele (Berlin, Germany)
D. Haig (Mass, USA)
B. Horsthemke (Essen, Germany)
F. Ishino (Yokohama, Japan)
B. Keverne (Cambridge, UK)
E. Maher (Birmingham, UK)
J. Mann (Duarte, USA)
T. Mukai (Osaka, Japan)
A. Nagy (Toronto, Canada)
A. Razin (Jerusalem, Israel)
D. Skuse (London, UK)
J. Walter (Berlin, Germany)
plus around 10 additional speakers selected from abstracts

SESSION CHAIRPERSONS:
P. Avner (Paris, France)
C. Graham (Oxford, UK)
N. Hastie (Edinburgh, UK)
L. Hurst (Bath, UK)
M. Monk (London, UK)
R. Ohlsson (Uppsala, Sweden)
M. Pembrey (London, UK)
S. Rastan (Harlow, UK)
J.Thomas (Cambridge, UK)

The programme includes talks given by invited speakers, in addition to presentations by graduate students/postdocs selected from abstracts. The most outstanding Graduate Student abstract will receive a prize donated by Nature Genetics and will be selected for either an oral or poster presentation.

Registration and Abstract deadline - 4th July 1997.
Participants are encouraged to register early as the meeting is limited to 150.

A detailed programme will be circulated shortly after the July 4th deadline.

Registration and Abstract forms are incorporated in the Centre Section of this Newsletter.

FUTURE BSDB MEETINGS

SPRING SYMPOSIUM MEETING 1998.
'Developmental Pathways'

This meeting will be organised by **Paul Sharpe, Anthony Graham & Phil Ingham.** It will be held jointly with the BSCB the University of Lancaster from **31st March-3rd April 1998**.

Developmental biologists are begining to make links between cell signalling and gene transcription in developmental processes. At the same time, cell biologists are making rapid process in unravelling the complexities of transduction of signals within cells. This meeting aims to bring these two fields together by concentrating specifically on developmental topics where progress is being made in understanding the interactions between different molecules involved in a "developmental pathway". Links between cell signalling, extracellular matrix, signal transduction and gene transcription will be covered in a developmental context.

INVITED SPEAKERS include:

Richard Axel (New York, USA) - Plenary
Mathew Scott (Stanford, USA)
Henry Kronenberg (Boston, USA)
Hans Clevers (Amsterdam, Netherlands)
Patrick Lemaire (Marseille, France)
Clive Dickson (London, UK)
Irma Thesleff (Helsinki, Finland)
Tony Pawson (Toronto, Canada)
Pat Doherty (London, UK)
Masatoshi Takeichi (Kyoto, Japan)
Cathie Martin (Norwich, UK)
George Coupland (Norwich, UK)
Caren Chang (Maryland, USA)
Jeff Wrana (Toronto, Canada)
Vicky Rosen (Cambridge, USA)
Ali Hemmati-Brivanlou (New York, USA)
Norbert Perrimon (Boston, USA)
David Ish-Horowicz (London, UK)
Tony Hunter (La Jolla, USA)
Vassilis Pachnis (London, UK)
David Wilkinson (London, UK)
Jeff Williams (London, UK)

There will be a parallel session on **Skin** and an evening workshop on **GSK3**.
The BSCB Symposium will be on **Intracellular Localisation.**

Further information, including a full programme and registration details, will be included in the next Newsletter.

AUTUMN 1997, University of Nottingham.
'The development of sensory systems'

This meeting will be organised in Nottingham by **Julian Lewis** and **Karen Steel**. Further details will appear in the next Newsletter.

Topics for Future Society Meetings

One of the major tasks of the BSDB Committee is to select topics for future meetings and then to ensure that these meetings are well organised and successful. It is obviously crucial that meetings are supported by the members of the Society, and we always welcome suggestions for future topics. If you have an original idea for a major Spring Symposium, a smaller two day Autumn meeting, or for a one day workshop, please get in touch with the **Meetings Secretary, Ian Jackson.**

OTHER DEVELOPMENTAL MEETINGS

GENES AND CANCER

(UK Molecular Biology and Cancer Network meeting XIV)

8th-10th December 1997, University of Warwick, UK.

