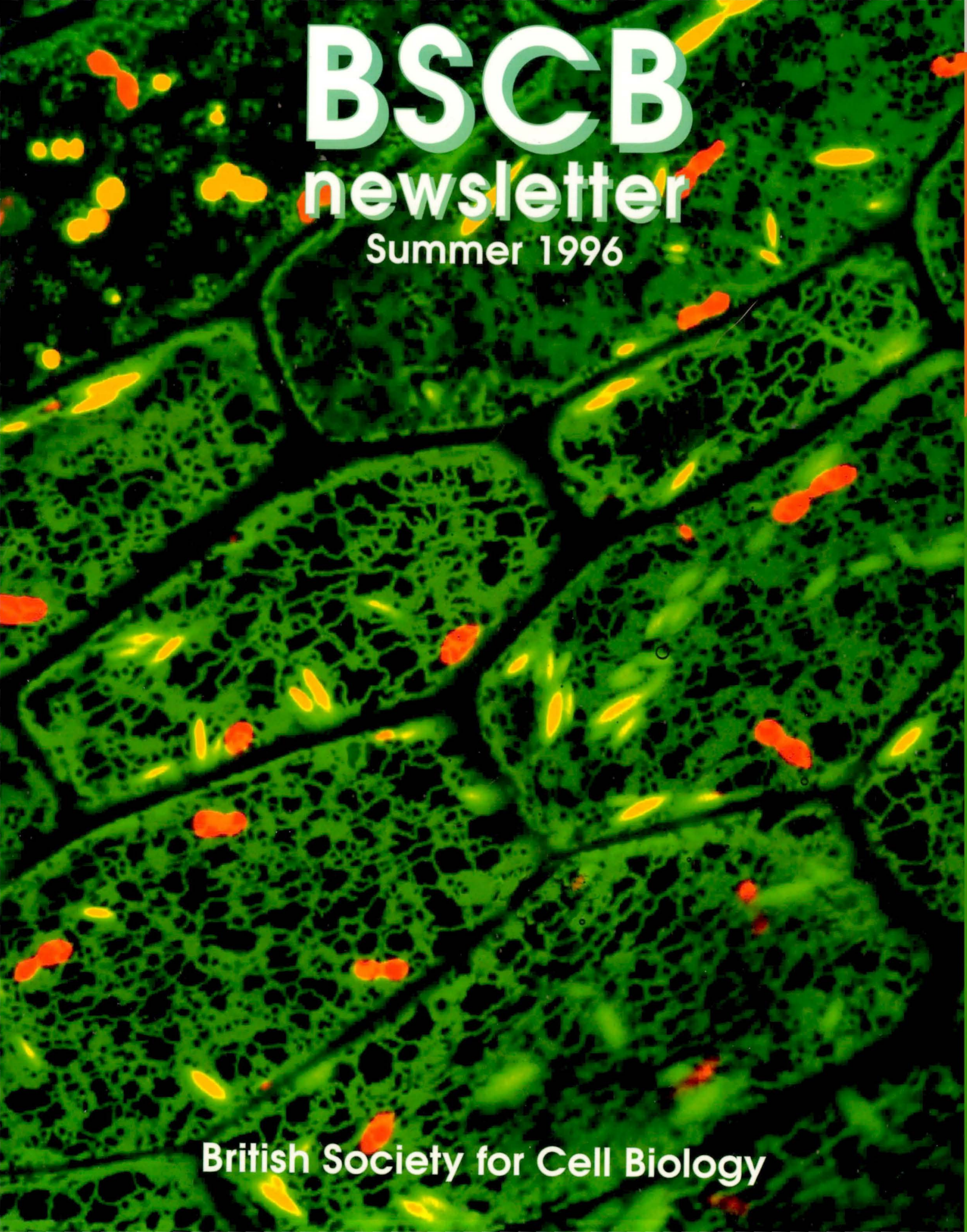
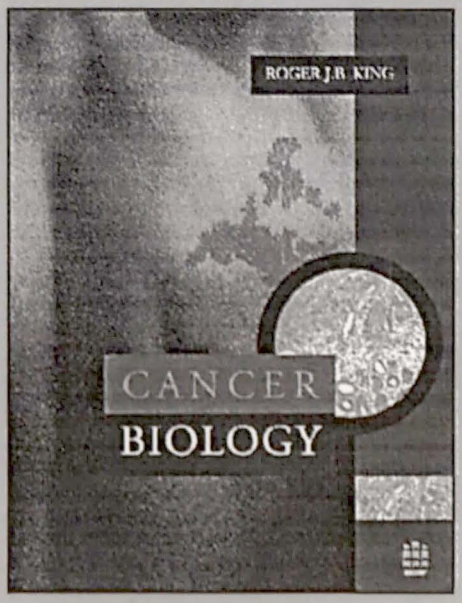
BSCB newsletter

Summer 1996



British Society for Cell Biology



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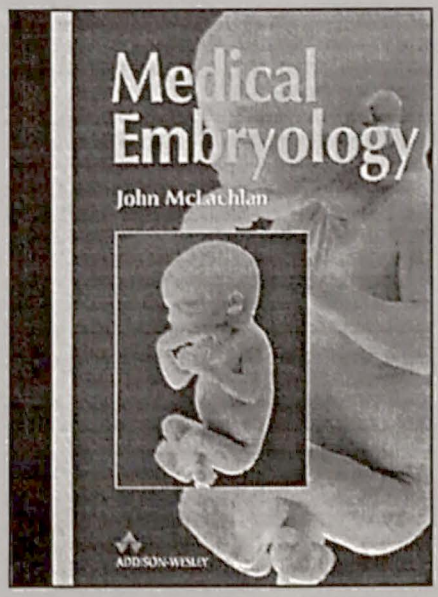
CANCER BIOLOGY
Roger J B King

A concise introductory text on the biological principles underlying the causes and treatment of cancer - with an emphasis on the human aspects. The study of cancer biology integrates diverse areas of knowledge from cellular and molecular biology, biochemistry, epidemiology and the medical sciences. Drawing on the expertise of the author, these disciplines are brought together in a succinct style. **Cancer Biology** provides up-to-date information on changes in cell and gene function involved in carcinogenesis and growth, including cell proliferation and death, DNA repair, genetic instability and metastasis. Presented with over 100 line diagrams.

MEDICAL EMBRYOLOGY
John McLachlan

A clear and extensively illustrated introduction to the early stages of human development, with a focus on exploiting developmental mechanisms. **Medical Embryology** also covers recent advances, including such topics as handling pre-implantation embryos and early methods of diagnosis. It emphasizes discussion of mechanisms - providing a greater understanding of the way development occurs. It includes clinical applications and clinical cases in the form of problems. This text employs four colour artwork, with colour coding and consistent time, orientation and size icons to promote a three dimensional understanding.



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...texts from ...

Addison Wesley Longman

BSCB Newsletter

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The cover photograph is a confocal micrograph of *Arabidopsis thaliana* transformed with green fluorescent protein (GFP). GFP is shown in the green channel and chlorophyll in the red channel. **Dr Jim Haseloff,** MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 2QH.

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British Society for Cell Biology

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Why read old literature?

An assertion of the value of time spent in the library.

Graham Warren, ICRF Laboratories, Lincoln's Inn Fields, London WC2A 3PX

In the Arts, great literature is read; in the Sciences it is increasingly ignored. Scientific concepts are mostly distilled from numerous ideas and observations (often serendipitous) scattered throughout the literature. Why ferret out old literature when a review will summarise all that needs to be known? Such an attitude is reinforced by the extent of modern literature. We are so busy reading each others paper that we don't have time to look at the older literature, no matter how good it is. The commercial response to this increase has been ever more review and opinion journals. Instead of freeing up our time, they have fostered the illusion that the original literature need no longer be consulted. A short review, or, better still, an opinion of that review (a sci-bite), is all that is needed to fill in the gaps between the experiments that add to this ever-burdening literature.

Such reviews are of course useful to those outside a field, wanting to know about current work. They are also useful to those in the field wishing to top-up their knowledge of facts and opinions. They are, however, misleading to those who are new to a field, and provide no substitute for the primary literature. It is often a shock to realise just how little data underpin a field. 'Strong on personality and weak on data', is a phrase applicable to numerous fields. It is essential that newcomers read the early literature in a field and come to their own conclusions.

In a more general sense, the really old literature can be very instructive. By 'really old' I do not mean more than 5 years ago (the present limit in many libraries for primary texts) or even 30 years ago (the present limit of Medline). My favourite old text is the *'Cell in Development and Inheritance'*, first published by E.B.Wilson exactly 100 years ago. The scientific content alone is a source of wonder. High resolution light microscopes had mapped the cell cycle in exquisite detail by the turn of the century and had revealed structures that have still to be explained. The possibility of artefacts was assessed with a degree of seriousness often lacking or ignored today. Scientists were well aware that not everything revealed by the light microscope might be present in the living cell. They were limited not by ideas or imagination, only by a lack of techniques.

The prose is lucid, the storyline compelling. The work of many scientists is sifted, judged and appropriately cited without deadening the sense of excitement being conveyed. The frankness and honesty are refreshing. Not for them the weasel words we use today to cover discrepancies (...further work will be needed to resolve these apparent differences...) but a clear statement and an assessment of why some-one was wrong. The same person would then be praised for other contributions showing that this was not a personal attack. It is only today that we appear incapable of separating the personal from the scientific.

If we value great literature then we might even model our own writing upon it. Such writing would surely reach a wider audience simply because it is simpler to understand. A broader readership would reduce the dependence on citation indices, the refuge of the ill-informed, which might in turn reduce the pressure to publish so much. Additionally,

such prose is more likely to last, to be read by future generations. The public lectures of today are tomorrow's (or next week's) dim memories. Prose can last forever.

There is one final reason why I would recommend reading old literature. This is one that I benefited from personally and is particularly applicable to those setting up groups of their own. Too often it seems that the scientific enterprise is saturated and the only approach is to expand or extend what you have already done. When reading classic literature, it is apparent that the subsequent direction taken was only one of many, chosen because it was the most obvious or the most feasible at the time. Many lines of research were stopped simply because the techniques needed to pursue them were not available. Szent-Györgi always recommended newcomers to a field to 'repeat the work of the old masters'. He repeated work of a century before and reconstituted muscle contraction *in vitro*. I would strongly recommend anyone looking for a new direction to discard the reviews and opinions of reviews and to track back through an area they find fascinating to classic papers in the field. Read the work of old masters, think hard about what they did, and then strike out on your own. □

Bigger better meetings needed!

Is the current format of BSCB meetings right?

John Lackie, Yamanouchi Research Institute, Littlemore Hospital, Oxon OX4 4SX

The York BSCB meeting was good — if you are keen on kinases — but only a fraction of the membership came. Not everybody is interested in signal transduction. So, is the current format of meetings the right one? The Spring meeting is currently built around a major Symposium, which until recently has been published and thus helped with the cost of the meeting, but this situation has now changed and we should ask whether this format is the right one.

But there are wider questions: can we really defend the separation of Cell Biology as a discrete area of biology? We are already nearer to being a society of cell and molecular biology (BCAMS: British Cell and Molecular Society). Are there too many Societies holding meetings that overlap in content and fail to attract a proper audience?

What I would like to see is a major Spring meeting which draws together many of the various societies, and which offers something for everybody. At other times in the year, individual societies should hold their own small meetings, possibly centred on a specific topic.

There are two completely different functions for meetings, one is to gather with a small group of like-minded people to discuss a specialist topic, the other is to meet a diversity of people, to hear reviews of areas peripheral to your specialist area of interest, and possibly to develop contacts in a new area of science.

I am sure that many people have a broad range of interests that can only really be served at present by going to several meetings — but time is precious and conference-going costs money. Thus, for me, it would be nice to go to cell biology, immunology, pharmacology and pathology meetings — the cells I am most interested in (leucocytes) are involved in immune responses, we try to modify their behaviour with drugs and their malfunction causes pathology. And of course within the general area of molecular cell biology I have an interest in vascular biology, cell adhesion and motility, invasiveness, matrix

degradation, transcription factors, signal transduction, cytokines etc.

If I go to an ASCB meeting I can be sure of sessions on almost all of these topics, of meeting a diversity of people, hearing Plenary lectures that bring me up-to-date on areas that I do not follow in the literature, and an extensive trade show. I do not need to look at the programme, I know that there will always be more sessions of interest than there are hours in the day. So, I would like something similar in Britain.

Mega-meetings have their disadvantages — they are crowded and it is difficult to find people (but at least they are probably there!). At big meetings, the tendency is to meet only people you already know, and there is always a conflict between parallel sessions that are of almost equal interest. So small meetings have their virtues and we need both sorts. But a big Spring meeting would be an ideal place to interview potential research students and post-docs.

Are we frightened that we will be swallowed up by bigger societies? Is cell biology so much of a minority interest? [If it is, then why are we doing it?] Is the problem the cost? A big meeting at a conference centre would cost more — but one large trade show would help to cover part of the cost, and the cost would be shared by several societies. It is even possible that it would be cheaper to go to one large meeting than to two medium sized meetings. Is it the problem of organisation? But even now it is unreasonable to ask a local organiser to do everything for a vote of thanks and a bottle of malt whisky — we already need to use professional conference organisers.

