1988 (#14, 15, 16)

SPRING 1988

This will be a joint BSDB/BSCB/Company of Biologists Symposium meeting, to be held in Bristol. The local organizer is Beverly Randle. The two Symposia are:

1. The BSDB/COB Symposium on 'SEGMENTATION', organized by Vernon French, Jonathan Cooke and Phil Ingham.

2. The BSCB/COB Symposium on 'STEM CELLS', organized by T.M. Dexter.

Other sessions will be announced later.

SPRING 1988

As usual the Spring meeting is a joint BSDB/BSCB/Company of Biologists Symposium meeting. This will be held in Bristol from Monday to Friday, 11th-15th April. The local organizer is Beverley Randle.

The BSDB/Company of Biologists Symposium is on

MECHANISMS OF SEGMENTATION

The organizers, Vernon French, Phil Ingham and Jonathan Cooke write:

Segmentation is a fundamental feature of body organization of the annelids and arthropods and, in a rather different form, of the chordates. During early development these diverse embryos each become subdivided into a precise number of similar but unique units arranged in a precise sequence, and the mechanisms by which this is achieved constitute a central problem of developmental biology.

Recently, rapid advances have been made in the study of segmentation, using techniques ranging from traditional embryology (lineage analysis and 'cut and paste' experiments) to the molecular analysis of gene products known to be involved in the process. However, the sheer volume of diverse experimental results can be perplexing for the non-specialist and thus this meeting has two major aims:

1. To integrate the embryological, genetical and molecular results from the best known embryo, that of Drosophila, to give a comprehensive picture of one mode of segmentation.

2. To consider the degree of similarity in mechanisms of segmentation in Drosophila, in other insects (where segments appear sequentially during local growth), in leeches (where segments are generated by a precise lineage), and in vertebrate embryos.

Speakers who have already agreed to attend include:

Akam (Cambridge), Davidson (Edinburgh), Dohle (Belgium), Gehring (Basle), Gruss (Heidelberg), Howard (Columbia), Jackle (Tubingen), Jacobson (Austin), Kimmel (Eugene), Kornberg (San Francisco), Laughon (Madison), Lawrence (Cambridge), Mahon (NIH), Martinez-Arias (Cambridge), Meinhardt (Tubingen), Sander (Freiburg), Stern (Oxford), Weisblat (Berkeley) and Weischaus (Princeton).

The BSCB/Company of Biologists Symposium is on

STEM CELLS

and is organized by T.M. Dexter, C.S. Potten and B.I. Lord.

In addition to the main Symposium topics, the BSDB is organizing sessions on fertilization and spermatozoa, while the BSCB is holding talks on gene amplification, second messengers and retroviruses. There will also be a BSCB workshop on in situ hybridization.

Full details of this meeting will be announced in the Autumn Newsletter

SPRING 1988

Bristol University, 12th-14th April 1988

As usual our Spring meeting is being held concurrently with that of the British Society for Cell Biology. The BSDB is organizing a Symposium on **Mechanisms of Segmentation** (to be published as a supplement to Development) as well as sessions on **The Regulation of Sperm Function** and **Fertilization** and **Teratomas**. There will also be a workshop on **Retroviruses as Lineage Markers**. The BSCB Symposium is on **Stem Cells**, and there will also be sessions on **Retroviruses, Gene Amplification** and **Second Messengers**. There will be a workshop on **In situ hybridisation**.

The booking form for this meeting is in the 'centre section' of the Newsletter, and details of the meeting are as follows:

MECHANISMS OF SEGMENTATION

This part of the meeting is organized by Vernon French, Phil Ingham and Jonathan Cooke. We thank the Company of Biologists Ltd. and American Airlines for sponsorship.

The programme is as follows:

Tuesday, 12th April

1.45	Introduction to symposium
	Session 1. SEGMENTATION IN ANIMAL DEVELOPMENT
	Chair: Prof. K. Sander (Freiburg, W. Germany)
1.55	K. Sander (Freiburg, W. Germany)
2.35	W. Dohle (Berlin, W. Germany)
3.15	D. Weisblat (Berkeley, USA)
3.55	TEA/COFFEE
4.25	Ch. Nusslein-Volhard (Tubingen, W. Germany)
5.05	H. Meinhardt (Tubingen, W. Germany)
5.45	DISCUSSION

Wednesday, 13th April

	Session 2. SEGMENTATION IN VERTEBRATES
	Chair: J. Cooke (London, U.K.)
10.00	C. Kimmel (Eugene, USA)
10.40	D. Davidson (Edinburgh, UK)
11.20	TEA/COFFEE
11.40	K. Mahon (Bethesda, USA)
12.20	P. Gruss (Heidelberg, W. Germany)
1.00	LUNCH
2.00	A. Jacobson (Austin, USA)
2.40	C. Stern (Oxford, UK)
3.20	DISCUSSION
	POSTER SESSION AND CONFERENCE DINNER

Session 3. GENE INTERACTIONS IN INSECT SEGMENTATION
Chair: P. Ingham (Oxford, UK)

9.00	R. Lehmann (Cambridge, U.K.)
9.40	K. Howard (New York, USA)
10.20	E. Weischaus (Princeton, USA)
11.00	TEA/COFFEE
11.30	P. Lawrence (Cambridge, UK)
12.10	A. Martinez-Arias (Cambridge, UK)
12.50	LUNCH
1.50	M. Akam (Cambridge, UK)
2.30	DISCUSSION

Session 4. MOLECULAR MECHANISMS OF SEGMENTATION GENE ACTION
Chair: P. Lawrence (Cambridge, UK)

2.40	H. Jackle (Tubingen, W. Germany)
3.20	A. Laughon (Boulder, USA)
4.00	TEA/COFFEE
4.20	D. Ish-Horowitz (Oxford, UK)
5.00	T. Kornberg (San Francisco, USA)
5.40	DISCUSSION

THE REGULATION OF SPERM FUNCTION AND DIFFERENTIATION

These sessions will be held on Tuesday, 12th April in the morning and all day Wednesday, 13th April. The programme includes:

D.L. Garbers (Nashville). Signal transduction mechanisms in spermatozoa.

R. Christen (Villefranche-sur-mer). The role of ions in the regulation of sperm function.

J.-L. Dacheux (Nouzilly). The maturation of boar and of human spermatozoa.

H.D.M. Moore (London). The development of mammalian sperm-egg recognition processes.

R.M. Moor (Babraham). Protein re-programming, zona remodelling and inositide function in oocytes before and during fertilization.

Further information can be obtained from the organizer,

Dr. C. Ford,
Department of Obstetrics and Gynaecology,
Bristol Maternity Hospital,
Southwell Street,
Bristol BS2 8EG
Tel: 0272 215411 Ext. 268

Time is available for some free communications during this part of the meeting. Anyone who wishes to contribute a talk should contact Dr. Ford.