KEYNOTE LECTURE
BALMAIN (San Francisco)

GENE EXPRESSION
GHYSDAEL (Paris) * RABBITTS (Cambridge) * KOUZARIDES (Cambridge)
JONES (London) * PARKER (London) * WESTON (London)

GENOME INTEGRITY
DE LANGE (New York) * JACKSON (Cambridge) * WOOD (London)
SVEJSTRUP (London) * HICKSON (Oxford) * CARR (Sussex)

CANCER AND DEVELOPMENT
HILL (London) * BIENZ (Cambridge) * WRANA (Toronto)
BIRCHMEIER (Berlin) * LEWIS (London)

GENES AND THERAPEUTICS
SPRINGER (London) * LANE (Dundee) * GILMAN (Boston)
VILE (London) * O'HARE (Oxted)

POSTERS and TRADE EXHIBITION

Registration £50 (students £25). Accommodation and all meals £140 / £165

APPLICATION FORMS AND FULL DETAILS FROM:
Dr Helen Hurst, FAX 0181-383-3258
www.icr.ac.uk/ukmbcn/info.htm

Deadline for poster abstracts: October 17th 1997
Registration deadline: November 10th 1997

DISCOUNTED JOURNALS

Remember the discounted **BSDB Member** personal subscription rates for 1997 journals!
***Development** at **£151** (instead of £169) - see the Centre Section of the Newsletter.
***BioEssays** at **£63** (instead of £73).
***Developmental Biology** at **$277** - please direct all orders and payments regarding member subscriptions to: Academic Press Inc., Stephanie Smith/Circulation Dept.,525 B Street Suite 1900, San Diego, CA 92101-4495. USA.
***Trends in Genetics** at **156 Dutch guilders**
* Also **NOTE** Elsevier are offering BSDB member subscriptions to
Mechanisms of Development for **$115** - email Nicolien Linden -: N.LINDEN@elsevier.nl

You will have been contacted directly by Current Biology Ltd about reduced rates for
***Current Biology - £37.50 (instead of (£75)** and
* **Current Opinion in Genetics & Development - £76.50** (instead of £85)
use the form provided.

***Development, Genes and Evolution.** (formerly Roux's Archives of Developmental Biology)
The personal subscription rate for volume 207 (1997) is **DM 168** and Springer are prepared to offer a member's reduction (to 148 DM), but only for a minimum of 50 subscribers! If you are interested, write to them.

CALLING GRADUATE STUDENTS!

Remember, the Graduate Reps on the BSDB Committee are **M.Louise Smith** and **Marcus Hicks**. Their job is to communicate Graduate Student Views (good or bad) to the BSDB Committee, so please do not hesitate to contact them - see the addresses page at the back.

BOOK REVIEWS

HUMAN MOLECULAR GENETICS

T.Strachan & A.Read
Bios Scientific Publishers 1996.
ISBN 1 872748 69 4. £29.95.

This is an excellent, commendable textbook. It is a timely attempt to write a comprehensive account of a subject which has changed radically in the last decade or so and continues to progress at breakneck speed. The authors succeed in their ambition of introducing the latest developments while establishing a firm foundation of principles on which the advances are based. The book is much more than its title: it contains a wealth of information and the material is not confined to molecular matters. From the title, the reader will expect to find accounts of molecular techniques applied to the analysis of gene isolation, structure and function, but the strength of the book is the way in which the discussion is broadened to include evolutionary and population aspects of human genetics.

The first Sections and Chapters in the book introduce DNA, Genetics and cloning techniques. They form the foundation on which later treatments of the subject are built. The cloning chapters, in particular, contain some advanced examples. The third Section, Features of the Human Genome, examines various aspects of organisation, evolution and mutation of the genome - the last two topics I found particularly stimulating. Physical and Genetic Mapping is dealt with comprehensively and I am sure that students will find the account of log-odds mapping, for example, of great benefit. Given the astonishing rate of progress in analysing the human genome, the large section devoted to genetic disease is commendably up-to-date and ranges from the single genes to more complex conditions with a less well-defined genetic basis. In dealing with the latter, both the analysis of polygenic inheritance and susceptibility loci are covered. The reader is introduced to the available computing tools, the intention being to encourage students to use the many resources accessible via the Internet.

In my experience, teachers of Genetics have a big advantage in that the subject matter can always be made interesting to students by the use of relevant human examples. Now this is made even easier by the availability of this textbook, which contains many interesting and detailed examples of human inheritance.