Some people hate big meetings and want a cosier atmosphere, but science isn't like that any more. We need to have big meetings to which we can attract our American, European and Japanese colleagues. If we think small then we will have small ideas; we should be ambitious and try to provide a unifying forum for modern biologists. We may be a small off-shore island but we are part of an international community. Do you agree? □

If you have thoughts on the format of future meetings, please contact the Meetings Secretary, Murray Stewart, MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 2QH. Tel: 01223 402463; Fax: 01223 213556. E-mail: ms@mrc-lmb.cam.ac.uk.

To air your opinions in print, contact the Newsletter Editor, Theo Bloom, Current Biology Ltd, 34–42 Cleveland Street, London W1P 6LB. Fax: 0171 580 8167. E-mail: theo@cursci.co.uk.

A possible consortium of biological societies:

Society	Membership	Cost (£/pa)
Anatomical Society	631*	15
Biochemical Society	8643	41
Br Soc Cancer Research	1330	30
Br Ass Lung Research	226	12
Br Biophysical Soc	800*	15
Br Electrophoresis Soc	177	10
Br Inflammation Res Ass	450*	10
Br Microcirculation Soc	200	15
Br Soc Allergy & Clin Immunol	429*	75
Br Soc Cell Biology	2000	25
Br Soc Dev Biology**		
Br Soc Immunology	4262	27
Br Soc Parasitology	1300*	25
Genetical Soc	1600*	25
Int Ass Plant tissue Cult.	123	9
Physiological Soc	1795*	110
Phytochemical Soc	440	10
Royal Microscopical Soc	1963	35
Society for general Microbiol.	5060*	30
Soc Experimental Biol.	1700*	25
Total* **	33129	

* Not all members would be interested
** Not in the Directory of UK Biological Societies!
*** No doubt many people have multiple memberships!

The Association for Science Education

A description of the association of teachers of science in schools.

David Archer, Chairman, Berkshire and Oxfordshire Region,
194 Silverdale Road, Earley, Reading RG6 7NB

Some people are suggesting the year 2001 should be celebrated in preference to the year 2000. Certainly for The Association for Science Education it will be an important year since one of the founding associations of the ASE was formed in 1901. This organisation was 'The Association of Public School Science Masters'. In our present 'classless' and 'equal opportunity' society such a title must seem strange, but it tells us something about science teaching in the early 1900s. Science was, by and large, taught only in the public schools and most of the teachers in those schools were men. Such a title would therefore have been appropriate for their newly formed society. After the first world war, the teaching of science spread beyond the Public Schools. Membership was widened and the change of name in 1919 to 'The Science Masters' Association' reflected this.

More women were beginning to teach science and from 1922 the Association of Women Science Teachers operated in parallel to the Science Masters' Association. Although they were separate organisations, some joint meetings were held, including an Annual Meeting. This almost symbiotic relationship continued until 1963 when the two associations formally amalgamated to form The Association for Science Education.

Present membership of the ASE is about 22,000 and the Association is the largest school subject organisation in the UK. Included within the membership are practitioners in pre-school, primary, secondary and tertiary sectors of education as well as school laboratory technicians, inspectors and advisers, examiners and consultants. ASE membership extends throughout the world and several countries have modelled their science teacher associations on the ASE. An increasing number of organisations, including many from industry and commerce, are corporate members and use the strength of the partnership to influence and promote science education. Those in authority in government, industry and commerce frequently consult the ASE; in this way it is an influential organisation.

The ASE is a registered charity, is fully independent and receives no financial support from Government. The Association has its headquarters at Hatfield, with a small team of full and part-time personnel including a Chief Executive and professional and support staff including a Director of Conferences, Publications and Administration and Curriculum Support. There is also a very active booksales department located at the Hatfield office which not only handles the many publications produced by the ASE but supplies science teaching resources from commercial publishers.

The activities of the association are largely membership-driven, with 19 locally based regions covering the whole of the UK. The regions, and sometimes smaller sections, provide their own programmes of activities to meet the needs of local members.

The controlling body of the ASE is its Council, and membership of this is drawn from the regions.

There are a number of major committees and these have responsibility for the Annual Meeting, Publications, Primary Science, Assessment and Examinations, Post Sixteen Science and Safeguards in Science. Task Groups are set up to tackle short-term issues. Six part-time and salaried Field Officers assist in named geographical areas where they also hold an area meeting and exhibition each year.

Most professional associations produce journals and the ASE is no exception. *'Education in Science'* is the equivalent of the *'BSCB Newsletter'*. *'Primary Science Review'* and *'ASE Primary Science'* cover pre-school to age 11 level. Tertiary education members receive *'Past Sixteen Science Issues'*. *'School Science Review'*, the oldest of the journals, covers mainly the secondary school age range but sometimes contains articles of a general nature. Teacher educators can receive *'Science Teacher Education'*.

For many members, attendance at the Annual Meeting, which attracts in excess of 4000 delegates, is part of their own personal and professional training and development. The meeting is held at a university during the first week of January each year, and some delegates have been heard to say that it 'fires them up for the year ahead'. The Annual Meeting not only provides an opportunity to renew and form new friendships but also an occasion to attend training courses, join in talks and discussions, workshops and symposia; and to inspect new equipment, text books and computer programmes.

For most of the year, teachers 'give out' to their pupils; BSCB members who are lecturers will know how demanding this is. The ASE Annual Meeting provides an opportunity for delegates to re-charge their batteries and simply to 'take in' for a change. Perhaps they may wish to explore a new subject or to have their knowledge updated. For example this year BSCB President, Professor Martin Raff gave the Wellcome lecture when his subject was Programmed Cell Death. During the questions session which followed, he was able in his inimitable way to correct several points raised by teachers.

In addition to the lectures presented by organisations such as the research councils and learned societies, the host university provides a large lecture programme. Indeed, this lecture programme forms the backbone of the whole meeting. This year The University of Reading provided no less than thirty-three lectures with subjects ranging from 'Codes of Life' by BSCB member Dr Chris Skidmore, to talks on meteorology, food science, sedimentology and how paper bags and ships tear. Some lectures, like one at the BSCB Spring Meeting at York, were open to the public.

But what else does the ASE do? I suppose the answer is anything which supports the ASE mission statement "Teachers Helping Teachers Teach Science". To interpret this, it might be useful to have a brief look at some issues which have been raised by members and helped by the ASE.

School laboratories are very safe. This reflects on the teachers and technicians in charge, but also on the activities of the Safeguards in Science Committee of the ASE. This group checks the safety aspects of practical work published in its journals and comments appropriately; 1947 saw the publication of the first edition of *'Safeguards in the School Laboratory'*; 1996 sees the arrival of the 10th edition. The group also produces *'Topics in Safety'* and *'Be Safe'*.

In all spheres of life great changes are taking place, and science teaching is no exception. New skills need to be acquired and new areas of professional development explored. The ASE is very aware of the need to help develop the role of the professional science teacher and arranges conferences and courses to assist this programme. The content of the school science curriculum is a much debated area. Some people say it is too hard; some say too easy. Others say the content is too narrow whilst others say we teach too much factual content but insufficient skills. In March 1996, Professor Paul Black of King's College, London, as leader of a major new research project for the Organisation for Economic Cooperation and Development, said "the British science curriculum is unnecessarily dull and should be scrapped". Certainly attention needs to be given to science education in the UK.

The ASE is being proactive in this debate by leading a project called 'Science Education for the Year 2000 and beyond'. The project team has raised the following points.

(1) What is science?
(2) Why do science?
(3) What science should be taught?
(4) What are effective teaching and learning strategies?
(5) What is the role of practical work?
(6) How should science fit into the curriculum?
(7) Science, society, and the development of attitudes.
(8) What is the context in which science will be taught and learned in the year 2000?

These issues will be discussed by ASE members at meetings all over the country. Perhaps they should be discussed more widely. As Martin Raff said at the end of his lecture "How is it possible to make science uninteresting? Yet we all do it by the way it is taught both at school and university, and we do it so efficiently that it is frightening."

To conclude on perhaps a less serious but nevertheless important note is to consider the issue of the scientist and science teacher as a role model for young people. With nearly everyone now wearing protective clothing the image of the 'eccentric' person in a white coat is disappearing. But are we replacing it with an attractive role model? Things are changing for the better. Have you noticed, for example, how the prize-winning editor of *MRC News* always tries to have a natural style photo of the author along-side an article? These photographs, like those of scientists in their student years appearing in 'Profile' in the BSCB Newsletter, help cross the generation gap and create a more natural 'new look' for scientists.

Perhaps the last word should go to the nurse from my school who attended a lecture by a young woman scientist and said "Dr W gave an excellent lecture, she was so smartly dressed and with her long blond hair I didn't think she could be a scientist". I thought she was rather nice too. Perhaps next time I will ask her for her autograph. □

A copy of the leaflet on programmed cell death composed by Martin Raff and distributed at this year's ASE conference follows overleaf. It can be photocopied two-sided and folded down the middle; the BSCB is happy for copies to be distributed copyright-free within educational institutions.

British Society for Cell Biology and Journal of Cell Science

Announcement of

Six bursaries for young scientists

from Bulgaria, Commonwealth of Independent States, Czech Republic, Slovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and the former states of Yugoslavia *to attend*

The European Cell Biology Meeting at Brighton, 22–25 March 1997

Bursaries will cover the cost of registration, accommodation and meals, and in 1997 a travel award of up to £250 per person. Applications, in duplicate, including a brief CV and concise reasons for wishing to attend should be sent to: Dr Birgit Lane, CRC Laboratories, Department of Anatomy and Physiology, Medical Sciences Institute, University of Dundee, Dundee DH1 4HN.

BSCB members — if you know of any young scientists from central and eastern Europe who would benefit from attending this meeting, please send them the above information.

Further reading.

International Review of Cytology **68:** 251–306, 1980. ***Cell death: the significance of apoptosis*** (by A. Wyllie, J. Kerr and A. Currie).

Nature **356:**397, 1991. ***Social controls on cell survival and death*** (by M. Raff).

New Scientist, July 23, 1994, page 6. ***Cancer cells ignore death order.***

New Scientist, July 30, 1994, page 31. ***Making friends with death-wish genes.***

Philosophical Transactions of the Royal Society of London, Series B, **345:** 231–333, 1994. ***Death from the inside out: the role of apoptosis in development, tissue homeostasis, and malignancy.*** (This journal issue contains papers on various aspects of programmed cell death.)

BRITISH SOCIETY FOR CELL BIOLOGY

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BRITISH SOCIETY FOR CELL BIOLOGY

Dispatches from the Frontiers of Cell Biology:

Programmed cell death

Contents:

Keywords: AIDS, Apoptosis, Cancer, Cell Necrosis, Cell Survival

"In the field of observation, chance only favours those minds which have been prepared."

Louis Pasteur (1822–1895)

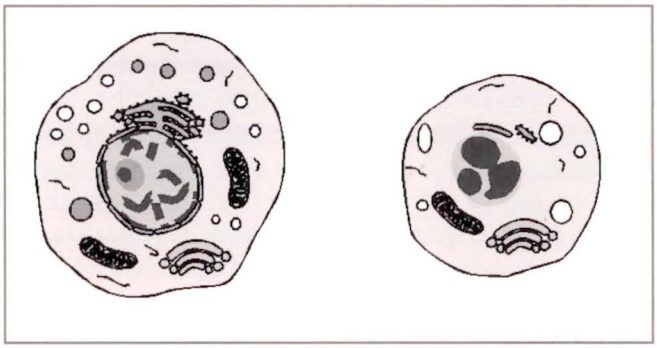
Introduction

Massive cell death is a crucial part of the life of an animal, and of a plant as well. During the time it takes you to read this dispatch, for example, many millions of your cells will die. Moreover, during animal development up to half (or more) of the cells produced in many organs normally die before they have had a chance to function. Only recently has it been realised that all of these cell deaths — called programmed cell deaths — are suicides.

Definitions

Programmed cell death is the process whereby cells activate an internal death programme, or suicide programme, and thereby kill themselves. It is neat and quick and does not cause inflammation.

Apoptosis — coined from the Greek word for shedding of leaves in autumn — refers to the changes a cell undergoes when it dies in this way: the cell shrinks and condenses and frequently fragments, and the cell or fragments of it are rapidly eaten (phagocytosed) by neighbouring cells before there is any leakage of the cell's contents.



A schematic representation of a normal cell (left) and an apoptotic cell (right).

Cell necrosis is the process whereby acutely injured cells die by swelling up and bursting, spilling their contents and thereby causing inflammation.