Phil Ingham and Jonathan Cooke, organisers of the 1988 BSDB Spring Symposium, at the 2018 70th anniversary Spring meeting

TERATOMAS - CELLULAR AND MOLECULAR STUDIES

These talks take place in the afternoon of Thursday, 14th April. The programme includes:

G.B. Pierce (Denver; CLIC plenary lecture). Teratocarcinoma cells as probes for regulation in the blastocyst.
P. Schofield (Oxford). Title to be announced.
M.F. Pera (Sutton). Stem cells of human teratomas.

Further information is available from:

Dr. K. Brown,
Department of Pathology,
University of Bristol,
University Walk,
Bristol BS8 1TD.
Tel: 0272 303030 Ext. 4980

The RETROVIRUSES AS LINEAGE MARKERS workshop is being organized by Jack Price and Mary Collins. It will take place in the evening of Tuesday, 12th April.

All parts of the meeting include poster sessions and, as usual, there will be a prize for the best poster by a graduate student. If you would like to present a poster, please enclose the title and an abstract of no more than 300 words with your booking form.

The BSCB Symposium topic is

STEM CELLS

The symposium is being organized by Mike Dexter, and the sessions are as follows:

Tuesday, 12th April

Morning: STEM CELLS IN DEVELOPMENT : Wolpert (London), Gardner (Oxford), LeDouarin (France), de Rooij (Netherlands).
Afternoon: STEM CELL SIGNALS AND STEM CELL GENES : Harrison (Glasgow), Verma (USA), Marshall (London), Klein (Sweden).

Wednesday, 13th April

Morning: STEM CELLS IN DIFFERENTIATING SYSTEMS : Johnson (Australia), Potten (Manchester), Owen (Oxford), Ferguson (Manchester).
Afternoon: DIFFERENTIATION IN STEM CELLS : Raff (London), Watt (London), Rudland (Liverpool), Bayreuther (Germany).

Thursday, 14th April

Morning: TUMOUR STEM CELLS : Lord (Manchester), Heath (Oxford), Steel (London), McCulloch (Canada).

Further information is available from:

Prof. T.M. Dexter and Dr. Brian I. Lord,
Paterson Laboratories,
Christie Hospital and Radium Institute,
Wilmslow Road,
MANCHESTER M20 9BX.
Tel: 061 445 8123

Other BSCB sessions take place on the following days.

Tuesday, 12th April

Morning: RETROVIRUSES : (organized by Chris Marshall, London); speakers include Pirie (London), Land (London), Collins (London), Evans (Cambridge), Price (London), Wagner (Heidelberg).

Afternoon: GENE AMPLIFICATION : (organized by George Stark, London); speakers include Wahl (San Diego), Debatisse (Paris) and Rolfe (London).

Thursday, 14th April

Morning: SECOND MESSENGERS : (organized by Robin Irvine, Babraham); speakers include Downes (Welwyn), Houslay (Glasgow), Siddle (Cambridge), England (Welwyn).

The IN SITU HYBRIDISATION WORKSHOP is being held on Tuesday, 12th April in the evening, and is being organized by Mike Akam.

AUTUMN 1988

For September 1988 the Committee has proposed a 5-day course provisionally entitled 'Brush up your Development'. This meeting is intended to allow teachers of developmental biology to catch up with the latest advances, both in our understanding of development and in the techniques used to study the subject.

In the 'Announcements' section of the Newsletter Chris Ford makes a request for practical protocols, videos and teaching films that may be useful for this course.

AUTUMN 1988

For 18th-22nd September 1988 the BSDB is organizing a teaching course entitled 'Brush up your Development'. This will be held in Brighton and is intended to allow teachers of developmental biology to catch up with the latest advances, both in our understanding of development and in the techniques used to study the subject.

Chris Ford would be grateful to receive practical protocols, videos and teaching films that may be useful for this course.

1989 (#15, 16, 17, 18, 19)

SPRING 1989

The location of the Spring 1989 Symposium meeting has not yet been decided, but the topic is likely to be 'Towards the molecular basis of morphogenetic signalling', proposed by Rob Kay.

SPRING 1989

The Spring 1989 Symposium meeting wil be held in St. Andrews. The topic will be 'Towards the molecular basis of morphogenetic signalling' and the organizers are Rob Kay and Jim Smith.

SPRING 1989

The Spring 1989 Symposium meeting will be held in St. Andrews on April 3rd-6th. The topic is 'The molecular basis of morphogenetic signalling', and the organizers are Rob Kay and Jim Smith, who write:

In the last few years we have had our first glimpses of the molecular mechanisms that might underlie the generation of spatial pattern of cells during development. The heart of the problem is to understand the signalling systems that communicate positional information. We want to know the nature of the molecules (morphogens) that signal between cells or nuclei, the dynamics of the signalling system and how the signals affect the cells. Knowledge of morphogens is coming from work on a number of organisms and from at least two major strategies: molecular genetics (as in Drosophila) and cell biology (as in Xenopus and Dictyostelium). The objective of the meeting is to bring together these different approaches to promote the search for common themes, which we all expect to be present at some levels.

Speakers who have already agreed to attend include: Devreotes (Baltimore), Eichele (Boston), Gelbart (Harvard), Kimble (USA), Lawrence (Cambridge), Lehmann (MIT), Maden (London), Schaller (Tubingen) and Slack (Oxford).

St. Andrews is a beautiful location for a meeting, famous for its golf club and within easy reach of the Scottish Highlands. To make it easier to get there we hope to be able to provide transport from Edinburgh. Graduate students are reminded that travel grants are available from the Treasurer, Mary Bownes (address at back of Newsletter).

Spring 1989, St Andrews

The Spring 1989 meeting will be held in St Andrews on April 3rd-6th. As usual this will be a joint meeting with the British Society for Cell Biology. A poster advertising the meeting accompanies this Newsletter: please display it in your department. The topic of the BSDB Symposium is **The Molecular Basis of Morphogenetic Signalling.** The organizers, Rob Kay and Jim Smith, write:

In the last few years we have had our first glimpses of the molecular mechanisms that might underlie the generation of spatial patterns of cells during development. The heart of the problem is to understand the signalling systems that communicate positional information. We want to know the nature of the molecules (morphogens) that signal between cells or nuclei, the dynamics of the signalling system and how the signals affect the cells. Knowledge of morphogens is coming from work on a number of organisms and from at least two major strategies: molecular genetics (as in *Drosophila*) and cell biology (as in *Xenopus* and *Dictyostelium*). The objective of this meeting is to bring together these different approaches to promote the search for common themes which we all expect to be present at some level.

Other sessions at this meeting are organized by the Scottish Developmental Biology Group. The topics are **Sex determination** and **Growth factors**. The BSCB Symposium is on the **Cell cycle**. Other BSCB sessions include **Proteolytic mechanisms**, **Alternative splicing**, **Glycosaminoglycans**, and **G-proteins**. There will also be a workshop on **New Developments in microscopy** organized by Brad Amos (Cambridge). The timetable for this meeting is outlined on the next page, with speakers' titles where available.