Jeff Bond
Institute of Cell and Molecular Biology,
University of Edinburgh.

APOPTOSIS AND CELL CYCLE CONTROL IN CANCER

Ed. N.S.B.Thomas
BIOS Scientific Publishers, 1996
ISBN 1 872748 89 9, pp.238. £65.

This book contains a dozen shortish chapters that summarise what was known a year or two ago about cell division and cell death, mainly but not only in the context of cancer, and about some of the key proteins (the cyclins, p53, and the retinoblastomer family) involved in these processes.

This is not a book that any developmental biologist is likely to buy (particularly at a cost of £65), but, should he or she need to know something of the topic beyond what is in the standard text books, this collection is worth searching out. The essays are terse, informative and fairly easy to absorb. Some of them, indeed, not only provide useful background material for, say, teaching, but are actually good reads. I suspect that the editor gave strict instructions to his authors that they should

make their topics approachable and it is to his credit that the book is so accessible without being either lightweight or condescending to its readers.

The overview by Cline of the nature of malignancy, for example, provides a clear summary of the role of all those genes involved in cancer that one should know about, while the chapter by Cotter and Pocock on antisense therapy contains a great deal of common sense as well as sound, practical advice on how to go about using this controversial technology. This latter chapter is actually one of four that discuss how one can use our understanding of the molecular basis of cell cycle dynamics for designing drugs that might specifically target cancer cells, and they make an interesting set.

Perhaps the best reason for recommending this book, however, is that it handles its material with a certain lightness of touch and this cannot have been easy, given the enormous amount of material published in the field. The reader is given a feeling for this weight partly by the publication statistics detailed by the editor in his introduction, but particularly by the article by El-Deiry on p53, p21 and the control of proliferation: appended to the eleven pages of text are almost nine pages of references! (Clearly this field is as substantial and approachable as that of *Drosophila* developmental genetics.)

Jonathan Bard,
Dept. of Anatomy,
University of Edinburgh.

EPITHELIAL-MESENCHYMAL TRANSITIONS

Ed. D.Newgreen
S.Karger AG, Basel.

Part 1.

ISBN 3-8055-6303-5. CHF 105, 1966.
(Acta Anatomica, Special Issue: Vol 154,1 1995)

Part 2.

ISBN 3-8055-6435-X. CHF 105, 1966.
(Acta Anatomica, Special Issue: Vol 156,3 1996)

Most histology books begin the same way; they divide cells into two quite distinct categories, epithelial and mesenchymal, and discuss their subsequent and more subtle differentiation in the context of this great divide. In many ways, this makes a lot of sense - epithelial cells, which adhere tightly to one another in sheets and tubes, are histologically very different from mesenchymal cells, which are often widely separated and which make most of their contacts with the extracellular matrix. By and large, cell lineage trees respect the gulf between these tissue types, but the development of a few systems depends critically on cells' ability to switch from an epithelial to a mesenchymal phenotype or vice-versa. These epithelial to mesenchymal transitions (EMTs), which promise to teach us much about the mechanisms by which changes in the basic phenotype of a cell are controlled, are the subject of a pair of recent special issues of Acta Anatomica (Vols 154 pt 1, 156 pt 3; published by Karger).

The most dramatic example of EMT is of course gastrulation, in which mesenchyme first appears. Viebahn's contribution to the special issue describes and compares the process in diverse species of animals, lists the molecules likely to be involved, and presents a working model for the interplay of regulatory factors and responses. Not long afterwards, genesis of the neural crest provides another example of EMT; the importance to this of signalling molecules, transcription factors and adhesion molecules, and the possible links between them, are discussed in the paper by Duband et al. Later still in development, the phase of organogenesis provides several examples of EMTs, including heart (Markwald et al.), and also a few instances of the reverse process, mesenchyme to epithelium transition (MET), for example in kidney tubule formation (Davies). Even placentation arguably includes a specialised EMT (Vicovac and Aplin), as do post-embryonic disorders of differentiation such as cancer (Birchmeier et al.).