Functions of programmed cell death

The cells that die by programmed cell death are usually perfectly healthy cells that are no longer needed. They may be cells that were produced in larger numbers than were needed, for example, or that were needed only at an earlier stage of development. The cells in the tadpole tail, for instance, die in this way when the tail is lost during the metamorphosis of the tadpole into a frog. Remarkably, in most adult organs, programmed cell death exactly balances cell proliferation, so the number of cells stays constant. It is not known how this balance is controlled.

'Social' controls of cell survival and cell death

Like most properties of animal cells, the internal death programme is regulated by signals from other cells, which can activate the programme or suppress it. There is increasing evidence, for example, that the cells in an animal need to be constantly receiving signals from other cells in order to avoid programmed cell death; this would mean that the only reason any cell in your body is alive is that other cells are constantly signalling to it, telling it not to kill itself. This may be a mechanism for ensuring that a cell survives only when and where it is needed. Similar 'social' controls ensure that an animal cell divides in two only when another cell is needed. Cancer cells, as a result of accumulated mutations, do not respond normally to these social controls and can survive and divide at times and in places where they should not.

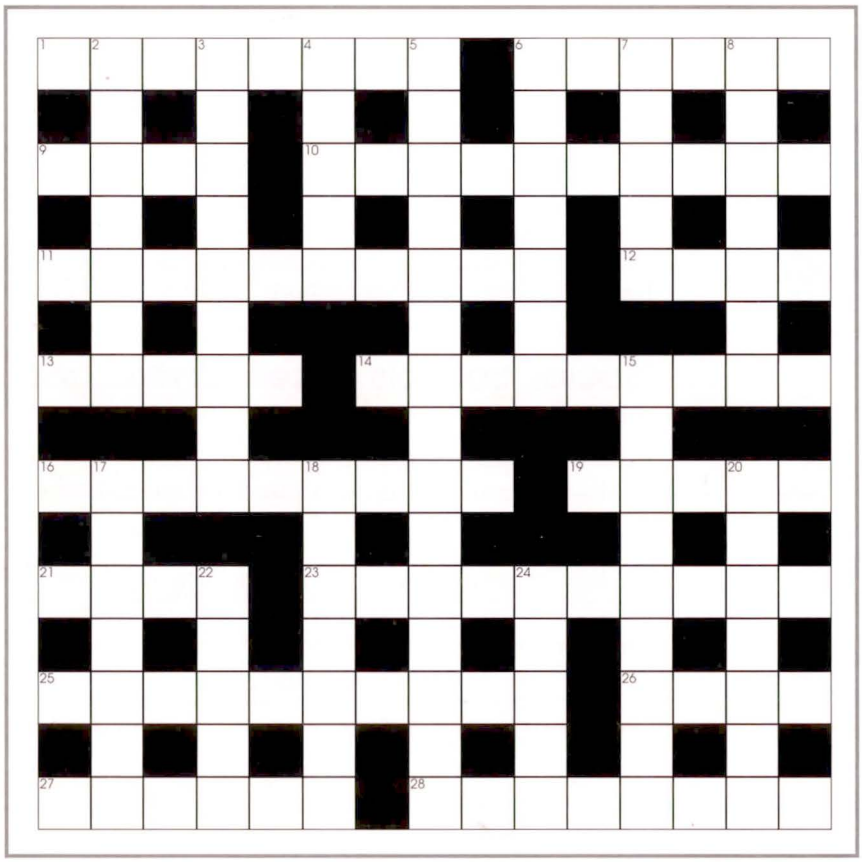
Mechanism

Recent evidence suggests that the death programme in animal cells has been highly conserved in evolution and involves a novel family of proteolytic (protein-digesting) enzymes. These enzymes are thought to act in sequence to degrade specific proteins in the cell, leading to controlled cell death.

Clinical implications

- **Cancer**. Most anti-cancer drugs work by inducing cancer cells to undergo programmed cell death.

- **AIDS.** It is thought that the destruction of the immune system occurs because HIV, the virus that causes AIDS, somehow causes specialised cells of the immune system, called lymphocytes, to undergo programmed cell death.



Crossword

compiled by
Julia H. Spragge

(The solution will be in the next issue of the Newsletter)

Across

1. A Kingdom of unicellular organisms is part to mix. (8)
6. Odd or even coli parasite fixed hat peg. (1-5)
9. 5, 50, 500, 50. (1-3)
10. Hard water makes circle stay. (3, 7)
11. Member of the BT cellnet. (10)
12. Reprint inks for leather in its original form. (4)
13. Type of gas found in halide aluminium silicate. (5)
14. Changed yen sock it to 11 and 23 across. (9)
16. Where oil meets water, sounds like you bury your head? (9)
19. Conifers with the head gives the highest degree. (5)
21. Leading lights of a police department go for a growth factor. (4)
23. Ordered marge and a chop for a big eater. (10)
25. An evangelical enzyme? (10)
26. He reverses into a sticky molecule, passe shorthand. (4)
27. Dans la rue nouvelle there's a reverse crest or network? (6)
28. Do neutrophils produce this to eat seals? (8)

Down

2. CGU GAA UUA GCU UAU GAA GAU. (7)
3. Let zero shape change resolve mitosis. (9)
4. -----gyra,
   -----chaetae,
   -----Agnew? (5)
5. Port with a kinase target and a type of zipper twice; pedal includes first letters for a very important enzyme. (8,7)
6. AChR source from California port, doe confused. (7)
7. Coliforms are for 6 across. (5)
8. Part of the genetic alphabet made of endless bird deposits in the orient. (7)
15. Ideal culture medium for shamrock? In the garden. (5,4)
17. With which transistors radios work ..... compared to their predecessors. (2,5)
18. Extract from a safe moral stance, leg-related. (7)
20. Maybe 2 down through 11 or 23 across after the action of 14 across. Maybe courtesy of 5 down's action? (7)
22. Nasty symptom, treated with few for a herb. (5)
24. Singing genes? (5)

Bigger and better?

The 35th Annual ASCB Meeting in Washington, D.C., was attended by the winner of last year's BSCB Young Cell Biologist of the Year Poster Competition.

Judith Sleeman, Department of Biochemistry, Medical Sciences Institute, University of Dundee, Nethergate, Dundee DD1 2HN.

I was very pleased to be awarded the 1995 BSCB poster prize at the Spring meeting in Kent. Pleased and surprised as I'd not been asked many questions about the work during the poster session (and I was at my poster all afternoon, honestly!). So, last December, I set off for the ASCB annual meeting in Washington, D.C. armed with my poster and a terrifyingly chunky book of abstracts.

Although I hate to state the obvious, I feel forced to comment that the ASCB meeting was big. No, huge! Eight thousand participants, six hundred posters a day over four days, not to mention symposia, mini-symposia, special interest sub-groups, tutorials, lectures, exhibitor showcases, etc., etc. The meeting kicked off on Saturday with the special interest sub-groups, which, I must confess, I gave a miss and spent the afternoon shaking off my jet-lag and finding my way around the city centre and conference centre. The meeting was held in the Washington Conference centre which has the huge advantage of being situated just on the edge of the city's Chinatown. Finding good places for lunch was not a problem. Later on Saturday came the keynote address from Eric Kandel: Genes, Synapses and Long Term Memory, including a convincing argument that if we remembered anything of his talk by Sunday morning we'd have woken up with a different head from the one we went to bed with. This seems, however, to be due to the growth processes involved in long term memory formation, rather than some sinister experiment he'd subjected us all to.

The meeting's main symposia covered a wide variety of topics including 'Cell Cycle and Cancer'; 'Cell Adhesion in Differentiation and Disease'; 'The Evolution of Eukaryotic Sex' and 'Membrane Assembly from the Nucleus to the Cell Surface'. While all of the symposia were well organised and presented, I particularly enjoyed the session on Pattern Formation and Evolution. In this symposium the speakers emphasised how a huge diversity of body parts and body patterns can be achieved by the evolution of different gene pathways and interactions downstream of a relatively small number of highly conserved *HOX* genes. One criticism I have of the main symposia is that the size of the audience prohibited any questions and discussion after the talks, and the size of the meeting made tracking down speakers later on an impossibility.

The mini-symposia, on the other hand, were more the size of meeting I'm used to, with more opportunity for discussion and a generally less formal atmosphere. Part of my bias towards these may also be that they covered topics closer to my area of research, including excellent sessions on 'RNA Trafficking and Localization' and 'Nuclear Import and Export'. By virtue of their smaller size, these sessions were far more specialised and allowed the presentation of newer data. Similar in size to these were the educational tutorials, focusing on recent developments in a mind-boggling array of techniques. Although at times these came across as glorified advertising platforms for biotechnology companies, it was interesting to concentrate on a particular technique and the diverse questions to which it can be applied.

The poster sessions were the real eye-opener though. Vast numbers of high quality presentations with all

the space you could possibly need to get a good look at them. The poster boards themselves were also far larger than I'm used to, making it easier both to present my own poster and to follow other peoples presentations. So, despite my comments about the main symposia, bigger certainly can be better. The posters were extremely well organised into different subject areas, so there was no difficulty at all in finding the ones of interest. There was more than enough data on nuclear structure and RNA processing to keep me occupied. The special poster session for data 'hot off the press' on the final day of the meeting was an excellent idea, especially since the deadline for submission of abstracts for the main sessions had been well in advance of the meeting.

Concurrent with the poster sessions were the company exhibits, where countless reps exchanged sweets, pens and other goodies for addresses to send junk mail to. Having handed my address over to a number of reps at the meeting, I was not at all surprised to learn this week that 'Braveheart' had won five Oscars. It certainly made an impact in the USA. Rather than the usual "Is that Scotland, England?", this time the response was "We don't have a distributor in Scotland, will one in the UK be any use to you?".

As for Washington itself, there was certainly plenty to see once I'd exchanged my 'scientist' hat for my 'tourist' one. I managed to fit in visits to a fair few galleries, monuments and museums between ASCB sessions and Smithsonian Institute strikes. The Vermeer exhibition at the National Gallery was stunning. At the Air and Space museum I was more than a little surprised to discover that the Apollo moon landings were made in flimsy little contraptions that looked as if they'd been cobbled together from turkey foil and black tape. The monuments in the central Mall area were suitably impressive, although my attempts to check out the ripple-free appearance of the reflecting pool beside the Lincoln Memorial were thwarted by the fact that it was frozen solid. After spending a couple of extra days satiating my desire to shop (it was just before Christmas, after all!), I headed home. With a different head.

My thanks to Bill Skarnes for supervising the work presented on my poster; the BSCB for funding the trip and Carrie Shemanko, Gill Diamond and Rebecca Mandell for assisting my exploration of restaurants, galleries and dodgy bars.

BSCB One-Day Meetings

Interested in organizing a small one-day colloquium on a specific cell-biological topic? The BSCB can help...

... by providing travel funds for one keynote speaker, usually from abroad, who will form a focus for your meeting. Other speakers and participants usually come from the same Institute, or from the same geographical area. A number of successful small informal groups of 20–50 people have been supported in this way, with space and facilities and incidental expenses being provided by the host Institute.

How to apply

BSCB members who wish to hold a one-day meeting on a cell biological topic should write to the Meetings Secretary. Include a tentative program, the name of the speaker to be invited, and the approximate cost of his or her travel (up to a maximum of £1,000). Please note that we will not, under this scheme, sponsor speakers in meetings that have already received funds from other sources. **Applications from young investigators are especially welcome.**

Applications will be discussed at the bi-annual BSCB committee meetings, usually held in April (at the Spring meeting) and September each year. Results will be available immediately after that, and a cheque from the BSCB Treasurer made payable to the designated speaker can be sent very soon. In making the application, the organizers agree to use the money as proposed and to write a one-paragraph report on completion of the meeting that can be published in the BSCB Newsletter.

Seeing the light

A report on the green fluorescent protein workshop at the BSCB York meeting.

Viki Allan, School of Biological Sciences, University of Manchester, Manchester M13 9P

Following proteins whilst they do their business in the living cell can be very informative. To microscopists and cell biologists, the idea of being able to introduce fluorescently labelled proteins into cells without microinjection is very attractive, and this dream became a reality a few years ago with the discovery, cloning and sequencing of a naturally fluorescent, or bioluminescent, protein from the jellyfish *Aequoria victoria*. This small protein of 27,000 M_r emits green light when exposed to UV or blue light, and is called, naturally enough, green fluorescent protein (GFP). This protein has caused much excitement as a possible reporter molecule for a wide range of *in vivo* studies, and was the subject of an excellent one-day workshop at the BSCB York meeting, organised by Andrea Brand (Wellcome / CRC Institute, Cambridge).

Personally, as a microscopist, but not a molecular biologist, the activation energy barrier to using GFP myself has so far been too high. I am rather pleased that was the case, as this workshop made it very clear that there are a number of potentially serious technical problems to be overcome in order to use GFP in many organisms. Many workers have invested considerable time and energy in discovering modifications to the protein that overcome these difficulties, and a number of workshop speakers presented their own solutions.