The Molecular Basis of Positional Signalling

Tuesday 4th April

9:00 **P. Nurse** (Oxford; BSCB Plenary speaker)

BSDB Sessions

10:10 **R. Kay** (Cambridge; Welcome and introductory remarks)
Chair: **J. Cooke** (London)
10:15 **L. Wolpert** (London) Positional Information Revisited
10:50 *Coffee*
11:20 **R. Lehmann** (MIT) *Drosophila* posterior pole plasm
12:00 **H. Jäckle** (Munich)
12:40 *Lunch*
2:00 **D. Melton** (Harvard)
2:40 **J. Gerhart** (Berkeley) Cortical rotation in the *Xenopus* egg
3:20 *Tea*
Chair: **D. Ish-Horowicz** (Oxford)
3:50 **W. Gelbart** (Harvard) *Decapentaplegic* and *Drosophila* morphogenesis
4:30 **J. Austin** (Madison) Genetics of intercellular signalling in *C. Elegans*
5:10 To be decided
6:00 *Dinner*
7:30 **A. Tomlinson** (Cambridge)
8:10 **P. Ingham** (Oxford) Role of local interactions in *Drosophila* pattern formation

Wednesday 5th April

Chair: **D. Garrod** (Southampton)
9:00 **P. Devreotes** (Baltimore)
9:40 **R. Kay** (Cambridge) Morphogenetic signalling in *Dictyostelium*
10:15 **J. Williams** (ICRF, Clare Hall) Two pathways of stalk cell differentiation
10:50 *Coffee*
11:15 **C. Schaller** (Heidelberg) Morphogens and pattern formation in Hydra
12:00 **BSDB Plenary Lecture: C. Nüsslein-Volhard** (Tübingen; Chair: **L. Wolpert**)
1:00 *Lunch*
Chair: **N. Holder** (London)
2:30 **M. Maden** (London)
3:10 **G. Eichele** (Harvard Medical School)
3:50 *Tea*
4:20 **H. Meinhardt** (Tübingen) Models for positional signalling in relation to available observations
5:30 BSDB AGM
6:00 BSCB AGM

Thursday 6th April

9:00 **B. Alberts** (San Francisco: BSCB Plenary speaker)

BSDB Sessions

POSITIONAL SIGNALLING		**SEX DETERMINATION**
	Chair: **P. Lawrence** (Cambridge)	
10:10	**J. Smith** (London) XTC-MIF & mesoderm induction	**A. Spence** (Cambridge)
10:50	*Coffee*	
11:20	**J. Slack** (Oxford) FGF & mesoderm induction	**M. Bownes** (Edinburgh)

12:00	**A. McMahon** (New Jersey)	**M. Ferguson** (Manchester)
12:40	**P. Lawrence** (Cambridge)	**P. Goodfellow** (London)
1:00	*Lunch and end of positional signalling sessions*	
		GROWTH FACTORS
2:30		
3:10		
3:50		*Tea*
4:20		
5:00		
5:40		*End of meeting*

The BSCB **Cell Cycle** sessions are organized by Tim Hunt, Paul Fantes, Rob Brooks and Denys Wheatley. The timetable was not available as this Newsletter went to press, but the speakers include: B. Alberts (San Francisco; Glaxo Plenary Lecturer), D. Beach (Cold Spring Harbor), K. Bloom (Chapel Hill), J. Blow (Cambridge), F. Cross (Seattle), M. Dorée (Montpellier), M. Fairman (Cold Spring Harbor), D. Glover (London), L. Hartwell (Seattle), T. Hunt (Cambridge), E. Hurt (Heidelberg), C. Hutchison (Sussex), E. Karsenti (Heidelberg), J. Kilmartin (Cambridge), J. Maller (Denver), T. Mitchison (San Francisco), J. Newport (La Jolla), P. Nurse (Oxford; Plenary Lecturer), S. Reid (La Jolla), J. Roberts (Seattle), G. Sluder (Shrewsbury), M. Whitaker (London) and M. Yanagida (Kyoto).

MEETING REPORT

The Spring meeting was held jointly with the British Society for Cell Biology at St. Andrews. The BSCB Symposium was entitled **The Cell Cycle** and there were also BSCB sessions on **Proteolytic mechanisms, Alternative splicing, Glycosaminoglycans** and **G-proteins.** Additionally the Scottish Developmental Biology Group organised sessions on **Sex determination** and on **Growth factors** and there was a workshop on **New developments in microscopy.** The topic for the BSDB Symposium was **The molecular basis of morphogenetic signalling** and it was organised by Rob Kay and Jim Smith. In all 400 people attended the joint meeting. The local organisation, led by John Tucker, was excellent. The following report on the BSDB Symposium was written by **Dennis Summerbell** from *The National Institute for Medical Research* .

Why another meeting on positional signals? Well, it wasn't just that the BSDB Meetings Secretary needed a good excuse for a week's golfing at the Royal and Ancient. There were other reasons. As the organisers pointed out it is the 20th anniversary of Lewis Wolpert's presentation of the Theory of Positional Information. It is also, as Jonathan Slack reminded us, the 50th anniversary of the discovery of the existence of mesoderm inducing factors in amphibia. It is even (I see in retrospect) the 100th anniversary of Driesch's experiments in which he showed that development was not determined by the mosaic arrangement of the sea urchin egg cytoplasm but involved interaction between cells. Any one of these (except arguably the golf) would have been a suitable excuse for the meeting, but the real reason must be that this small branch of science has reached a very exciting phase. Ten years ago one would have been wiser to bet on Nigel Holder winning the British Open (now you remember the name of the Meetings Secretary) than on us finding a real morphogen. Today we are inundated with good candidates or possible handles on candidates. Nor has progress been restricted to morphogens. It would have been a brave man who ten years ago would have predicted the progress that has been made in understanding the development of the *Drosophila* embryo. At 1 p.m., Wednesday, 5th April, any one of Nüsslein-Volhard's audience could have been excused for thinking that in principle *Drosophila* was solved (at 1.05 Janni was firmly denying rumours of retirement because of impending boredom).

The meeting held together as a subject remarkably well. Everything somehow seemed relevant. Much of the credit for this must go to the organisers (though we were a splendid audience). However, it was probably also due in part to Wolpert's introductory talk, which made it easy for the listener to place the subsequent talks in a common conceptual framework, whilst also introducing some controversial viewpoints. He gave most prominence to the distinction between inductive and positional signals. He suggested many differences. The critical one is that a positional signal is graded and therefore can simultaneously instruct a number of cell populations to change their behaviour. An inductive signal is a simple interaction between two populations with a single outcome. There was a time when I thought these distinctions important. As the accumulating data has seemed to me to blur the edges of these definitions, so I have come to think of

them as being artificial and unhelpful. However, as the Symposium proceeded it seemed to me that the bar and beverage discussion was more fruitful and meticulous when couched within the context of Lewis's definitions. Perhaps after all we still need both them and Lewis.