An important question that runs through all of the papers, and indeed through the field as a whole, is this:- are the various examples of EMTs homologous with respect to underlying molecular mechanisms, or merely analogous? In truth, it is too early to say (which is one of the reasons that working on these transitions is so interesting!), but several authors make good cases for the universal importance of particular molecular systems; these include Kringle domain serine proteases (Thery and Stern), CAMs (Prieto and Crossin), integrins (Garratt and Humphries), cell junction-cytoskeleton complexes (Geiger et al.) and signalling cascades (Boyer et al). Their models are evaluated and placed into context in an excellent

CENTRE SECTION

This "Centre Section" can be removed without damaging the rest of the Newsletter.
It contains a form for subscribing to **Development** (below), a membership application and banker's order form, and the Registration and Abstract forms for the Autumn Meeting at Cambridge University.

Development

Members of the BSDB are entitled to a reduction in the subscription price to 'Development'. The general 1997 personal subscription is £169 but, for BSDB members, it is (only) £151.

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To: **Development**
The Company of Biologists Ltd,
Bidder Building,
140 Cowley Road,
Cambridge, CB4 4DL UK.

Please enter my subscription to **Development** for 1997. I undertake not to pass my subscription copies on to a library. I enclose a cheque for **£151** made payable to "The Company of Biologists Ltd".

Signature: .....
Name: .....
Address: .....
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Other CoB Journals, including BioEssays (£63), the Journal of Cell Science (£110) and the Journal of Experimental Biology (£112), are also available at reduced rates. To subscribe, write to the above address with your cheque and a signed undertaking that you will not pass your individual copy on to a library.

NOTIFICATION OF CHANGE OF ADDRESS

NAME: .....

Note that from ...../...../ 1997.
my address will be:
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.....
Tel; Fax; e-mail:.....

(my previous address was:
.....
.....
.....)

SIGNATURE: .....

Send to: **Prof. J.M.W.Slack,**
Developmental Biology Programme, School of Biology & Biochemistry,
South Building, University of Bath, Bath BA2 7AY.

BSDB Autumn Developmental Biology Meeting
4-7 September 1997, Corpus Christi College, Cambridge
Genomic Imprinting: its role in development and disease

REGISTRATION FORM

Each participant should complete a separate form

Name.....Title.....
Institution.....
Address.....
.....
.....Postcode.....
Telephone.....FAX.....
E-mail.....

I include an **abstract** and I would like to present a POSTER/TALK (circle one)

The first session starts at 2pm on Thursday 4th September and the meeting will end around 12 noon on Sunday 7th September. There will be a 3 hour poster session on Friday afternoon and some free time between the morning and late afternoon sessions on Saturday. The Conference Banquet will take place on Friday night. Registration Packages depend on whether accomodation is required and whether you are a student / BSDB member. The Package includes *all* meals (lunch on Thursday through to lunch on Sunday) including the Reception and Banquet and tea/coffee, abstract book & programme as well as the cost of conference facilities and administration. Accomodation is single occupancy. Special arrangements can be made for accompanying persons by contacting the organisers.

Please indicate requirements:

	Breakfast	Lunch	Dinner	Accomodation
Thu 4 Sept				
Fri 5 Sept			(Banquet)	
Sat 6 Sept				
Sun 7 Sept				

Special requirements:

COSTS: (Circle amount enclosed)	**Regular**	**Student**	**BSDB member**
Registration Package including 3 nights Bed & Breakfast	£275	£200	£245
Registration Package only (No B & B)	£185	£135	£165
Late Registration Fee (after July 4th)	£40	£40	£40

Delete as appropriate:
I am an invited speaker / BSDB member / student / postdoc / group leader

Registration must be accompanied by payment:
Payment (in pounds sterling only) should be sent by cheque, eurocheque or bank draft drawn on a UK bank. Credit cards are not accepted. Cheques should be made payable to **Corpus Christi College**. (Please indicate "BSDB" on all remittance)
Please return this form with full payment to: **Mrs D. Styles**
The Babraham Institute
Cambridge CB2 4AT, UK

Abstract & Registration deadline: July 4th 1997
Participants are encouraged to register early as the meeting is limited to 150.

BSDB Autumn Developmental Biology Meeting
Genomic Imprinting: its role in development and disease

PRINT TITLE USING BOLD & CAPITAL LETTERS
Print Authors and Affiliations (underline presenting author).

Abstract should be submitted on A4 paper and be within the boundaries indicated.
(6 inches x 7.75 inches or 15cm x 19.5cm)

Text should be 1.5 spaced and font size 12.
Maximum 350 words.