One of the most intriguing features of GFP is that its chromophore consists of a three amino acid sequence (serine–tyrosine–glycine) which undergoes sequential cyclisation, loss of water, and oxidation, without requiring any additional enzymes or co-factors. GFP is extremely sensitive to changes in its sequence, and fluorescence is lost if greater than 2 or 12 amino acids are removed from its N or C termini (Andrew Cubitt, UCSD, La Jolla). It is also very intolerant of insertions. Luckily, it doesn't seem to object to having sequences (including whole proteins) added on at either end, which is why it can be used as a fluorescent tag for your molecule of interest — at least in theory.

So, once you've made your construct, you express it in your system of choice and look for fluorescent product. In many cases, however, the result is disappointing. This may come down to a number of problems, and we heard a number of elegant solutions described during the workshop. In one example, Jim Haseloff (MRC-LMB, Cambridge) reported that when GFP is expressed in *Arabidopsis thaliana*, its mRNA is missing 84 nucleotides. This is because the GFP sequence happens to contain a pair of plant splice site recognition sequences separated by an A-T rich region that *Arabidopsis* treats as a plant intron. This problem was solved by modifying the codon usage to increase the C–G number.

Other problems encountered when using GFP in heterologous systems centre around the need for correct folding and further processing in order to generate the chromophore. For example, low levels of fluorescence may be seen at 37°C because the wild type protein fails to fold correctly, or folds very slowly. Andrew Cubitt, Jim Haseloff and Jonathan Pines (Wellcome/CRC Institute, Cambridge) all described GFP mutants which fold better or have increased solubility at higher temperatures. Some amino acid changes may also result in increased inherent fluorescence, and reduced photobleaching. Forms with different spectral properties have also been developed, such as Blue Fluorescent Protein, and it should now be possible to do three-colour labelling. It is likely that

the fine tuning of GFP and related proteins will continue to generate marker proteins that are better and better suited to their light microscopic use.

Microscopes may also be becoming better suited to GFP studies as well, as was made clear by Brad Amos (MRC-LMB, Cambridge) and Steve Potter (CalTech, Pasadena), who described a new excitation system call two-photon excitation. Whilst the audience was convinced by the potential of this system, I don't think we'll all be rushing to write grant proposals to buy the necessary laser: not only is it very expensive, but you need to build it yourself, it seems. Brad Amos frightened everyone by saying that you needed a 4 foot by 16 foot optical bench, but then Steve Potter assured us that you only needed 4 foot by 8 foot. Well, now you're talking! Seriously, however, it was very good to hear the GFP story from the microscope side, as well as in terms of biology.

So how are these marker molecules being used? This workshop provided some spectacular examples. When unmodified GFP is expressed it is found in both the cytoplasm and nucleus in a variety of cell types (Jim Haseloff; Simon Santa Cruz, Scottish Crop Research Institute, Dundee; Tony Campbell, University of Wales College of Medicine, Cardiff). The nuclear location may account for the difficulty in generating plants with high levels of expression, since their DNA may suffer from free radical damage as a consequence of GFP photobleaching (Jim Haseloff). It is clearly not feasible to grow normal *Arabidopsis* plants in the dark! Targeting the GFP to a different compartment (the endoplasmic reticulum), however, allowed the generation of plants expressing high GFP levels, either due to better folding, or because the protein is no longer in the nucleus (Jim Haseloff).

Targeting to the ER is achieved by adding an N-terminal signal sequence and an ER retention signal at the other end of GFP (Jim Haseloff; Simon Santa Cruz; Tony Campbell), or by using a GFP fused to a resident ER protein such as calreticulin. The resulting images of the ER are truly beautiful. The added advantage, of course, is that you can observe this organelle in living cells. Jim Haseloff showed an impressive video of ER (and autofluorescent chloroplasts) in living *Arabidopsis*, revealing the enormous amounts of organelle movement that go on. Using targeted GFP to visualise organelles *in vivo* offers one enormous advantage over the fluorescent dyes used previously (such as DiOC6, or BODIPY-ceramide), in that the localisation of the GFP is well controlled whereas the dyes are somewhat non-specific. GFP also has the potential to be targeted to any structure in the cell, provided you have a cloned and expressed marker to attach it to. An intriguing example of this was reported by Simon Santa Cruz, who has attached GFP to tobacco mosaic virus movement protein; the fusion protein collects on microtubules and plasmodesmata, suggesting that microtubules may be involved somehow in transporting this protein from cell to cell. GFP looks set to open a new era in studying motility *in vivo*.

GFP is also being used in other ways. For instance, GFP fusions can provide information on the location of proteins in the absence of fixation, and so provide confirmation (or not) of conventional immunofluorescence images. This has proved successful for the cyclins (Jonathan Pines) and INCENP I, a fascinating protein that moves between chromosomes, centromeres, the mid body and the cell cortex, and which has a role in mitosis (Bill Earnshaw, ICMB, University of Edinburgh). Another exciting use of GFP is as an alternative to β-galactosidase as a reporter in an enhancer trap system (Jim Haseloff; Andrea Brand). In *Arabidopsis*, this cuts out one generation time, and 90% of the work. Another benefit is that you can study the same organism throughout its development, rather than having to build up a picture from individuals fixed at single time points. This was made dramatically clear by Andrea Brand in a video that really stole the show: the fluorescent dancing *Drosophila* larva! She also showed how GFP–tau fusions can be used to follow neuronal development in living larvae.

One caveat that must always be borne in mind is that an ectopically expressed (or over-expressed) fusion protein may be altering the cell by its very presence, and it is also possible that the protein to which GFP has been attached is no longer functioning exactly as it should. For instance, the tau–GFP construct can be toxic in rapidly dividing imaginal disc cells, perhaps because of tau's role as a microtubule-associated protein (Andrea Brand). Also, the cyclin–GFP fusions are non-degradable, and can result in a metaphase block in expressing cells (Jonathan Pines). These caveats aside, there must be a bright future for GFP and its relatives. □

Forthcoming meetings

Further details of the ECBO meeting and the Harden/BSCB Discussion Meeting are elsewhere in this Newsletter.

2–3 July 1996
Symposium on Mechanisms of Synaptic Plasticity
Edinburgh

The symposium will focus on the regulation of structure and function of neural connections during development and after injury. The main topics for discussion will be the roles of activity, neurotrophic factors and cell adhesion molecules in synaptic plasticity.

Further details from:
Dr R.R.Ribchester/ Dr D.J.Price,
(Plasticity Symposium Organisers),
Department of Physiology
University Medical School,
Teviot Place,
Edinburgh EH8 9AG
E-mail: rrr@ed.ac.uk

2–4 July 1996
MICRO 96
The Royal Microscopical Society
Probes in Light, Electron and Digital Microscopy
Hammersmith, London

Further details from:
The Conference Officer,
Royal Microscopical Society,
37/38 St Clements,
Oxford OX4 1AJ
Tel: 01865 248768. Fax: 01865 791237
E-mail: rms@vax.ox.ac.uk

15–19 July 1996
The Royal Microscopical Society
Light Microscopy Summer School
Leeds

22–26 July 1996
The Royal Microscopical Society
Confocal, 3D and Stereology Summer School
Liverpool

2–5 September 1996
The Royal Microscopical Society
Pollution and Environment Conference
Plymouth

2–6 September 1996
The Royal Microscopical Society
Immunocytochemistry Course
Oxford

Further details from:
The Conference Officer,
Royal Microscopical Society,
37/38 St Clements,
Oxford OX4 1AJ
Tel: 01865 248768. Fax: 01865 791237
E-mail: rms@vax.ox.ac.uk

4–6 September 1996
1996 Hannah Symposium
Biological Signalling and the Mammary Gland
Ayr

The Symposium will focus on molecular signalling to, from and by the mammary gland. Speakers will address the tissue's function as an endocrine organ, biological signalling to the neonate and autocrine and paracrine mechanisms regulating mammary involution, apoptosis and neoplasia.

Further details from:
Anita Neilson,
Hannah Research Institute,
Ayr KA6 5HL
Tel: 01292 476013. Fax: 01292 678797
E-mail:neilsona@main.hri.sari.ac.uk

8–12 September 1996
44th Harden Conference
Biochemical Basis of Microbial Morphogenesis
Royal Agricultural College

Organisers: J. Errington and K. Chater.

Topics include:

- Cell shape
- Septum formation and localisation
- Interplay of morphogenesis and gene expression
- Extracellular signalling resulting in morphogenesis
- Extracellular Assembly

Further details, including bursary and application forms, from:
Kelly Alderton,
The Meetings Office,
Biochemical Society
59 Portland Place,
London W1N 3AJ.
Tel: 0171 580 5530. Fax: 0171 637 7626.
E-mail: meetings@biochemsoc.org.uk

9–10 September 1996
The Royal Microscopical Society / Physiology Society
Microscopy in Physiology Workshop
Leeds

9–13 September 1996
The Royal Microscopical Society
Flow Cytometry Course
London

12 September 1996
The Royal Microscopical Society
Carl Zeiss 150th Anniversary Meeting
London

Further details from:
The Conference Officer,
Royal Microscopical Society,
37/38 St Clements,
Oxford OX4 1AJ
Tel: 01865 248768. Fax: 01865 791237
E-mail: rms@vax.ox.ac.uk

21–23 September 1996
Harden Discussion meeting in conjunction with BSCB
The Molecular Basis of Cell Locomotion
Wye College, Kent

Further details — see elsewhere in this Newsletter, or contact:
Dr Murray Stewart,
MRC Laboratory of Molecular Biology,
Hills Road,
Cambridge CB2 2QH.
Tel: 01223 402463. Fax 01223 213556.
E-mail: ms@mrc-lmb.cam.ac.uk

5 November 1996
The Royal Microscopical Society
Microscopical Analysis of Structural Materials Workshop
Berkeley

11–15 November 1996
The Royal Microscopical Society
Ultrastructural Immunocytochemistry Course
Sutton

Further details from:
The Conference Officer,
Royal Microscopical Society,
37/38 St Clements,
Oxford OX4 1AJ
Tel: 01865 248768. Fax: 01865 791237
E-mail: rms@vax.ox.ac.uk

22–25 March 1997
ECBO 97
European Congress for Molecular Cell Biology
Brighton

Further details — see elsewhere in this Newsletter, or contact:
ECBO97
Tel: 0181 877 9920; FAX: 0181 877 9308
E-mail: ECBO 97@immunology.org;
World Wide Web site:
http://www.ucl.ac.uk/LMCB/ecbo.html

Items for the 'Forthcoming meetings' section of the Winter 1996/97 BSCB Newsletter should be sent by 15 October 1996 to: Theo Bloom, BSCB Newsletter Editor, Current Biology Ltd., 34–42 Cleveland Street, London W1P 6LB. Fax: 0171 580 8167. E-mail: theo@cursci.co.uk

1–5 July 1997
Stress of Life: Stress and Adaptation from Molecules to Man
Budapest, Hungary

An international conference of plenary lectures and workshops to commemorate the 90th birthday of Hans Selye.

Further details from:
Dr Péter Csermely,
Institute of Biochemistry I.
Semmelweis University,
P.O. Box 260,
H-1444 Budapest,
Hungary
Tel/fax: +361 266 6550
E-mail: stress@puskin.sote.hu

12–17 July 1997
Fifth International Congress of Vertebrate Morphology
Bristol

Further details from:
Professor J.M.V. Rayner,
School of Biological Sciences,
University of Bristol,
Bristol BS8 1UG
Tel: 0117 928 8111 / 7476. Fax: 01117 025 7374
E-mail: icvm97@bristol.ac.uk
World Wide Web site:
http://www.bio.bri.ac.uk/icvm.html

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28 September–1 October 1997
4th Abercrombie Meeting
Cell Behaviour
St Catherine's College, Oxford University

Organizers: Gareth Jones, John Lackie, Caroline Wigley

Harden discussion meeting in conjunction with BSCB

The Molecular Basis of Cell Locomotion

Wye College, 21-23 September, 1996.

This meeting aims to examine the molecular basis of cell locomotion from a number of complementary aspects with the goal of integrating cellular and molecular information to build up a picture of the mechanism of locomotion at the molecular level. Particular emphasis will be placed on locomotion that appears to derive from polymerization and bundling of filaments in order to complement the discussion of molecular motors to be held as part of the 12th John Innes Symposium earlier in September. In addition to discussing the components of the motile apparatus, sessions will focus on simple cellular models, including intracellular bacterial parasites, nematode sperm and *Dictyostelium* as well as on the molecular mechanisms that generate locomotion. A large number of leading international workers have agreed to attend. In addition, to allow the presentation of the widest possible spectrum of work and also to enable the latest results to be included, posters will make up a major component of the meeting. A special poster discussion session has been programmed in which brief presentations will be made of selected posters and the results obtained discussed.