The main question arising out of the meeting must be whether there are positional signals. The best support came from a source that would probably have surprised most of us ten years ago. Perhaps we should not have been surprised. Wolpert provided the inspiration, but Stumpf (tragically killed in a car accident) and Lawrence, provided the early evidence using insects as their model system. They were the boyhood heroes who brought many of us younger chaps into the game. Here and now Nüsslein-Volhard, ably supported by the other *Drosophila* speakers are homing in on the final proof. There are gradients, I have seen and I believe. There are also genes that respond to the gradient, and perhaps the first good evidence for differential gene expression dependent on concentration. In comparison, all of the other putative signals MIF, DIF, retinoic acid and head activators look tentative and complicated.

I will not summarise the rest of the meeting. You all saw the programme in the last Newsletter and you will all be buying the Symposium volume. Most of you interested enough to read this were probably there. I will give some of my personal impressions as well as relaying some overhead comments and moments that are unlikely to appear in print. I did not hear a single adverse comment about the overall scientific quality of the meeting. Everyone that I spoke to was very complimentary about the content of the meeting. Nobody liked the overlong first day. Thirteen hours less 80 minutes for lunch and 90 minutes for dinner is too long. The programming on the final day was also less than ideal with many in the audience having to leave before the end of catch the last practicable bus for the airport. For many the most lasting memory of the meeting may well be 150 pairs of eyes looking at a particular empty seat when the lights came on at the end of the final talk.

I thought the poster session particularly good. The number of posters was high (too many for the available space) and the quality was good. Perhaps this is a result of offering a prize for the best student poster. I think that the value of the BSDB prize (£100) is quite adequate. I thought the steep gradient (to adopt an appropriate technical term from the Symposium) of prizes used by BSCB was not a good idea. I suppose that occasionally there is a really outstanding poster (for me this was true the first year that a prize was awarded) but normally I expect that the judges have a near impossible task.

I will now award my own prizes. Most stunning scientific content, Nüsslein-Volhard; she gets to keep the trophy having won it at the last three meetings at which I have heard her talk. I hope that she will remember this small award as she collects her Nobel Prize. (Remember you read it here first). Best presentation, tied John Gerhart and Andy McMahon. McMahon wins on the grounds that Gerhart had lots of data while he was just as good with almost none. Most amusing presentation goes to Jonathan Slack, of which more later. Most manic presentation, Chika Schaller; surprisingly Lewis Wolpert was totally outclassed. Fastest talking, A. Oro, but he had an unfair advantage, the organisers giving him less time than anyone else. Least boring presentation: I was about to award it jointly to Devreotes, Kay and Wiliams, but then Williams let them down by showing the *Dictyostelium*

life-cycle slide. Longest pause between words: Jim Smith. Most interesting discussion: shared between Lewis Wolpert and Peter Lawrence. The discussion was one-sided and unusually took place at the start of Peter's talk. Biggest disappointment: Hans Meinhardt. Hans, I only come to these meetings to see your movies. Biggest surprise: jointly to the Chairmen; the meeting almost kept to schedule.

Finally I return to Slack. True scientific insight comes infrequently: to Slack perhaps more often than to most. The high point of the meeting was his advice to students. The Government should adopt it as the only item of core curriculum for trainee developmental biolgists. "When you want to publish in Cell, do an RNA protection assay. When you want to publish in Development, do a Western. When you want to know the answer, look down the microscope."

AUTUMN 1989

The location for the Autumn 1989 meeting has not been decided on, but the topic is likely to be 'Fertilization and Second Messengers', organized by Michael Whittaker.

Winter 1989, Warwick

The second meeting of 1989 will be held at Warwick University on December 18-20. The topic is 'Cell Messengers at Fertilization' and the organizer is Michael Whitaker (London). This will be a joint meeting with the Society for the Study of Fertility. Full details will be published in the next Newsletter.

Winter 1989, Warwick: Fertilization

The second BSDB meeting of 1989 will be held at Warwick University on December 18th -20th on **Fertilization**. It will be a joint meeting with the Society for the Study of Fertility. It will be followed by a one-day meeting of the SSF at which BSDB members will be welcome. BSDB organizer of the meeting, Michael Whitaker, writes:

The central question at fertilization is how the sperm induces the egg to begin to grow and divide. There has been rapid progress in the last five years that has centred on the contribution that second messengers make to sperm and egg activation. In other cell types, these second messengers are responsible for coupling hormonal stimulation and cellular responses. It is now clear that the same cellular signals govern the activation of sperm and egg. In particular, calcium and the phosphoinositide second messengers have recently been shown to play a central part in egg activation in frog, sea urchin and mammals. Moreover, there are sufficient differences in precise mechanism between these three groups to make comparison stimulating. Fertilization is intrinsically interesting, but in addition serves as a model for the more general phenomenon of the stimulation of growth and proliferation in cells.

Each stage of fertilization involves second messenger mechanisms. The stages are (1) The activation of the sperm and the acrosome reaction; (2) Interaction and fusion of sperm and egg; (3) Generation of second messengers within the egg; (4) Activation of second messenger targets that control the onset of development. A session is devoted to each of these stages, as studied in frog, starfish, sea urchin and mammals.

The programme for the meeting is outlined on the next page and there is a booking form in the 'centre section' of the Newsletter.

CELL MESSENGERS AT FERTILIZATION

MONDAY, DECEMBER 18

1. **Sperm activation and the acrosome reaction**

Chairman : **Roy Jones**

Ben Shapiro (University of Washington Medical School).
Molecular mechanism of sea urchin sperm activation prior to fertilization.

Lynn Fraser (King's College, London).
Cyclic nucleotides and mammalian sperm capacitation.

Greg Kopf (University of Pennsylvania Medical Center)
Zona pellucida-mediated signal transduction in mouse spermatozoa.

Motonori Hoshi (Tokyo Institute of Technology)
Induction of the acrosome reaction in starfish.

Robin Harrison (AFRC Institute, Babraham).
Phosphoinositides and their products in the mammalian sperm-acrosome reaction.

2. **Interaction and fusion of sperm and egg**

Chairman : **David Whittingham**

Paul Wassarman (Roche Institute of Molecular Biology).
Receptor-mediated fertilization in mammals.

Roy Jones (AFRC Institute, Babraham)
Identification of sperm-egg recognition molecules.

Harry Moore (Institute of Zoology, London)
The development of sperm-egg recognition processes in mammals.

Laurinda Jaffe (University of Connecticut Health Sciences Center)
First messengers at fertilization.

Ted Chambers (University of Miami School of Medicine)
Fertilization in voltage-clamped sea urchin eggs.

TUESDAY, DECEMBER 19

3. **Generation of second messengers in eggs and oocytes**

Chairman : **Michael Whitaker**

Shun-Ichi Miyazaki (Tokyo Women's Medical College).
Cell signalling in hamster eggs at fertilization.

Bill Busa (Johns Hopkins University)
Ca^{2+} and PI cycle-derived second messengers during fertilization and early embryogenesis in the frog *Xenopus* .

Karl Swann (MRC EET Unit, St. George's Hospital Medical School)
Second messengers and the calcium wave at fertilization in sea urchin eggs.

David Cran (AFRC Institute, Babraham)
Cortical granules and the cortical reaction in sheep eggs.