Please do not write in margins.

Your abstract will appear exactly as typed, in a Conference booklet for all participants.
Please do not box your abstract; these lines are for guidance only.

Send 6 copies of this abstract with your registration form.
Several talks will be selected from the abstracts shortly after July 4th 1997.

APPLICATION FOR BSDB MEMBERSHIP

Full name: ..... **Title** ... **Degrees** .....

Professional address: .....

.....

.....

.....

Tel; Fax, e-mail: .....

Research interests:.....

I wish to apply for Ordinary (£20)/Student (£7.50) membership of the Society (delete as applicable)
Applications must be endorsed by two Society members who should sign below:

..... Name: .....

..... Name: .....

Please return this form, together with the completed Banker's Order (below) to the Society Secretary:
Prof. J.M.W.Slack, Developmental Biology Programme,
School of Biology & Biochemistry, South Building,
University of Bath, Bath BA2 7AY.

For Society Use

Acknowledged: ..... Mailing list: .....

***Please note that the graduate student rate of £7.50 is applicable **for a maximum of 4 years**, after which you must pay the full rate, regardless of your status.

To: The Manager,

..... Bank

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.....

Please pay to the **British Society for Developmental Biology,**
Account no: 80867675 (sort code 20-71-74)
Barclays Bank plc, P.O. Box No. 4BP,
Liberty House, 212 Regent Street,
LONDON W1A 4BP.

the sum of £ (pounds) on October 1st 1997 and on the same day each year succeeding unless this instruction is altered in writing by me. This instruction replaces any previous instruction of payment to the British Society of Developmental Biology, which should be cancelled.

Signature: ..... Account No: .....

Name*: ..... Date : .....

Address: .....

.....

* as shown on cheque book

overview article (Hay), which would the place for a newcomer to the field to start.

So who should read these volumes? Obviously anyone specialising in developmental events that include EMTs (or METs) should be very interested, as should cell biologists who want to think about what it really means to be (or not to be) an epithelial cell. In a broader context, researchers fascinated by the control of differentiation will find at least some of the reviews valuable, because they emphasise well how an apparently stable state of differentiation (eg epithelium) can be flipped into a completely different state (mesenchyme) by an apparently minor change in the environment in which a cell finds itself, and also how some cell types are stable only en masse - together they stand, divided they differentiate.

I have only one criticism of the volumes - the time that elapsed between submission of manuscripts and actual publication was so long that many articles are already out of date; this is, however, mostly in respect of gene expression data and not the key questions and models, which are as valid as ever.

Jamie Davies,
Dept of Anatomy,
University of Edinburgh.

DEVELOPMENT OF THE CEREBRAL CORTEX
Ciba Foundation Symposium 193
John Wiley & Sons, 1995
ISBN 0471957054. £49.95

Development of the Cerebral Cortex is the proceedings from the CIBA Symposium chaired by Colin Blakemore which was held near the end of 1994. The aim of the symposium was to bring together a few of the more well-known scientists in the field of cortical development to present their results centred around one central question: are the specifications of the cerebral cortex determined in the ventricular zone (Rakic's "proto-map" hypothesis), or are they created by its afferents? The answer seems to depend on when in development, and where in the cortex, one asked the question, and remains very inconclusive. Nonetheless, the consequence is an informative, segmented 347 page review of some of the more interesting observations of cortical development and its specification (before 1995). The book is well constructed, and of a convenient size. The chapters are clear and well written, although the reproduction of the figures is less than ideal.

Three cortical specifications are highlighted in Colin Blakemore's well presented, thorough introduction: (i) radial lamination, (ii) tangential areal specialisation, and (iii) cellular differentiation. The chapters of this book delve into aspects of all three, and are presented in an order that logically parallels the developmental timeline of the cortex. After each chapter there is an edited, question-answer/discussion section, which at times can contain the more interesting information, if only because the speakers were less careful. Interspersed between the presentation chapters are five "General Discussion" chapters which I feel lack a specific focus. At times I was left wondering whether there was a specific aim or conclusion to be drawn. In addition to data, one can also find information and evaluations of techniques that have proved useful for studying cortical development over recent years.