Scientific programme

21 September 1996

1200–1400 **Lunch and Registration**

1400–1730 **Components of the locomotion machinery**
John Hartwig (Boston)
Michael Schleicher (Munich)
Ueli Aebi (Basel)

1930–2100 ***Listeria* and *Shigella* systems**
Tim Mitchison (San Francisco)
Guy Tran Van Nhieu (Paris)
Brigitte Jockusch (Braunschweig)

22 September 1996

0900–1030 **Nematode and Dictyostelium**
Tom Roberts (Tallahassee)
Angelika Noegel (Martinsried)

22 September 1996

1100–1230 **Control**
John Collard (Amsterdam)
Tom Pollard (Baltimore)

1400–1730 **Posters**

1930–2130 **Discussion of selected posters**

23 September 1996

0900–1230 **Mechanism of Locomotion**
Vic Small (Salzberg)
George Oster (Berkeley)
Julie Theriot (MIT)

General Discussion

Harden discussion meeting in conjunction with BSCB

The Molecular Basis of Cell Locomotion

Wye College, 21-23 September, 1996.

Registration form

Name..... Dr/Mr/Ms

Address.....

.....

.....

.....

Phone.....Fax.....

E-mail.....

Registration fees:

		Students:	
Before August 1, 1996	£60	Before August 1, 1996	£30
After August 1, 1996	£80	After August 1, 1996	£50

Accommodation and meals: £100

Accommodation and meals is an all-inclusive charge covering accommodation on the nights of September 21 and 22, lunch and supper on September 21, breakfast, lunch and supper on September 22 and breakfast and lunch on September 23. Coffee and tea during the scientific sessions is also included.

Posters will form a major component of the meeting and all attendees are strongly encouraged to submit posters. A special poster discussion session has been programmed in which selected poster presenters will be invited to make brief (not exceeding 10 minutes) presentations of their material. Consequently all attendees are encouraged to bring any necessary projection slides in case they are needed. All attendees should bring 100 copies of an abstract of their work which will be distributed to other attendees.

To register, submit this form, together with **payment in full,** to: Mr R. Dale, Biochemical Society, 59 Portland Place, London W1N 3AJ.

For further information, contact Dr Murray Stewart, MRC Laboratory of Molecular Biology, Hills Rd., Cambridge CB2 2QH. Phone (01223) 402463. Fax (01223) 213556. E-mail ms@mrc-lmb.cam.ac.uk

ECBO 97

Details of the European Cell Biology Organization's meeting in Brighton, 22-25 March 1997. Updated information can be found on the ECBO97 home page on the worldwide web: http://www.ucl.ac.uk/LMCB/ecbo.html

Scientific programme

Saturday 22 March

6.00 pm Opening Remarks and Plenary Lecture, The Dome, Royal Pavilion Estate

7.30 pm Welcome Party 'Beside the Seaside', The Corn Exchange, Royal Pavilion Estate

Sunday 23 March

9.00 am Plenary Lectures, Hewison Hall, Brighton Centre

11.00 am Concurrent Symposia, Brighton Centre

1.00 pm Poster session I, Exhibition Hall, Brighton Centre

4.00 pm Concurrent Symposia, Brighton Centre

6.00 pm Civic Reception, Exhibition Hall, Brighton Centre

Monday 24 March and Tuesday 25 March

9.00 am Plenary Lectures, Hewison Hall, Brighton Centre

11.00 am Concurrent Symposia, Brighton Centre

1.00 pm Poster sessions II and III, Exhibition Hall, Brighton Centre

4.00 pm Concurrent Symposia, Brighton Centre

6.00 pm Keynote Plenary Lecture, Hewison Hall, Brighton Centre

Symposium Topics

The Plenary Symposia and Poster Sessions will be complemented by twenty or more Concurrent Symposia covering topics across the full spectrum of contemporary molecular cell biology. The Programme Committee has been selected to provide a broad representation both in terms of areas of research interest and in terms of national identity.

The co-chairs of the symposia can select an outstanding abstract for presentation in their sessions. Therefore, if you feel you have unusually novel and exciting data and that you can present your work clearly and cohesively in a short time, check the box 'Concurrent Symposium or Poster' on the Abstract Form.

The following Concurrent Symposia are planned

Genetic approaches to human disease, Cell biology of infectious diseases, Small G proteins and trafficking, The cytoskeleton and its associated proteins, Nuclear architecture and higher controls of gene transcription, Molecular mechanisms in epithelial-mesenchymal interactions, Extracellular matrix: regulation and cell behaviour, Endocytosis, Signals to and from the ER, Senescence, Growth inhibition signalling, Cellular shape and function, Cell-cell interactions and junctions, Molecular studies of neuron target interactions, Programmed cell death, Epithelial polarity, Structural biology of membrane pumps, channels, and receptors, Adhesion receptors, Caveolae and GPI-anchored membrane proteins, Developmental biology of gene expression.

Special interest groups

Facilities will be available for groups with common interests to organize and hold additional sessions. Meeting rooms and audiovisual aids will be provided without extra charge. These meetings will be publicized in the Programme and Abstracts Book and on the ECBO Home Page on the Internet but abstracts will not be given special treatment. Application to hold a Special Interest Group Meeting should be made by e-mail to dmcbcho@ucl.ac.uk. Special forms are not required but applicants should provide a title, brief outline of content and an indication of the size of the audience expected. Organizers will be notified of acceptance by January 31st 1997.

Poster Sessions

The three poster sessions will be a major feature of the meeting. Posters must be placed on the assigned board before 11.00 am on the day of the chosen session and will remain in place until the session ends at 6.00 pm. Authors must be present at their posters at 2.00 pm for presentation. There will be no competing sessions during poster presentations.We hope you will be prepared to contribute by submitting an abstract of your recent work for a poster presentation: the vitality of the meeting is assured if most people present a poster.

Trade Exhibition

Exhibits of a wide range of laboratory equipment, supplies, services, books and journals will be on display in the main exhibition Hall from 10.30 am Sunday 23 March and 9.30 am to 5.30 pm Monday and Tuesday. Coffee and tea will be available at 10.30 am and 3.30 pm each day.

Payment of Fees

- ☐ International money orders in £ sterling payable to ECBO 97 - enclosed.
- ☐ UK Cheque/postal order which I enclose payable to ECBO 97.
- ☐ Banker's Draft which is being sent and the charges for which I have added to my payment (copy enclosed).
- ☐ Eurocheque with account/card number written on reverse.

Credit Card Details:

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Card type: Visa ☐ Mastercard (Access) ☐ American Express ☐

Start date on card .....Expiry date on card.....
Cardholder's name and address.....
.....
.....
I authorize Triangle 3 Ltd to debit my account
for £..... Signature.....

Photocopies of Bank transfers must be provided with the registration form. Personal cheques drawn on accounts in countries other than Britain **cannot be accepted**. If sent they will be returned and the registration will remain unprocessed.

Accommodation

Four categories of accommodation have been reserved. The rates quoted can only be obtained by completing the ECBO Registration Form. The hotels include The Metropole, Brighton Thistle, Bedford, Old Ship, Royal Albion, Oak and Queens. Most of them are on the sea front and all are within a few minutes walking distance of the Brighton Conference Centre.

Category 1

Air conditioned, private bathroom, TV with satellite channels, video, direct dialling international telephones, 24 hour room service, car parking and car hire, leisure facilities and health club, night club, secure car parking.

Category 2

En suite bathroom, many rooms with sea views, TV with satellite channels, video, direct dialling telephones, own tea and coffee making facilities, car parking.

Category 3

En suite bath or shower rooms, TV with satellite channels, own tea and coffee making facilities, car parking.

Student study bedrooms (available in Brighton and Central London)

Shared shower and toilet facilities, no TV or telephone. N.B. No car parking is available for the study bedroom residences in London. Local, commercial parking is very expensive.
Further information concerning accommodation and/or payment of fees can be obtained by: e-mail to ECBO 97@immunology.org:FAX to +44 181 877 9308:Telephone +44 181 877 9920

Send completed form to:ECBO 97, Triangle House, Broomhill Road,London SW18 4HX. Fax Number +44 181 877 9308.
ECBO 97 is organised by Triangle 3 Ltd acting as agents.
The education elements of the meeting are exempt from VAT under current regulations

ECBO 97 EUROPEAN CONGRESS FOR MOLECULAR CELL BIOLOGY

Brighton UK, 22–25 March 1997
Advance Registration Deadline
30 September 1996

Title:	Name:	Sex: M/F

Address:

Postcode:	Country:

Telephone:	Fax:

E-mail:

REGISTRATION	Fee	PAID
Before 30 September	£175	
After 30 September	£200	
Student	£100	

Social Events	Fee	PAID
Congress Banquet	£35	
Post banquet disco	£10	
University disco	£10	
Scottish dancing	£10	
Jazz & buffet	£10	

Hotel Category Per person per night	Single	Twin	No of Nights	Amount to pay
Category 1	£90	£65		
Category 2	£65	£45		
Category 3	£45	£30		
Student study Brighton	£30	N/A		
Student study London	£35	N/A		

Total payment

£

Day of arrival in Brighton: Saturday ☐ Sunday ☐ Monday ☐ Tuesday ☐

If sharing a twin room , state the person you are sharing with here:
The above person must send his or her registration form and payment with yours.

Posters and submitting abstracts for posters

Poster presentations

Abstracts scheduled for presentation in poster sessions will be grouped by topic, numbered, listed in the Congress Programme and published in the circulated Abstracts issue. In addition, programme listings will specify the time interested colleagues may expect you to be at your assigned poster to discuss your work.

Display of posters: All posters must be placed on the assigned board before 11.00 am on the day of the assigned session and should remain in place until the session ends at 6.00 pm. Authors must be present at their posters at 2.00 pm for presentation. There will be no competing scientific sessions during poster presentations. The submitting author will receive an Assignment Letter in January 1997 indicating the poster session, board number, and exact time for presentation.

The poster board surface area is approximately 1.0m high and 2.0m wide. A label should be prepared for the top of the poster space indicating the programme number of the abstract, its title, and authors. The lettering for this section should not be less than 2.5 cm high. A copy of the abstract, in large type, should be posted in the upper left-hand corner of the poster board.

All illustrations should be made in advance of the meeting. Authors should be aware that illustrations will be read by interested scientists from distances of 1m or more. Charts, drawings, and illustrations should be similar to those that would otherwise be used in making slides, but preferably simpler and more heavily drawn. They should not be elaborate. Simple use of colour can be used for emphasis. Do not mount illustrations on heavy board because you may not be able to hold them in position on the poster board. Hand-lettered material should contain appropriately heavy lettering at least 1 cm high. Shade block letters where possible. Text should be printed in a typeface large enough to be read comfortably from a distance of 1.5 m. A pad of suitable sketch paper as well as one or two felt marking pens may also be useful to have with you. You should bring enough Velcro.

Abstract category codes and titles

(see instructions on next page)

A Cell Cycle and Growth Control
- Growth Factors & Receptors
- Signal Transduction
- Oncogenes & Tumor Suppressors
- Cell Cycle Controls
- Cyclins & Cyclin-Dependent Kinases
- DNA Replication
- Protein Kinases
- Protein Phosphatases
- Steroid Hormones & Receptors
- Calcium & Calcium-Binding Proteins
- G-Proteins/Apoptosis
- Cytokines
- Other

B Cytoskeleton & Cell Motility
- Actin
- Actin-Associated Proteins
- Actin Dynamics & Assembly
- Myosin
- Myosin-Associated Proteins
- Muscle & Muscle-Associated Proteins
- Tubulin
- Dynein
- Kinesin
- Microtubule-Associated Proteins
- Microtubule Dynamics & Assembly
- Cilia & Flagella
- Cell Motility
- Centrosomes & Kinetochores
- Mitosis
- Meiosis
- Intracellular Movement
- Cytoskeletal Organization
- Cytoskeleton-Membrane Interactions: Structure
- Cytoskeleton-Membrane Interactions: Function
- Keratins/Intermediate Filaments
- Other

C Extracellular Matrix
- Collagen
- Glycosaminoglycans & Proteoglycans
- Basement Membranes
- Organization of Extracellular Matrix
- Cell Attachment to the Extracellular Matrix
- Cell Receptors & Extracellular Matrix
- Extracellular Matrix & Cell Behaviour
- Extracellular Matrix & Cell Signalling
- Extracellular Matrix & Morphogenesis
- Integrins
- Cadherins
- Degradation of Extracellular Matrix
- Plant Cell Walls
- Metalloproteases
- Other

D Membranes
- Membrane Structure
- Membrane Receptors
- Membrane Channels
- Structure & Function of Membrane Proteins
- Membrane Fusion
- Lipid-Anchored Proteins
- ER to Golgi Transport
- Transport Between Golgi Stacks
- Golgi to Cell Surface Transport
- Protein Translocation Across Membranes
- Membrane Domains & Polarity
- Exocytosis: Plasma Membrane Events
- Exocytosis: Regulated Secretion
- Endocytosis
- Transcytosis
- Cell-Cell Interactions
- Adhesion Plaques
- Gap Junctions
- Desmosomes & Hemi-desmosomes
- Tight Junctions
- Cell-Cell Adherens Junctions
- Clathrin
- Protein Folding & Assembly
- Protein Targeting
- Caveolae
- Other