Marcel Doree (CNRS, Montpelier).
Calcium and regulation of MPF activity during meiotic maturation of starfish oocytes: facts and hypotheses.

4. **Second messenger targets and the onset of development**
Chairman : **Martin Johnson**

Richard Steinhardt (University of California, Berkeley).
Regulation of the first cell cycle in the sea urchin embryo by calcium.

Michael Whitaker (University College London).
Calcium and cell cycle control - protein phosphorylation in early sea-urchin embryos.

Josie McConnell (University of Cambridge).
Cell cycle control in early mouse development.

Merill Hille (University of Washington)
Regulation of the rate of translation in eggs and embryos of sea urchins.

Hugh Woodland (University of Warwick)
The regulation of protein synthesis in early amphibian development.

Douglas Melton (Harvard University)
Signal transduction during mesoderm induction.

POSTERS

Time has been set aside for Poster Sessions on both afternoons of the meeting. There will also be SSF posters on display on Wednesday, 20th December.

1990 (#17, 18, 19, 20, 21, 22)

SPRING 1990

The Spring 1990 Symposium meeting will be held in Manchester. The main topic is 'Imprinting' and the organizer is Marilyn Monk.

Spring 1990, Manchester

The 1990 Symposium Meeting will be held in Manchester on April 2-5. The topic is 'Imprinting' and the organizer is Marilyn Monk (London). Suggestions for half-day sessions at this meeting are welcome, and should be sent to the Meetings Secretary, Nigel Holder.

Spring, 1990, Manchester: Imprinting

The 1990 Symposium meeting will be held in Manchester on April 4-7. The topic is **Analysis of Genomic Imprinting in Plants and Animals**. The organizers, Marilyn Monk and Azim Surani, write:

Chromosomal imprinting is a process of epigenetic modification which is encountered in a wide range of organisms. The major consequences of this epigenetic modification is that homologous chromosomal regions and parental alleles show apparent functional differences despite being exposed to the same cytoplasmic environment. There is increasing interest in this aspect in terms of the molecular mechanisms involved together with the consequences of differential activities of parental alleles. A comprehensive Symposium on this topic will allow participants to examine the evidence and assess the possible similarities between disparate organisms. For instance, it will be of interest to discuss how DNA methylation may be employed in various organisms to modulate expression of parental alleles.

The consequences of chromosomal imprinting are also very diverse. They range from effects on the activities of transposable elements in plants, mating type switches in yeast, selective elimination of parental chromosomes in insects and a range of potential effects in mammals. These include X-inactivation, control of cell proliferation and differentiation in embryos as well as possible implications in human genetic disorders such as Huntington's Disease and embryonal tumours such as retinoblastoma and rhabdomyosarcoma.

The purpose of this Symposium is that for the first time it will allow scientists working on disparate systems to come together to assess the full implications of chromosomal imprinting which appears to be a fundamental process in many organisms.

The Symposium will be divided into the following major categories:

A: **Imprinting in Plants**

This will include discussions on the distribution of parental chromosomes in plants, evidence for imprinting in yeast, as well as the reversible activities of transposable elements.

B. **Imprinting in Insects**

Evidence for selective elimination of parental chromosomes as well as differential activities of parental alleles in axolotl and fish.

C. **Mammals**

This will comprise a major part of the Symposium and will include (a) Differential roles of parental chromosomes on development of embryonic cells; (b) Imprinting of the X-chromosome in rodents and marsupials; (c) imprinting of transgenes; (d) role of DNA methylation in imprinting and (f) influence on human genetic disorders.

The discussion will focus on probable evolutionary questions relating to the imprinting process.

Speakers include: **Klar** (USA), **Kermicle** (USA), **Heslop-Harrison** (UK), **Nur** (USA), **Graves** (USA), **Cattanach** (UK), **Solter** (USA), **Babinet** (France), **Surani** (UK), **Reik** (UK), **Saprenza** (USA), **Clarke** (UK) and **Holliday** (Australia).

There will be additional BSDB sessions on **Homeoboxes** and on **Embryonic wound healing**.

The BSCB symposium topic will be **Growth factors**. Other BSCB topics include **AIDS**, **Integrin**, the **Cytoskeleton**, **Endothelium** and **Protein targetting**.

The meeting begins, on Tuesday 4th April, with two Anatomical Society sessions on **Ultrastructure and functioning in connective tissues**.

Full details of the meeting will be published in the Autumn/Winter Newsletter.

Spring 1990, Manchester: Chromosomal Imprinting and Transgenic Animals

The first BSDB meeting of 1990 will be held at the University of Manchester on 3-6 April. As usual, this Spring meeting will be a joint Symposium meeting with the BSCB and in addition there will be a Symposium organized by the Anatomical Society. The BSDB Symposium topic is **Analysis of Genomic Imprinting in Plants and Animals**. In the last Newsletter, the organizers of the meeting, Marilyn Monk and Azim Surani, explained the importance of the meeting:

Chromosomal imprinting is a process of epigenetic modification which is encountered in a wide range of organisms. The major consequences of this epigenetic modification is that homologous chromosomal regions and parental alleles show apparent functional differences despite being exposed to the same cytoplasmic environment. There is increasing interest in this aspect in terms of the molecular mechanisms involved together with the consequences of differential activities of parental alleles. A comprehensive Symposium on this topic will allow participants to examine the evidence and assess the possible similarities between disparate organisms. For instance, it will be of interest to discuss how DNA methylation may be employed in various organisms to modulate expression of parental alleles.

The consequences of chromosomal imprinting are also very diverse. They range from effects on the activities of transposable elements in plants, mating type switches in yeast, selective elimination of parental chromosomes in insects and a range of potential effects in mammals. These include X-inactivation, control of cell proliferation and differentiation in embryos as well as possible implications in human genetic disorders such as Huntington's Disease and embryonal tumours such as retinoblastoma and rhabdomyosarcoma.

The purpose of this Symposium is that for the first time it will allow scientists working on disparate systems to come together to assess the full implications of chromosomal imprinting which appears to be a fundamental process in many organisms.

The Symposium will be divided into the following major categories:

A: **Imprinting in Plants**

This will include discussions on the distribution of parental chromosomes in plants, evidence for imprinting in yeast, as well as the reversible activities of transposable elements.

B. **Imprinting in Insects**

Evidence for selective elimination of parental chromosomes as well as differential activities of parental alleles in axolotl and fish.

C. **Mammals**

This will comprise a major part of the Symposium and will include (a) Differential roles of parental chromosomes on development of embryonic cells; (b) Imprinting of the X-chromosome in rodents and marsupials; (c) imprinting of transgenes; (d) role of DNA methylation in imprinting and (f) influence on human genetic disorders.

The discussion will focus on probable evolutionary questions relating to the imprinting process.

The timetable for this meeting is as follows:

CHROMOSOME IMPRINTING AND TRANSGENIC ANIMALS

WEDNESDAY, APRIL 4

8:30 - 9:30 PLENARY LECTURE. Chair: **Marilyn Monk**
Amar Klar (Frederick, Maryland, USA)
Regulation of fission yeast mating type interconversion by DNA strand-specific imprinting.