Most of the chapters by Walsh and Reid, Parnavelas et al., J. Price et al., Bartlett et al. and Boncinelli et al. describe experiments that use retroviruses to label ventricular zone cells to address questions of cell lineage. In general these chapters suggest that, in addition to laminar fate, some cortical specifications are determined in the ventricular zone. For instance, pyramidal neurons, non-pyramidal neurons, astrocytes, and oligodendrocytes are all generated by different, committed, non-migratory classes of precursor cells. Specified precursors probably form from a small group of unspecified precursors (called NE cells) that die before embryonic day 16 in rats. Roles for FGFs in this process and homeobox proteins, such as EMX-2 expressed specifically in the ventricular zone, are also discussed. Thus, laminar fate and some aspects of cellular phenotype, such as transmitter expression and gross morphology, are predetermined, supporting the proto-map hypothesis.

Another aspect of cortical specification is the pattern of afferent connections, the formation of which involves three consecutive stages: (i) locating the correct cortical area, (ii) terminating in the correct cortical layer, and (iii) organising and maintaining the connections therein. The chapters of Molnar and Blakemore, Ghosh, Bolz et al., D. Price et al., and Daw et al. describe cultures and anatomical techniques, and focus on the formation of thalamocortical connections. How axons from specific thalamic nuclei find their correct cortical area isn't

known. However, the evidence suggests that subplate neurons, which lie underneath the cortical plate, are involved, since lesioning the subplate prevents thalamocortical innervation of the cortical plate. Once in their correct cortical area, thalamocortical axons recognise a termination signal on the dendrites of spiny stellate cells that become restricted to layer 4 around postnatal day 2-4 in rats. The process of organising these connections, and deciding which ones to maintain and which to throw off is possibly regulated by unidentified cortex-derived trophic factors that were shown to enhance thalamic growth and survival *in vitro*, and/or by glutamate acting through NMDA receptors during the critical period.

Interest in thalamocortical development is twofold. First, these connections are essential for the brain to function properly as they process and transmit all sensory information (bar olfaction) to the cerebral cortex. Second, evidence suggests that some aspect of cortical specification are determined by the innervating thalamic axons. The latter was addressed in the chapters by O'Leary et al. and Levitt et al. For instance, the formation of barrels (the cortical representations of the whiskers) in layer 4 of the somatosensory cortex will not form when thalamocortical axons are lesioned subcortically. Thus, thalamic innervation drives cortical barrel formation. Interestingly, barrels can be induced in visual cortex transplanted to the somatosensory area, demonstrating that other cortical areas also possess the potential to form barrels.

On the other hand, before afferents form, only limbic cortical neurons express LAMP (a membrane-bound adhesion molecule) and will become LAMP positive in primary cultures. *In vitro* LAMP expression is regulated by EGF or TGF-alpha and collagen type IV which are found in the correct place and at the correct time *in vivo*. Limbic cortical neurons will maintain LAMP expression when heterochronically transplanted, unless transplanted very early in their development. Similarly, early in development somatosensory cortex will become LAMP positive when placed into the limbic cortex and will be innervated as its host area.

The last two chapters (Jones et al. and Roberts et al.) are concerned with the consequences of an abnormal cortex. Two disorders, schizophrenia and epilepsy are thought to result For instance, in schizophrenia there is an enlargement of the ventricles, hypoactivity in the prefrontal cortex, and a loss of neurons in the medial dorsal thalamus. Enlarged ventricles could result from excessive axonal pruning, and reduced cell number in the thalamus by excessive cell death. Both are naturally occurring events of development. Thus, diseases such as schizophrenia could be a consequence of alterations of the processes that regulate development. The chapter of Roberts et al. also serves as the book's denouement since the book unfortunately lacks a specific, concluding chapter.

En masse the papers in this book seem to favour a large genetic, predetermined component to cortical development, with only superficial, regulating epigenetic influences by the environment, such as sensory stimulation brought by thalamic axons. Maybe the cerebral cortex is like a neighbourhood of pre-fabricated houses. As each was built following a pre-drawn, preconceived plan, each house is more or less identical to the other *when vacant*. But as they become occupied, each takes on quite a different appearance, at least superficially since the basic structure remains the same. They are painted different colours, filled with different things, and some are more organised than others. The question it seems is to know how important these superficial facades are for the brain to work. Where/when does one brain become unique to another? Is it found predominately in the genetics or the environment...nature vs. nurture...the perpetual question.