E Nucleus & Gene Expression
- Gene Structure
- Molecular Mechanisms of Transcription
- Tissue-Specific Gene Expression
- Developmental Control of Gene Expression
- Chromatin & Chromosomes
- Ribonucleoproteins & RNA Processing
- Translational Control
- Cell Shape and Gene Expression
- RNA Localization
- Translation & Ribosomes
- Nuclear Envelope Import, Export & Structure
- Proteins of the Nucleus, Nuclear Matrix & Nucleolus
- Other

F Development
- Oocytes & Oogenesis
- Sperm & Spermatogenesis
- Fertilization
- Organogenesis
- Cell Lineage/Cell Interactions in Development
- Growth Factors in Development
- Signal Transduction in Development
- Plant Development
- Other

G Neurobiology
- Neurogenesis
- Neural Development
- Axon Guidance
- Synaptogenesis
- Neurotransmitters, Peptides & Receptors
- Synaptic Plasticity
- Visual Systems
- Nonvisual Sensory Systems
- Other

H Organelles
- Chloroplasts & Mitochondria
- Peroxisomes
- Endoplasmic Reticulum
- Golgi Complex
- Secretory Granules
- Endosomes & Lysosomes
- Targeting to Mitochondria
- Targeting to Lysosomes
- Other

I Cells & Tissues
- Endocrine & Exocrine Glands
- Epithelia
- Blood Vessels
- Erythropoiesis
- Leukocytes
- Reticulocytes & Erythrocytes
- Platelets
- Plant Cells

J Methods
- Imaging Technology
- Molecular Biology
- Conditional Transgenesis & Knockout
- Other

For Publication Abstract must be received by September 30th 1996

Do not fold this form

This form must not be used if Abstract is being submitted electronically

Facsimile copies are not acceptable

STANDARD ABSTRACT FORM

PLEASE TYPE WITHIN THE GREY FRAME

Grey lines are printer cut lines; do not type on or outside of these lines. Abstracts will be published as typed

Abstracts must be printed single spaced, using a 12 point font , to include: title of contribution (in capital letters), the names of all authors, (with the presenter underlined) and address(es) of all authors, abbreviated and including post code. The abstract must fit into the box, for camera-ready copy maximum width (12.9cm) and length (10.9cm). You may print your abstract on good quality white bond plain paper provided it conforms to this layout. If typing on plain paper do not draw lines around your abstract.

Presentation preference:

Poster only

Concurrent Symposium or poster

(If not selected for symposium it will be programmed in poster session)

Concurrent Symposium Title

Poster Session Preference

Code letter (see page opposite) _____

Title _____

Mailing address for responsible author:

Name

Address

Phone/Fax or e-mail

From the new BSCB President

Ron Laskey, Wellcome / CRC Institute, Tennis Court Road, Cambridge CB2 1QR

Shortly after taking my present job in 1983, someone asked me the name of my professorship. A little too eagerly, I replied, "It's called the Charles Darwin Chair". He paused for a moment, then said, "Big shoes". Taking over from Martin Raff as president of BSCB feels an equally sobering challenge. Martin has served the Society superbly, providing active and deeply concerned leadership. It's a pleasure to thank him for his efforts.

Under Martin's presidency, the close relationships of the Society with BSDB and the Company of Biologists have thrived. The Society has also become much more active in bringing cell biology to a wider audience, notably through links with school science teachers. These links deserve to be strengthened and developed.

One thing that has become clear to me immediately is the level of energy and expertise of the other officers and committee members. Meetings, newsletters, travel bursaries, funding and new members don't just happen spontaneously. They require a dedicated and sustained effort. The Committee provide it. I'm already grateful, and suspect that over the next few years I'll have cause to be very grateful indeed.

Although the Society's meetings are good, an opportunity arises to make each meeting attractive to a wider range of members, as the Company of Biologists has agreed to support our meetings without requiring publication of a Symposium volume of the *Journal of Cell Science*. Most of you will know that BSCB and BSDB benefit enormously from the proceeds of the Company of Biologists' journals: *Journal of Cell Science, Development, Journal of Experimental Biology* and *Bioessays*. Supporting these journals helps to support the Society. The Committee are exploring the possibility of broadening the topic of future Spring meetings to a wider spread of linked sessions. Obviously, spreading too widely could make each meeting too dilute to appeal to anyone, but a limited and perhaps progressive broadening should make each meeting appeal to a wider and therefore larger audience. One of our aims must be to make our meetings so attractive that more people get into the habit of attending regularly. We welcome all suggestions of how we can achieve this.

We will not hold a spring meeting in 1997 as the European Cell Biology Organisation, ECBO, will be meeting at Brighton on 22-25 March. We have stood down to avoid a clash and we urge you to support this meeting. □

A brief word from your Treasurer

By the time you read this, most of you who have completed direct debit forms will have paid your annual subscription by Direct Debit. However some of the banks are still making several mistakes, in not cancelling previous Standing Order Mandates. Although I have tried to allow for this in the subscription collection, this is a very time consuming exercise. If you are now paying by Direct Debit can I ask you all to check with your banks that the relevant Standing Order has been cancelled, as I have no control over these. Of course, any overpayment will be immediately repaid by your bank, who will then recoup the money from the BSCB. I apologise for the delay in initiating the Direct Debit scheme, but it is now operational. □

If you have something to contribute to the next issue of the BSCB newsletter, send it to: Theo Bloom, Current Biology Ltd., 34–42 Cleveland Street, London WIP 6LB. Fax: 0171 580 8167. E-mail: theo@cursci.co.uk **by 15 October 1996.**

Minutes of the BSCB Annual General Meeting

The AGM was held on Thursday March 28th 1996 at the University of York

Those present were: Ron Laskey, Stuart Kellie, Birgit Lane, Murray Stewart, Theo Bloom, Viki Allan, Simon Hughes, Clare Isacke and 20 further members of the Society.

1. President's Report

The incoming President, Ron Laskey, was chairing his first BSCB AGM. He introduced the Committee to the other members present as many of the other committee members are also new since the last AGM.

2. Secretary's Report

Birgit Lane reported that 170 new membership applications were received this year; they were welcomed to the Society, and their names are listed in this Newsletter. The Committee's proposal to offer **reduced membership rates to schoolteachers** was welcomed.

Three East European Bursaries were awarded to young scientists attending this meeting: Natalia Kreshchenko, Karla Semanova and Danijela Simrak.

David Edgar had reported that **65 Honor Fell Travel Awards were made**: 16 for travel within the UK, 16 for travel in the EU and 33 for travel further afield.

Erich Nigg, Chris Marshall and Sarah Courtneidge had kindly agreed to adjudicate the **Poster Competition for the BSCB Young Cell Biologist of the Year Award.** [In the event, it was Christiana Ruhrberg who was nominated; she will follow last year's winner Judith Sleeman (see article in this Newsletter), and as the 1996 winner will travel to the American Society of Cell Biology's meeting in San Francisco, to present the winning poster.]

Birgit Lane also announced that the Society is offering a **prize for a logo design.** Designs should be submitted to her, and the prize will be awarded for the design adopted for the new run of headed notepaper, which will be printed this year. This Society really needs a good professional logo. The prize will be free registration at the ECBO meeting next spring.

3.Treasurer's Report

Stuart Kellie presented a statement of the Society's finances [see elsewhere in the Newsletter]. Installation of the direct debit scheme for collecting membership subscriptions (in September) is now in place and the first round of subscriptions are on the scheme. Extra secretarial help and new database software had been required, but the system should now quickly begin to increase the income from subscriptions.

There followed a brief discussion about raising sponsorship with the Treasurer stating intentions for a more systematic procedure to be initiated.

4. Meetings Secretary's Report

Murray Stewart expressed thanks to all the organisers for their work in running the current scientific meeting at York, especially Dennis Bray for preliminary work, Susan Murant (BSCB) and John Sparrow (BSDB), IFAB, Sarah Courtneidge and Chris Marshall.

Plans for forthcoming meetings include the following [details are elsewhere in the Newsletter]:

Harden Meeting 20–22.9.96: Molecular mechanisms of motility (Murray Stewart)

Cell Biology of Ageing, Spring 1997, University of

Ulster (Stephen Downes)

Abercrombie Meeting, 28.9–1.10.97 (John Lackie)

Joint Meeting with BSDB, Lancaster, 1–4.4.98

Epithelial Biology, St Catherine's College Oxford, September 1998 (Paul Edwards)

Because **the next meeting of the European Cell Biology Organisation will be held in Brighton next spring** (April), there will be no joint BSCB main meeting in 1997. The next BSCB/BSDB main meeting will be in 1998 in Lancaster. Suggestions from the Meetings Secretary included 'Movements within cells' and 'Cell Biology in Medicine' as topics; broadening the symposia generally; and greater emphasis on posters and poster sessions, for example with six named broad topic headings. As the Society is no longer bound by a requirement from the Company of Biologists to produce a symposium volume, there is more freedom in the meeting structure.

Murray Stewart called for suggestions for further topics for this and other meetings, as well as novel ideas for structuring the meetings. At this point a lively discussion ensued. John Lackie challenged the Society to set its sights higher. He said that unless we were content to be 'a little offshore island', then we must think big in planning our meetings; the topics should be broad for maximum attendance and we should be aiming to fill the international congress centre, not just a university hall of residence [further comments from John Lackie are elsewhere in the Newsletter].

Charles Streuli spoke up for the value of small meetings and their popularity with overseas speakers. Murray Stewart pointed out that small meetings only take 20% of the meetings budget so both large and small meetings could be retained. A discussion then developed on ways to increase attendance at meetings and ways to increase membership. Julian Heath suggested increasing the subscriptions significantly so that people took membership more seriously and felt obliged to come to meetings; a journal subscription could be included (as in the case of the ASCB), but Ron Laskey cautioned against pushing the subscription too far in the UK. On increasing the size of meetings and the general concept of efficiency gains, John Lackie and Murray Stewart were in support of developing links with related societies such as the Biochemical Society; Birgit Lane said this may be facilitated by the planned co-operation between learned societies (see below). Someone suggested that the Newsletter should spell out the benefits of membership clearly — although this may be preaching to the converted.

Criteria for BSCB support of meetings: The Society's intent to support small meetings, where this support would make a real difference to the quality of the meeting, was restated and the following approval criteria were suggested:

- BSCB support should be primarily pump-priming for small/short (1 day?) meetings; it should have a significant impact or facilitating effect on the event (e.g., by providing travel to bring in a key overseas speaker).
- The meeting should be open to all BSCB members, advertised widely (e.g., in the BSCB Newsletter), and should be likely to attract at least 50 people.
- A detailed programme should be supplied with the application, which should be received by 1st March or 1st September (ideally six months in advance) to allow the Committee to consider the application.
- A report of the meeting should be written up for the BSCB Newsletter.

Under exceptional circumstances, applications up to £250 may be approved in between Committee meetings if the application (i) satisfies agreed criteria and (ii) is unanimously agreed by President, Secretary, Treasurer and Meetings Secretary.

Meetings organised by young scientists would be especially encouraged.

5. Publications Report

Theo Bloom encouraged members to send material for the Summer Newsletter. She also reported the interaction between ASE (the Association of Science Education) and BSCB: the Society produced an information leaflet on apoptosis to accompany a talk given by the President Martin Raff at the ASE's annual conference in January. This had been

very successful and the ASE were anxious to do something similar next year.

6. Any other business

Cooperation between Learned Societies: Birgit Lane reported on an attempt to establish cooperation between UK societies involved in cell and molecular biology. There is a perceived need for biological societies to be able to speak with one voice if we are ever to be listened to politically. The microbiological societies have created a structure for this and there is a proposal that **(a)** the cell and molecular biology societies do likewise, and **(b)** that they do so under the umbrella of the Institute of Biology, for sound administrative reasons. The proposals were discussed at length at a meeting of representatives of societies for cell and molecular biology which was held in London on 22nd January 1996. All were in favour, and were asked to canvass their societies at their next meetings and to report back in May. This suggestion was accepted by those present at the AGM. The representatives of cell and molecular biology societies will discuss strategies for action between those in favour at a meeting in May.

There was no further business.

Dear Dr. Lane!

I should like to bring you many thanks for your support of my participation in the York Conference. It was a very useful travel for me. I had a possibility to meet many scientists and to contact some of them and also to see for the first time your splendid country. Thank you!

My best wishes. Sincerely

Natalia Kreshchenko."