IMPRINTING IN PLANTS. Chair: **Robin Holliday**

9:45 - 10:30 **Jerry Kermicle** (Madison, Wisconsin, USA)
Imprinting of gene action in maize endosperm.

10:30 - 11:00 **Coffee**

11:00 - 11:45 **R.B. Flavell** (Norwich, UK)
Variation and inheritance of cytosine methylation patterns in wheat and differential gene expression.

11:45 - 12:30 **J.S. Heslop-Harrison** (Cambridge, UK)
Gene expression and parental dominance in hybrid plants.

12:30 - 14:00 **Lunch**

IMPRINTING IN INSECTS (with EVOLUTION and the beginning of MAMMALS)
Chair: **Mike Ashburner**

14:00 - 14:40 **Uzi Nur** (Rochester, NY, USA)
Genomic imprinting and heterochromatisation in insects.

14:40 - 15:20 **Kenneth Tartof** (Foxchase, Philadelphia, USA)
Temporal regulation of heterochromatin formation.

15:20 - 15:50 **Tea**

15:50 - 16:30 **Sharat Chandra** (Bangalore, India)
Some evolutionary aspects of imprinting.

16:30 - 17:10 **Marilyn Monk** (London, UK)
Preferential X chromosome inactivation.

THURSDAY APRIL 5

IMPRINTING IN MAMMALS Chair: **Azim Surani**

9:45 - 10:30 **Peter Jones** (Los Angeles, CA, USA)
Role of DNA methylation in development and imprinting.

10:30 - 11:00 **Coffee**

11:00 - 11:45 **Bruce Cattanach** (Didcot, Oxon, UK)
Autosomal and X chromosome imprinting

11:45 - 12:30 **Davor Solter** (Philadelphia, PA, USA)
Use of a transgenic mouse line to study genomic imprinting

12:30 - 14:00 **Lunch**

Chair: **Mike Akam**

14:00 - 14:40 **Charles Babinet** (Paris, France)
Genomic imprinting and preimplantation mouse development.

14:40 - 15:20 **Azim Surani** (Cambridge, UK)
Nuclear and cytoplasmic factors in imprinting in the mouse.

15:20 - 15:50 **Tea**

15:50 - 16:30 **Wolf Reik** (Cambridge , UK)
Genetic control and developmental consequences on imprinting by DNA methyla tion.

16:30 - 17:10 **Carmen Sapienza** (Montreal, Canada)
Title not received.

FRIDAY APRIL 6

Chair: **Bruce Ponder**

9:45 - 10:30 **Angus Clarke** (Cardiff, Wales, UK)
Genomic imprinting in clinical genetics.

10:30 - 11:00 **Coffee**

11:00 - 11:45 **Judith Hall** (Vancouver, BC, Canada)
Title not received.

11:45 - 12:30 **Robin Holliday** (CSIRO, Sydney, Australia)
Imprinting and allelic exclusion.

The **BSCB Symposium** is on **Growth Factors.** The programme for this part of the meeting is as follows:

WEDNESDAY, APRIL 4

9:45 - 10:15 **T. Blundell** (London)
Structure and function of growth factors and their receptors.

10:15 - 10:45 **I. Campbell** (Oxford)
The solution structure of EGF and TGFα.

10:45 - 11:15 **Coffee**

11:15 - 11:45 **Y. Jones** (Oxford)
The structure of tumor necrosis factor

11:45 - 12:15 **J. Priestle** (Basle)
The structure of interleukin 1β

12:30 - 14:00 **Lunch**

14:00 - 14:30 **S. Aaronson** (NCI, Bethesda, USA)
The autocrine regulation of cell proliferation

14:30 - 15:00 **H. Rozengurt** (London)
The cell physiology of bombesin

15:00 - 15:30 **Tea**

15:30 - 16:00 **C. Dickson** (London)
The FGFs and the int-2 oncogene

16:00 - 16:30 **C. Heldin** (Uppsala)
The PDGFs and their receptors

16:30 - 17:00 **M. Hanley** (Cambridge)
Neural peptide receptors and transforming genes

THURSDAY APRIL 5

8:30 - 9:30 PLENARY LECTURE **R. Tsien** (California)
Imaging and manipulation of cytosolic second messengers during cell activation

9:45 - 10:15 **H. Thoenen** (Martinsried)
Neurotrophic factors

10:15 - 10:45 **K. Unsicker** (Marburg)
Neuroectodermal cell growth factors: storage, release and response

10:45 - 11:15 **Coffee**

11:15 - 11:45 **M. Noble** (London)
Development, regeneration and neoplasia in the nervous system

11:45 - 12:15 **M. Dexter** (Manchester)
The CSFs - progress towards understanding their role in survival and proliferation of haemopoietic cells

12:15 - 12:45 **C. Sherr** (Memphis)
CSF-1 and its receptor (c-fms)

12:45 - 14:00 **Lunch**

14:00 - 14:30 **L. Wakefield** (NCI, Bethesda, USA)
The cell physiology of TGFβ's

14:30 - 15:00 **F. Boyd** (Worcester, Mass)
TGFβ's and their receptors

15:00 - 15:30 **Tea**

15:30 - 16:00 **J. Wozney** (Cambridge, Mass)
Factors influencing bone development

16:00 - 16:30 **J. Heath** (Oxford)
Growth factors in embryogenesis

16:30 - 17:00 **C. Kenyon** (California)
Cell interactions regulate homeobox gene function during *C. elegans* development

FRIDAY APRIL 6

8:30 - 9:30 PLENARY LECTURE **J. Brockes** (London)
Retinoic acid and limb morphogenesis

9:45 - 10:15 **P. Bryant** (California)
Cell proliferation control in *Drosophila*

10:15 - 10:45 **E. Hafen** (Zurich)
Cellular interaction in the developing eye of *Drosophila*

10:45 - 11:15 **Tea**

11:15 - 11:45 **J. Slack** (Oxford)
Growth factors as inducing factors in early embryonic development

11:45 - 12:15 **L. Wolpert** (London)
Morphogenesis in the chick

The **Anatomical Society Symposium** is on

Ultrastructure and Function in Connective Tissues.

These talks take place on **Tuesday April 3**. The programme is as follows:
Morning
Scott (Manchester): Connective tissues, ground rules and ground substance
Stockwell (Edinburgh): Cartilage
Boyde (London): Bone
Afternoon
Furthermeyer (Stanford): Basement membranes
Linsenmeyer (Boston): Cornea
Lapierre (Liege): Skin

Other sessions organized by the BSDB and BSCB are listed below:

TUESDAY APRIL 3

Afternoon
HOMEOBOXES (BSDB). Speakers include **Duboule** (Heidelberg), **Krumlauf** (London), **Gaunt** (Cambridge), **Hill** (Edinburgh) and **Sharpe** (Manchester).
All the talks will concentrate on the mouse Hox gene complexes.