What this book isn't is an Annual Review of Neuroscience, nor a collection of brief, general review papers. Instead, the focus of each chapter is on the past work of the presenters in this CIBA Symposium, and is therefore highly specific, and increasingly out of date. Thus, I believe those whose work, and whose ideas are centred on cortical development would profit the most from this book, especially if they acquired it from the library and not from a book store.

Beau Lotto'
Physiology Dept,
University of Edinburgh

BSDB COMMITTEE members

and other useful addresses

The main function of the BSDB Committee is to organise our meetings, from deciding on appropriate topics to arranging organisers and venues. If you have any ideas on topics for a good meeting, or on a good venue, don't hesitate to convey them to a committee member. The officers of the society have specific functions. Jim Smith (Chairman) keeps order; Jonathan Slack (Secretary) deals with the membership list; Jonathan Bard (Treasurer) handles the subscriptions and awards travel grants; Ian Jackson (Meetings Secretary) does most of the work in arranging meetings and deciding on venues; Vernon French (Publications Secretary) assembles this Newsletter. These Officials will be happy to answer any questions relating to their subjects.

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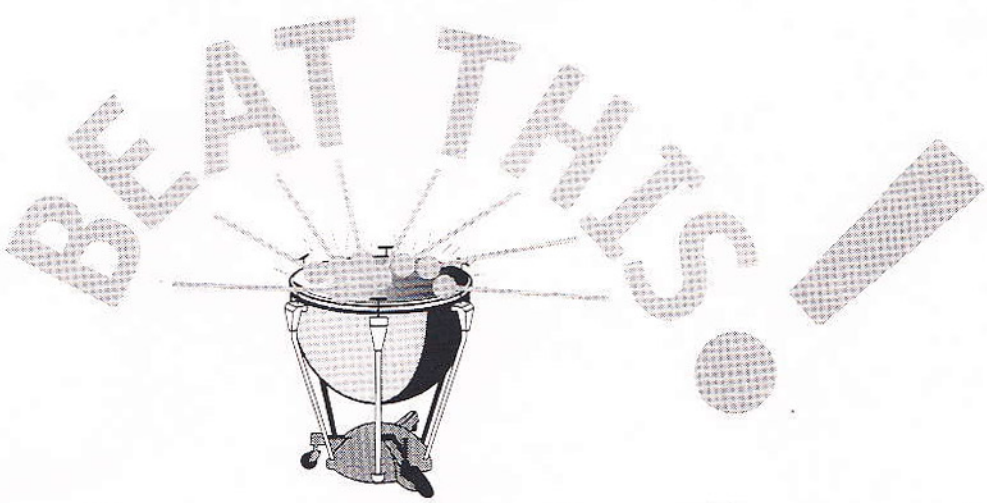
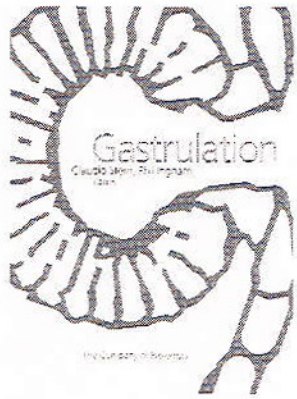
BSDB on WWW

We now have a web entry which will give key information about the Society. It can be found at:

http://www.ana.ed.ac.uk/BSDB





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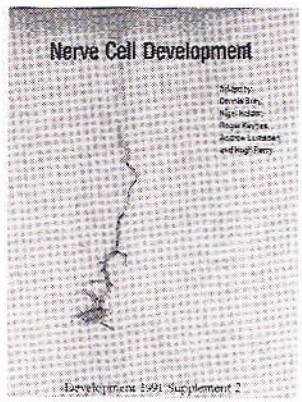
Nerve Cell Development
Edited by Dennis Bray et al.
BSCB/BSDB Symposium held in April 1991



Proceedings of the joint BSCB/BSDB symposium on the development of the nervous system - with special emphasis on its cellular basis. One of the successes of the meeting was the emergence of underlying themes and approaches common to both developmental and cell biology.

and

Gastrulation
Edited by Claudio Stern and Phil Ingham
BSDB Symposium held in April 1992
Papers presented at a meeting of the British Society for Developmental Biology, reflecting the then current direction of research into gastrulation. Four main themes recur throughout the volume: movement of embryonic cells; cell fate; cell induction; and regional patterning.

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