Treasurer's report

The British Society for Cell Biology
Statement of Financial activities for the year ended 31 December 1995

		1995		1994
Income	£	£	£	£
Subscriptions		15,351		12,187
Mailing list		2,584		2,323
Interest		1,939		1,817
Advertisements and fliers		1,902		330
Sponsored lectures		2,000		2,400
Capitation grant (Company of Biologists		13,229		13,496
Meetings grant (Company of Biologists)		12,425		12,008
Donations (Company of Biologists)		–		320
Meetings returns		526		18,212
Other income		–		611
		49,956		**63,704**
Less: Expenses				
Direct Charitable				
Meetings	22,039		20,725	
Newsletter	8,412		8,052	
Membership Handbook	–		–	
Honor Fell Travel Awards	13,370		14,090	
	44,181		42,867	
Administration & Other Expenses				
Secretarial	2,293		651	
Committee expenses	679		455	
Subscriptions	3,217		1,525	
Postage & stationery	261		983	
Fax and telephone	90		36	
Bank charges	251		298	
Accountancy and Audit	276		258	
Miscellaneous	2,203		1,179	
	9,270		5,385	
Total Expenses		**53,541**		**48,252**
Surplus/ (Deficit) for the Year		**(3,495)**		**15,452**

The British Society for Cell Biology
Balance sheet as at 31 December 1995

	1995 £	1994 £
Current Assets		
Amounts Receivable	–	6,306
National Savings Bank Investment Account	30,436	28,713
Abbey National Five Star Account	5,254	5,037
Midland Bank Current Account	10,110	9,221
	45,800	49,277
Less: Current Liabilities		
Creditors and Accruals	276	258
Net Assets	**45,524**	**49,019**
Financed by:		
Accumulated Fund brought forward	49,019	33,567
Surplus (deficit) for the year	(3,495)	15,452
	45,524	49,019

Approved: S. Kellie, Trustee
E.B. Lane, Trustee.

Here are the audited accounts of the BSCB for 1995.

As can be seen, the BSCB made a slight loss of about £3,500 on a turnover of nearly £50,000. This was not serious, and can be explained by a drop in the meetings returns. Administrative expenses increased over the previous year, due mainly to increased subscriptions to ECBO, increased secretarial costs for setting up Direct Debiting, and a one-off payment for Direct Debiting software. Subscription returns increased, again due mainly to the initiation of Direct Debiting. Apart from meetings, the main expenses for 1995 were the Honor Fell travel awards (£14,000 for 65 awards) and the Newsletter (£8,000), however the Newsletter generated nearly £2000 in advertising, which offset its expense somewhat. As always, the BSCB is grateful to the Company of Biologists, which donated over £25,000 in a combination of capitation and meetings grants. We are also grateful to Yamanouchi UK and Garland Publishing for sponsorship of plenary lectures at our annual Spring meeting.

Stuart Kellie, BSCB Treasurer.

Independent examiner's report to the Trustees of the British Society for Cell Biology on the financial statements for the year ended 31 December 1995.

We have carried out an independent examination of the financial statements set out on pages 2 and 3 under Section 43 Charities Act 1993. We confirm that the financial statements are in accordance with the books and records supplied to us, and that no matters have come to our attention giving us reasonable cause to believe that in any material respect proper accounting records have not been kept, or that the accounts are not in accordance with the records, or that they do not comply with accounting regulations.

We further confirm that no matter has come to our attention to which, in our opinion, attention needs to be drawn in order to obtain a proper understanding of the accounts.

David Cooke MA (Oxon) ACA
David Cooke and Co.
Chartered Accountants
6 Seacourt Road, Botley,
Oxford OX2 9LD 24 April 1996

Thanks

From the Meetings Secretary,
Murray Stewart

The success of BSCB meetings and especially the annual meeting is a direct result of the incredible effort put in by the organisers and also the generosity of our sponsors. It is a pleasure to record the BSCB's thanks to all those who contributed so significantly to the success of the 1996 meeting at York.

Organisers

A hearty thank you to Chris Marshall and Richard Durbin who organised the scientific programme of the York meeting. Chris constructed a wonderfully comprehensive 2fi days of intensive cell signalling in which a remarkable range of signalling systems and their components were analysed in exquisite detail. Chris was able to integrate contributions from an incredibly diverse field and provide information on the structure of the components, the pathways involved and their significance in cell and developmental biology. Richard brought together a one-day workshop on reading the genome that gave a fascinating insight into the problems inherent in assembling and analysing genome data and the various strategies that are being developed to enable Cell Biologists to analyse the wealth of data now available.

The practical organisation of the meeting was undertaken by the local organisers, John Sparrow and Susan Murant who, together with Julian White and Therese Zioupos of IFAB Communications produced a remarkably smooth and efficient conference.

Sponsors

We are deeply indebted to those far-sighted and benevolent organisations that provided such important financial support for the Spring Meeting. Without their help we could not possibly have organised such an impressive array of speakers nor have provided such much-needed support for young Cell Biologists to attend. It is a pleasure to acknowledge the help they have given BSCB with a brief description of the sponsors and what they do.

Company of Biologists

Our principal sponsor is the Company of Biologists, which is a non-profit organisation whose aims are the general advancement and promotion of research and the study of biology in all its branches. The Company is run by a number of trustee directors, all of whom are active professional biologists and who, as trustees, are unpaid for their services. The Company of Biologists owns and publishes several of the leading journals in the field including the *Journal of Cell Science*, *Development* and *Bioessays*. The Company gives substantial annual grants to BSCB and two other societies. We are extremely grateful for this support which enables us to maintain the high standard of the society and especially to organise our annual Spring meetings with such a wide variety of invited speakers from overseas. Without the support of the Company of Biologists we would not be able to hold such exciting and successful meetings nor be able to provide such a large number of Honor Fell bursaries to support student travel.

The Company of Biologists Ltd., Bidder Building, 140 Cowley Rd., Cambridge CB4 4DL.

Annual lectureships

A number of sponsors make a substantial donation to provide for an annual lectureship. Each of these generous sponsors enables us to bring an outstanding international scientist to speak at our Spring Meeting each year.

The Yamanouchi Lecture

This year the Yamanouchi Lecture was delivered on the structure and molecular interactions of the Ras family of GTPases by Dr Alfred Wittinghofer of the Max-Planck-Institute of Molecular Physiology at Dortmund. Yamanouchi Pharmaceuticals Company is one of Japan's most prolific sources of new drugs. Their recently-established research laboratory in Oxford is dedicated to medium to long-term research goals in Cell Biology and is the first

facility of its kind established by a Japanese company in Europe. The endowment of this lectureship is further evidence of the continuing commitment of this forward-looking company to basic biomedical research.

Yamanouchi Research Institute, Littlemore Hospital, Oxford OX4 4XN.

The Gavin Borden Lecture

The Gavin Borden Lecture this year was presented by Dr Phil Cohen of the University of Dundee who gave a wonderfully comprehensive account of the battery of interacting kinases and phosphatases that are involved in transducing signals from the cell membrane to the nucleus.

The Gavin Borden Lectureship was endowed by the authors of the textbook *Molecular Biology of the Cell* together with Garland Publishing Company, New York, in memory of Gavin Borden who died in December 1991. In this way it is hoped to keep alive the memory of an innovative publisher whose commitment to authors, judgement of quality, charm and intelligence, brought new flavour to the dry world of scientific book production.

Garland Publishing Inc., Middlesex House, 34-42 Cleveland St., London W1P 5PB.

Please let us know of any changes of address

Please complete the form below and send it to:

M.V. Clements, British Society for Cell Biology,
Department of Zoology, Cambridge University,
Downing Street, Cambridge CB2 3EJ, UK.
e-mail: zoo-jeb01@lists.cam.ac.uk

Name: ..... Sex: .....

Position: .....

Academic qualifications: .....

Tel: ..... Fax: ..... E-mail: .....

Work address: .....

.....

..... Postcode: .....

Research interests (five keywords): .....

.....

Membership of other scientific societies: .....

.....

New BSCB members since April 1995

Abedi, H.
Adams, J.
Alavi, A.L.
Alford, D.J.
Alsford, S.
Apperly, J.A.
Baillie, Dr. R.
Barker, Dr S.
Barnard, R.J.O.
Barnett, Dr Y.
Barwise, J.L.
Bateman, J.M.
Betteridge, Dr. A.
Bezbaruah, S.
Birkett, Dr. C.R.
Blagden, C.S.
Blissett, M.J.
Brook, M.
Brown, M.
Brunner, Dr. G.
Budd, S.L.
Bunney, T.D.
Burdon, Dr. T.
Butler, L.
Cammas, F.
Campbell, L.
Carter, D.
Cartwright, Dr. T.
Caufrier, F.
Chamberlain, L.
Charlton, M.A.
Cheetham, Dr. J.
Church, Dr. H.J.
Clark, K.
Clarkson, W.D.
Cole, E.G.
Coles, L.C.
Collett, G.
Connolly, Dr C.N.
Coppen, Dr. S.R.
Corden, L.D.
Corrigan, Dr A.H.
Couet, C.
Crisp, M.
Croft, J.A
Dabbagh, K.
Dahm, R.
Deng, W-M.
Dodsworth, J.
Doonan, Dr. J.
Drummond, S.P.
Dupont, Dr. E.
Durand, Dr. B.
Ellis, D.
Ellison, Dr. D.
Evans, A.
Farrell, F.J.O.
Farrington, C.
Fletcher, L.
French, Dr. W.
Fruttiger, Dr M.A.
Gao, Dr. F.B.
Gibbons, A.
Gill, J.H.
Goberdhan, D.C.I.
Goode, Dr. N.T.
Grant, P.
Gregory, K.
Grose, R.
Gunby, R.
Hanley, J.G.
Harris, F.
Hawcroft, G.
Hawkins, T.E.
Hertz, C.
Hicks, M.S.
Hoare, Dr. S.M.
Hughes, R.G.
Hyde-Dunn, J.
Insall, Dr R.
Jackson, Dr. C.S.
James, M.
Jones, S.A.
Jordan, G.
Kapas, S.
Kearsey, J.M.
Kiernan, L.
Kim, Dongsoo
Knight, B.
La Thangue, Prof. N.
Laird, L.S.
Lancelott, M
Lax, Dr. A.J.
Lee, K.
Leigh, Professor I.
Liu, H.X.
Luckcuck, T.
Machesky, Dr. L.M.
May, W.
McCallion, Dr. R.
McDonald, B.J.
Mcleod, L.E.
McMichael-Phillips, Dr. D.
McNamee, C.J.
McNeilly, C.M.
Messent, A.J.
Moss, Dr. S.E.
Munro, Dr. S.
Murray, J.T.C.
Murrell, Dr. A.M.
Neild, Dr H.
Newell, Dr. J.
Nichol, R.
Nicholls, S.E.
Nikbakht, N.
Oberhammer, Dr F.
Ohlendieck, Dr K.
Pabbathi, V.K.
Parkinson, Dr. D.
Patel, V.
Pennington, J.
Phillips, G.W.
Phimister, Dr. B.
Pignatelli, Dr. M.
Pinxteren, Dr. J.A.M.
Pitt, C.W.
Politopoulou, G.
Porter, Dr. R.
Prinjha, Dr R.K.
Pritchard, J.
Quinn, Dr. C.M.
Rashid-Doubell, Dr F.
Rees, E.
Reid, P.J.
Rennie, K.J.
Richards, Dr E.H.
Ridley, Dr. A.
Robertson, A.M.
Robinson, E.A.
Romanowski, P.
Ross, W.
Sahota, V.K.
Shah, B.
Sillence, Dr. D.
Smith, N.A.
Spanswick, C.
Spiers, Dr. S.
Staddon, Dr. J.
Stanton, H.
Stevenson, R.
Stoneley, M.
Taylor, P.
Taylor, S.T.
Thrasivoulou, C.
Tuxworth, R.
Varro, Dr. A.
Vaux, Dr. D.
Vedoya, X.
Vinall, R.
Walker, L.
Wallace, Dr. V.
Wasmeier, C.
Watson, Dr S.
Watson, R.E.B.
Weinkove, D.
Wilson, R.
Wilton, Dr. J.C
Wise, C.
Xue, Dr. L.
Zhang, L.
Zhu, A.J.

Logo competition

Please help us to design a logo for the BSCB. The designer of the chosen logo will win a prize — free registration for the ECBO meeting in Brighton, March 1997.

Send your design to the Secretary, Birgit Lane, at the address on page 2.

Honor Fell travel awards

Awards are made, up to a limit of £200, to provide financial support for young BSCB members to attend meetings. The following rules usually apply (at the discretion of the Committee):

- Awards are not normally made to applicants aged over 35
- Applicants must have been BSCB members for at least a year.
- No applicant will receive more than one award per year or 3 *in toto*.
- Applications are considered for any meetings relevant to cell biology

Applications (including a copy of the meeting registration form) should be sent to David Edgar (address on page 2) using a copy of the form below.

Application for an Honor Fell travel award

Name: ..... Age: .....

Work address: .....

.....

..... Postcode: .....

Degrees (with dates): .....

Present position (graduate students give start year of PhD): .....

.....

Date of joining BSCB: .....

Record the years of previous Honor Fell awards (if any): .....

Key publications (2) or research interests: .....

.....

.....

Meeting for which application is made (Title, place, date): .....

.....

Are you giving an invited/contributed poster/talk?: YES ☐ NO ☐ (please tick box)

If yes, give title: .....

Estimated expenses: Travel: ..... Subsistence: .....

Registration: ..... Other: .....

Have you submitted any other applications for financial support?: YES ☐ NO ☐

If yes, please give details: .....

Number of meetings attended last year: .....

Supporting statement by Head of Department:

The applicant requires these funds and is worthy of support

Name: ..... Signature: .....