CELL BIOLOGY OF AIDS (BSCB). Speakers include:
Marsh (London): Entry of enveloped viruses into cells
Pauza (Salk institute): Entry of HIV by endocytosis
Weiss (London): Entry of HIV by fusion
Klausner (NIH): Processing of gp160 in the endoplasmic reticulum
Burny (Brussels): Role of core proteins in virion assembly

WEDNESDAY APRIL 4

EXTRACELLULAR MATRIX AND CYTOSKELETON (BSCB). Speakers include:

Morning

Timpl (Martinsried): Structures of ECM molecules involved in interactions with cells
Humphries (Manchester): Fibronectin-integrin interactions: structural bases and functional roles
Sonnenberg (Amsterdam): Intregrins: a family of cell receptors for matrix molecules
Wilcox (Cambridge): Genetic analysis of integrin function
McMahan (Stanford): The matrix molecule agrin in neuromuscular development

Afternoon

Beckerle (Salt Lake City): Regulation of cell-substratum adhesion
Geiger (Rehovot): Cell adhesion molecules
Critchley (Leicester): Functional implications of actinin, talin and dystrophin structure
Bennett (Baltimore): Adducins: modulators of the cortical cytoskeleton
Garrod (Southampton: Cell interactions via desmosomes.

THURSDAY APRIL 5

Morning

ENDOTHELIAL CELL BIOLOGY (BSCB). Speakers include:
Montesano (Geneva): Angiogenesis *in vitro* : morphogenetic and invasive properties of endothelial cells
Moscatelli (New York): Interaction of bFGF with extracellular matrix
Schor (Manchester): Control of vascular cell phenotype by cell-cell and cell-matrix interactions
Thornhill (London): Endothelial cell activation and modulation of leukocyte-endothelial cell adhesion

Afternoon

EMBRYONIC WOUND HEALING (BSDB). Speakers include:
Harrison & Longacre (San Francisco): Embryonic and fetal surgery: a clinical perspective
Hunt (San Francisco): On control of collagen synthesis and deposition in wounds
Whitby & Ferguson (Manchester): ECM molecules and growth factors in fetal and adult wound healing of the mouse lip
Martin & Lewis (Oxford): Why some skin wounds heal and others don't: studies in chick and mouse embryos
ffrench-Constant (Cambridge): The roles of alternatively-spliced fibronectin during wound repair
Krummel (Virginia): The role of TGFβ in wound repair

FRIDAY APRIL 5

Morning

PROTEIN TARGETTING (BSCB). Speakers include:
Rapoport (Berlin): Involvement of the signal sequence receptor in translocation across the endoplasmic reticulum
Pelham (Cambridge): Sorting of proteins in the endoplasmic reticulum
Fuller (Heidelberg): KDEL tails and their recognition
Armstrong (London): *Ras* - like proteins in fission yeast membrane traffic
Shepherd (Princeton): *In vitro* assays for components involved in membrane traffic

MEETING REPORT

Manchester 1990: Genomic Imprinting

Some may feel that a large meeting concerned with genomic imprinting was long overdue and absolutely essential for an ever-expanding sector of the 'biological' community whose interests have recently diverted towards this fascinating area. It is perhaps most important for the 'new recruits' of imprinting that these meetings are convened. However, it is instructive and enlightening for those sages in the field who have a chance to serve embryonic theories to a captive audience (count the double-faults) and (perhaps more pragmatically) survey the market for ideas, future collaborations and post-docs! Imprinting is becoming a household word in developmental biology. It seems to crop up everywhere: its borders threaten to encompass established cytogenetic, molecular and clinical territory. This is exemplified by the enigma of the 11p13 Prader-Willi/Angelman deletion syndromes and the continuing methylation story - lest we forget! A facetious remark, perhaps, but one might be forgiven for thinking that imprinting, a still largely unknown process, revolves around methylation. This meeting served as a reservoir for a plethora of novel examples of imprinting; the experts in the field being present to collate these and devise a system of nomenclature in which they might reside. Although we remain largely ignorant as to the origins of the imprint as a memory mechanism, what makes imprinting exciting is its expression across a wide range of phenotypic parameters. The use of transgenes, the production of maps to indicate imprinted loci, and the revision of certain clinical disorders (having disparate parental origin effects) seem to be particularly fruitful avenues of research. However, I am certainly not qualified to chronicle the work presented at the meting (the first of many disclaimers!); interested absentees will, no doubt, procure themselves a copy of the 1990 **Development** supplement. This volume will stand proud on your bookshelf and tell you everything you wanted to know about your parents' methylation pattern but were afraid to ask ..... The scientific value of this supplement to masters and novices alike is great credit to the organizers, Azim Surani and Marilyn Monk, who I would like to thank earnestly on behalf of BSDB members everywhere, for conspiring to bring together a truly eclectic assemblage. Thanks must also go to the team at Registration, who proved to be a highly efficient 'operation' in view of the large numbers in attendance (take note Trusthouse Forte talent spotters!).

For many, the 1990 venue, Manchester, appeared uninviting. However, the choice proved successful and is part of a greater plan to ease events away from the capital. Manchester (City of Heavenly Water in Anglo-Saxon) had it all; and more than 20 inches of rainfall per annum (or was it per conference?). On a brighter note, the scheduled recreational pursuits were welcome. For some reason, I don't recall the beer-tasting! It is with great pleasure that we, the unscorched, can praise Dr Salthouse (that prime perpetrator of professional pyromania!) for the indoor barbecue. As for the 'come-as-the-animal-you-work-on' disco, congratulations are in order for the chick embryo costume (cunningly fashioned from several abstract booklets) but I was shocked to find that someone has Bonzo the Clown as an experimental subject!

The range of posters this year was stunning (desk-top publishing facilities especially 'space-age' at the University of Manchester). Sadly though, the large numbers of posters in isolated positions, back to back, meant that a lot of work probably remained unnoticed (what might be termed the *conference position effect*, which states that the distance from the bar or main entrance is inversely related to the number of interested parties at a poster). While on the subject, well done to the BSDB for generously increasing the poster prize to accommodate an overseas air-fare. The quality of the poster presentations was ably matched by that of the speakers, some of whom I feel should be singled out: Peter Jones for his excellent delivery, Julia Deloia (an excellent stand-in) and Judith Hall for an extensive clinical review (not to mention her dynamic role in discussion). An overall impression, then, at this my first (of many!) conference? A fairly intense series of lectures punctuated by frequent refreshment breaks (where the 'real' questions are both asked and answered), active discussion and amusing incidents: Sharat Chandra's current interest in avian behavioral imprinting for example, or Amar Klar's fits of inappropriate laughter at the mention of Angelman's syndrome (an ice-breaking episode we all remember with gratitude!). Once again thanks to organizers and delegates for maintaining high level discussion in an informal atmosphere: Reykjavic 1991 here I come!

Alan Thornhill
MRC Mammalian Development Unit
London

AUTUMN 1990

This meeting is likely to be held in Cambridge, on 'The origins of neuronal specificity'. The organizers will be Roger Keynes and Andrew Lumsden.

Autumn 1990, Cambridge

This meeting will be held on September 11-15. The topic is 'The Generation and Regeneration of the Nervous System' and the organizers are Roger Keynes (Cambridge) and Andrew Lumsden (London).

Autumn 1990, Norwich: Plant and animal development

The Autumn 1990 meeting will be held at the University of East Anglia, in Norwich, on 3-6 September. Several aspects of plant development will be discussed, including cell polarity, cell lineage, patterns of cell division, cell interactions and homeosis. Parallels between plant and animal development will be highlighted. The proceedings will be published in **Development** as a John Innes Supplement, and full details of the meeting will be announced in the Spring Newsletter.

Autumn 1990, Norwich: Molecular and Cellular Basis of Pattern Formation

The Autumn meeting of the Society will be held jointly with the 9th John Innes Symposium on September 3rd - 6th at the University of East Anglia. The topic is **The Molecular and Cellular Basis of Pattern Formation**, with particular emphasis being placed on pattern formation in plants - until now a subject rather neglected by the BSDB. The programme for the meeting, together with information for delegates, is below. A booking form for the meeting is in the 'Centre Section' of the Newsletter.

PROGRAMME

Monday, 3rd September 1990

Chairman: Professor Richard Flavell

20:00 — 14th Bateson Memorial Lecture
Professor Christiane Nüsslein-Volhard
Axis determination in the Drosophila *embryo*

Wine and Cheese Reception

Tuesday, 4th September 1990

09:00 - 09:10 — Introduction and Welcome
Professor Richard Flavell

CELL POLARITY AND CELL LINEAGE

Chairman: Dr Keith Roberts

09:10 - 09:50 — **Professor Ralph Quatrano** (Chapel Hill, USA)
The establishment of cell polarity in the Fucus *zygote*

09:50 - 10:30	**Dr Bernard Maro** (Paris, France) *Polarisation of cells in early mouse development*
10:30 - 11:00	Coffee
11:00 - 11:40	**Dr Gurd Jürgens** (München, FRG) *Genetic analysis of pattern in the* Arabidopsis *embryo*
11:40 - 12:20	**Professor Scott Poethig** (Philadelphia, USA) *Genetic regulation of phase-change in maize*
12:20 - 13:00	**Dr Gary Ruvkin** (Boston, USA) *Temporal control of* C. elegans *development by heterochronic genes*
13:00 - 14:00	Lunch

CELL DIVISION

Chairman: Dr Caroline Dean

14:00 - 14:40	**Dr Clive Lloyd** (Norwich, UK) *Cellular basis of plant form*
14:40 - 15:20	**Professor David Kirk** (St. Louis, USA) *Genetics and cytological control of the asymmetric divisions that pattern the* Volvox *embryo*
15:20 - 15:50	Tea
15:50 - 16:30	**Professor Ian Sussex** (New Haven, USA) *The meristem and plant pattern formation*
19:15 - late	Symposium Dinner

Wednesday, 5th September 1990

CELL INTERACTIONS

Chairman: Dr Nigel Holder

09:00 - 09:40	**Dr Tvsi Sachs** (Jerusalem, Israel) *Cell polarization and cell competition - bases for tissue patterning in plants*
09:40 - 10:10	**Dr Nick Hopwood** (Cambridge, UK) *Regulation of mesodermal differentiation in* Xenopus
10:10 - 10:50	**Professor Sarah Hake** (Berkeley, USA) *Positional information in the maize leaf is altered by the* knotted *mutation*
10:50 - 11:20	Coffee
11:20 - 12:00	**Dr Cheryll Tickle** (London, UK) *Retinoic acid and limb development*

12:00 - 12:40	**Professor Ernst Hafen** (Zurich, Switzerland) *Inductive events in* Drosophila *eye development*
12:40 - 14:00	Lunch

Chairman: Dr Keith Chater

14:00 - 14:40	**Dr Rob Kay** (Cambridge, UK) *Cell signalling and patterning in* Dictyostelium *development*
14:40 - 15:20	**Professor Steven Dellaporta** (New Haven, USA) *Using transposons to study regulatory genes in maize*
15:20 - 15:50	Tea

HOMEOSIS

15:50 - 16:30	**Dr Enrico Coen** (Norwich, UK) *Flower homeotic mutation in* Antirrhinum majus
16:30 - 17:10	**Professor Elliot Meyerowitz** (Pasadena, USA) *Genes directing flower development in* Arabidopsis
18:30 - late	Poster Session/Informal social evening/Bar

Thursday, 6th September 1990

HOMEOSIS (Continued)

09:00 - 09:40	**Dr Zsuzsanna Schwarz-Sommer** (Köln, FRG) *Properties of* Deficiens, *a homeotic gene involved in the control of flower morpho-genesis in* Antirrhinum majus
09:40 - 10:10	**Dr Richard Garber** (Seattle, USA) *Function and regulation of* Drosophila *homeotic genes*
10:10 - 10:50	**Dr Robb Krumlauf** (London, UK) *Homeobox genes and patterning of the vertebrate hindbrain*
10:50 - 11:20	Coffee
11:20 - 12:00	**Dr Mike Akam** (Cambridge, UK) *Evolution of pattern-forming genes and the evolution of development*
12:00 - 12:40 Summary Talk	**Professor Ian Sussex** (New Haven, USA) *The special features of plant development*
12:40 -	Lunch
	Optional site visit to the John Innes Centre for Plant Science Research and 'Special Collection' of rare botanical books.
	Departure

Molecular and Cellular Basis of Pattern Formation: John Innes/BSDB Symposium, Autumn 1990

I approached this conference, and therefore this report, from the perspective of a fly developmental biologist who wanted to learn more about plant development, and in particular to see whether the time had come to introduce more plant material into my largely animal based developmental biology course. The conference format consisted of interspersing animal and plant lectures under four main headings - cell polarity, cell interactions, cell lineage and homoeosis. This stopped the animal biologists from boycotting long plant sessions and vice versa, but probably unavoidably gave a somewhat fragmented feel to the meeting.

The programme started with the 14th Bateson Memorial lecture, in which Christiane Nusslein-Volhard gave her usual clear, polished and comprehensive performance. There followed a number of excellent talks on such diverse subjects as fly eyes, signalling in slime moulds and HOX. On the plant side, talks covered updates on classical systems such as Fucus cell polarity and meristems, and also on newly developed fields, most especially the exciting analyses of homoeotic genes which regulate flower development in Antirrhinum and Arabidopsis. These talks showed just how rapidly plant development is progressing. For me, the talk of the meeting was given by Gurd Jurgens, a fly man branching out into new, botanical pastures with a superb genetical dissection of embryogenesis in Arabidopsis which has resulted in the identification of 250 putative embryonic pattern formation mutants. I certainly got plenty of ideas for a lecture or two - I just hope I get round to writing them! The take-home message of the meeting was the speed with which plant developmental biology is coming of age, and I am sure that we shall see a greater proportion of plant material at future BSDB meetings.

Martin Milner
St Andrews University