Applicant's signature: ..... Date: .....

Application to join the BSCB

Please complete and return the form to:
Birgit Lane, BSCB Secretary CRC Laboratories, Department of Anatomy and Physiology, University of Dundee, Dundee DH1 4HN.

Name: ..... Sex: .....

Position: .....

Academic qualifications: .....

Tel: ..... Fax:..... E-mail: .....

Work address: .....

.....

..... Postcode: .....

Research interests (5 keywords): .....

.....

Membership of other scientific societies: .....

.....

BSCB member proposers (names and signatures):

1) .....

2) .....

Applicants without proposers should enclose a brief *curriculum vitae.*

Applicant's signature: ..... Date: .....

The Society does not employ professional administrators, so payment by **DIRECT DEBIT** would be appreciated (**please photocopy and fill in the form on the next page**). For overseas members, or those for whom this is not possible, a cheque in pounds sterling should be sent to the Secretary. Members will be responsible for renewals without reminders.

A form instructing your bank to pay your BSCB membership fees by **direct debit**, can be found on the next page. **Existing members:** if you have not already completed one, please do so, and send it to the Treasurer, Stuart Kellie (address on page 2), as soon as possible.

Instructions to your bank/building society to pay direct debits

DIRECT Debit

Please complete parts 1 to 6 to instruct your branch to make payments directly from your account. Then return the form to:

BRITISH SOCIETY FOR CELL BIOLOGY, C/O DR STUART KELLIE, YAMANOUCHI RESEARCH INSTITUTE, LITTLEMORE HOSPITAL, OXFORD OX4 4XN.

To The Manager,

Originator's identification number 9 4 1 4 5 1

1. Please write the full postal address of your branch in the box above.

2. Name of account holder

.....

3. Account number

4. Sort code

Banks/Building Societies may refuse to accept instructions to pay direct debits from some types of account.

5. Originator's reference number (for office use only) **BRITSO**

6. Instructions to the Bank or Building Society

Please pay the British Society for Cell Biology Direct Debits from the account detailed on this Instruction subject to the safeguards assured by the Direct Debit Guarantee.

Signature .....

Date .....

Standing order cancellation

Please cancel any standing order payable to the British Society for Cell Biology WITH IMMEDIATE EFFECT.

Name of Bank/Building Society

Account Number

Customer's Account Name

Branch Sort Code

Signature .....

Date .....

The Direct Debit guarantee

- This guarantee is offered by all Banks and Building Societies that take part in the Direct Debit scheme. The efficiency and security of the scheme is monitored and protected by your own Bank or Building Society.
- If the amounts to be paid or the payment dates change you will be told of this in advance by at least 14 days.
- If an error is made by the BSCB or by your Bank/Building Society, you are guaranteed a full and immediate refund from your branch of the amount paid.
- You can cancel a Direct Debit at any time, by writing to your Bank or Building Society. Please also send a copy of the letter to the BSCB.

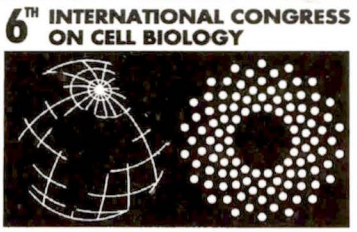
Membership fees for 1996

£20.00	**for regular membership paid by DIRECT DEBIT**
£25.00	**for membership paid by cheque**
£8.00	**for student membership paid by DIRECT DEBIT** for those paid the equivalent of a postgraduate student grant
£12.00	**for student membership paid by cheque**

Discount on journal subscriptions

BSCB members can receive the following journals at discounted subscription rates:

	Full rate £	Members rate £
Current Opinion in Cell Biology	85.00	68.00
Current Biology	75.00	38.00
Bioessays	70.00	60.00
Journal of Experimental Biology	105.00	99.00
Journal of Cell Science	105.00	99.00
Development	140.00	130.00



6th International Congress on Cell Biology & 36th American Society for Cell Biology Annual Meeting

December 7-11, 1996
San Francisco

Program Information

OPENING ADDRESS

In Praise of Reductionist, Adaptationist, Progressivist, Gradualist Neo-Darwinism, *Richard Dawkins*

PLENARY SYMPOSIA

Regulation of Cell Division & Genomic Instability, *M. Kirschner, S. Elledge, P. Nurse, and T. Tlsty*

Cytoskeleton & Disease, *D. Louvard, D. Cleveland, and J. Seidman*

Chromatin Structure & Gene Expression, *G. Hager, S. Gasser, M. Grunstein, and D. Spector*

Phosphorylation & Dephosphorylation in Regulatory Pathways, *J. Brugge, A. Pawson, T. Taniguchi, and N. Tonks*

Adhesion & Signalling, *Z. Werb, P. Sternberg, S. Tsukita, and F. Watt*

Vesicular Traffic & Organelle Assembly, *J. Rothman, G. Schatz, M. Zerial, and V. Malhotra*

Protein Glycosylation in Sorting & Trafficking, *P. Stanley, A. Helenius, K. Simons, and A. Varki*

Mater Genes & Early Development, *W. Gehring, R. Beddington, E. Meyerowitz, and E. Olson*

Regulation of Cell Death, *G. Evan, S. Nagata, C. Thompson, and E. White*

CONCURRENT SYMPOSIA

Sunday, December 8

Genetic Approaches to Human Disease, *K. Davies, H. Zoghbi, J. Friedman, Y. Shiloh, and R. Tanzi*

Small G Proteins and Trafficking, *Y. Goda, S. Pfeffer, and J.E. Gerst*

The Cytoskeleton and Its Associated Proteins, *A. Ephrussi, E. Wieschaus, B. Gumbiner, M. Pfeifer, and P. Polakis*

Nuclear Architecture & Higher Order Controls of Gene Transcription, *W. Brinkley, J. Lawrence, B. Emerson, and T. Kowhi-Shigematsu*

Senescence, *J. Campisi, O. Pereira-Smith, L. Guarente, M. Jazwinski, and W. Wright*

Methylation and Imprinting in Mammalian Cells, *W. Doerfler, R. Jaenisch, and T. Bestor*

Monday, December 9

Extracellular Matrix: Regulation and Cell Behavior, *R. Chiquet-Ehrismann, E. Ruoslahti, D.M. Bissell, A. Kornblihtt, and B. Olsen*

Endocytosis, *I. Mellman, M. Robinson, E. Rodriguez-Boulan, K. Sandvig, and S. Schmid*

Molecular Studies of Neuron Target Interactions, *S. McConnell, J. Sanes, C. Bargmann, J. Raper, and F. Walsh*

Structural Biology of Membrane Pumps, Channels, and Receptors, *R. Glaeser, H. Saibil, and W. Kuhlbrandt*

Telomeres and Telomerases, *E. Blackburn, T. de Lange, H. Hiraoka, D. Shippen, and V. Zakian*

Developmental Biology of Gene Expression, *L. Shapiro, J. Smith, J. Rossant, and C. Wylie*

Tuesday, December 10

The RNA World, *H. Blau, C. Guthrie, J. Joyce, R. Lehman, and R. Klausner*

Cell Biology of Infectious Diseases, *S. Falkow, R. Nussenzweig, B. Finlay, P. Sansonetti, and J. Theriot*

Heat Shock and Chaperones, *S. Lindquist, H. Nelson, C. Georgopoulos, and A. Horwich*

Cellular Shape & Function, *M. Driscoll, D. Ingber, S. Farmer, and P. Gunning*

Adhesion Receptors, *M. Hemler, D. Wagner, R. Assoian, E. Dejana, and M. Schwartz*

Caveolae and GPI-Anchored Membrane Proteins, *R. Anderson, D. Brown, M. Lisanti, and R. Parton*

Wednesday, December 11

Molecular Mechanisms in Epithelial-Mesenchymal Interactions, *C. Birchmeier, S. Artavanis-Tsakonas, I. Thesleff, P. Ekblom, and M. Keddinger*

Signals to and from the Endoplasmic Reticulum, *M.-J. Gething, P. Walter, N. Borgese,* and *P. Cosson*

Proteolysis and Biological Control, *K. Anderson, A. Varshavsky, A. Ciechanover, S. Coughlin, and J. White*

Growth Inhibition Signalling, *C. Prives, J. Wang, R. Derynck, and A. Horwitz*

Cell-Cell Interactions and Junctions, *K. Miller, M. Takeichi, R. Moon, and J. Nelson*

Silencing, *J. Bender, D. Gottschling, J. Rine, S. Johnson, and E. Selker*

J. Michael Bishop, 6th International Congress & ASCB President

Contact the ASCB, 9650 Rockville Pike, Bethesda, MD 20814
301-530-7153 (tel), 301-530-7139 (fax), congress@ascb.faseb.org, or http://www.faseb.org/ascb

Advanced Ergonomy and Accessibility

DAS Mikroskop LEITZ DM IRB/E is an inverted research microscope that will impress even the perfectionist. Accessibility is excellent, even when several different peripherals are adapted simultaneously. **So you can fully use all the accessories you need without sacrificing operational convenience.**

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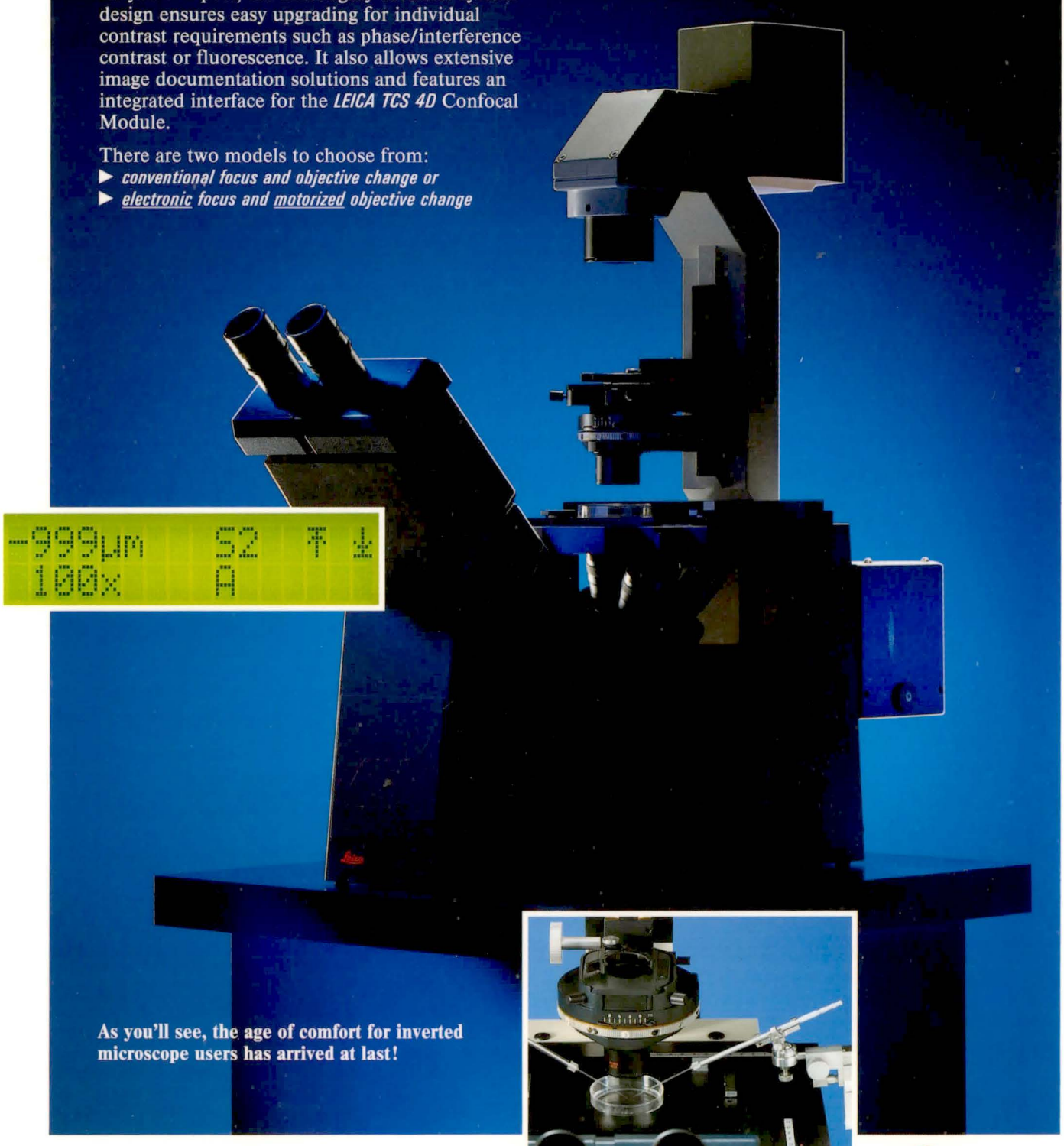
There are two models to choose from:

- ***conventional focus and objective change or***
- ***electronic focus and motorized objective change***



As you'll see, the age of comfort for inverted microscope users has arrived at last!

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