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THE PHYCOLOGIST

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April 2000

The Newsletter of the British Phycological Society

Home page: http://www.brphycsoc.org/

Editor:
Bruce Osborne

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Editorial

Like all good phycological societies, the British Phycological Society's main purpose is the support of all areas of phycology and the active encouragement of new pursuits and ventures in phycology. In turn, it also has an important role in supporting the interests of its members, whether they are professional phycologists or amateurs, irrespective of whether their interests are in classical taxonomy, physiology, biochemistry, ecology or molecular biology. Even a casual glance through a few issues of the societies' flagship journal, *The European Journal of Phycology*, or the attendance at one of the annual winter meetings, will give a fair indication of the considerable breadth and diversity of members interests. I believe that it is this expansiveness, combined with diversity, that is one of the major strengths of the society. Over the years, however, the emphasis may change. Although we appear to be in a molecular era, you would have been lucky to find a paper on this topic in the last issues of the *British Phycological Journal*, the forerunner of the present European Journal, and that's not so long ago. In recent years there has been somewhat of a renaissance in the ecological area, which might not have been predicted after the apparent demise of the environmental lobby and the reduction in funding for ecological research in the 1980's. Even where the interests have remained the same the availability of new equipment or resources has led to the use of techniques or approaches that were largely unforeseen in the past. Unfortunately, we also loose some members and some approaches become unfashionable. Clearly, the personalities change and their interests too. It is important, therefore, that the society takes a proactive role in keeping abreast of these changes.

The British Phycological Society is a Registered Charity, No. 246707 and The Phycologist is a Registered Publication, ISSN 0965-5301

One of the consequences of the changes that have occurred over recent years is that our membership records need to be revised. We are, therefore, attempting to update our database to provide a more accurate record of the membership, as well as an improved reflection of members' interests. Importantly, this will also give us a more detailed picture of the expertise that exists within the society and give us the potential to deal with more of the society's business electronically. Please fill in clearly the separate green form, which asks for some basic details regarding your membership. Completing this should only take a few minutes, making sure that you add the key words requested in the relevant box, indicating your main interests and, please, don't forget your e-mail address! I would also encourage all existing members to use this

HISTORICAL CORNER

The Pioneers of Diving and the Transient Delights of Screaming Teeth

If you are not the slightest bit interested in diving or the exploration of the underwater world, there is a new book especially for you. It is called *Stars Beneath the Sea**

The 'stars' are thirteen gifted eccentrics who pioneered the development of diving for underwater research. They were all brave, brilliant and, for the most part, balmy. Their diving exploits are merely the theme that weaves their stories together, for their lives were so extraordinary, they would have been worth retelling even if they had never dipped a toe in the sea.

It is their versatility that is so astonishing. Louis Boutan, for example, invented underwater photography in 1892, but he was also the first to link the larvae of many invertebrates to the entirely dissimilar adults that they would eventually become, saved the Australian wine industry from a pest that had wiped out half the vines in France, developed the cultured pearl and was the inspiration for Professor Arronax in Jules Verne's *20,000 Leagues Under the Sea.*

Not all of them were divers, some, like the Haldanes, researched the physiological effects of pressure. Haldane senior discovered that it was the accumulation of carbon dioxide in the lungs and blood that governs breathing. His work on asphyxiation and explosions in mines saved thousands of lives, and his investigations into the 'bends', which habitually maimed and killed divers, saved thousands more. He also found time to ensure that the London Underground was electrified, and to parley with Admiral Tirpitz in an attempt to retard German rearmament prior to the Great War. Yet he never forgot to take his family off on holiday to Cornwall - so that he could study hookworm in tin miners.

Both father and son experimented on themselves, for "rabbits made little serious attempt to co-operate" and required "a license signed in triplicate by two archbishops". In an attempt to change the pH of his blood, son Jack (J.B.S. Haldane) swallowed hydrochloric acid - although never more than a pint at a time, as it a had a tendency to dissolve his teeth. When found apparently 'drunk' on the stairs he apologised for being "only 80% sodium haldanate at the present moment."

His experiments on the effects of pressure were conducted from within the 'comfort' of a pressurised steel chamber, or the 'Chamber of Horrors' as it was affectionately known. It contained a seven-feet deep well so that the subject, wearing only slacks and shirt, could lie in a bath of ice cubes to 'simulate' hypothermia. When he rapidly decompressed in the chamber (with pressure changes equivalent to diving in air at over twice the speed of sound), air came screaming out of a cavity in one of his teeth - which he admitted was quite disconcerting until, fortunately, it exploded. He also claimed

the world record for $1^{1}/_{2}$ hours continous face spasm. Every experiment ended with someone unconcious, bleeding or paralysed, but then the Haldane family motto was 'Suffer'.

The Haldanes believed that the chief aim of science should be to improve the welfare of the working man. Something we seem to have lost sight of in recent times.

The Haldanes were not lone exponents of scientific self-abuse; others, such as Cameron Wright, investigated the effects of underwater explosions on the human body by donning a diving suit and hanging in mid water while charges of TNT were set off closer & closer. While recovering in hospital, he calculated that his shattering accident was a fluke and that if only he had been dangling at a different depth he would have been all right. As soon as he was discharged, he redangled and proved that he was correct.

When the Admiralty wondered what was the maximum depth from which it was possible to escape from a disabled submarine, without the aid of breathing apparatus, the necessary experiments were considered far too dangerous, so Wright waited until his boss went away on holiday and did them anyhow.

He was a skilled veterinary surgeon and, in his spare time, manufactured a wax prosthesis for a dog with a cauliflower ear and a second testicle for an underpriviledged bull, as well as inventing a microwave cooker and testing the bouncing bomb for the Dam Busters.

The book charts our changing attitudes towards the sea. The early naturalists thought nothing of attacking a coral reef with a crow bar to attract fish for study. Museum curators stole entire reefs to reassemble them back in their institutions. But gradually they found more worthy adventures: spearfishermen took to photography, reef-wreckers became conservationists and looters of wrecks turned into archaeologists.

There is enough magic and mystery beneath the waves to tempt the least aquatic underwater. Many mysteries remain, but if you have ever wondered how to steer a giant rubber octopus, or blow smoke rings through your ears, or how to save soldiers from being gassed using only Aldous Huxley's scarf, then perhaps you should be gazing at the stars beneath the sea.

Trevor Norton

* *Stars Beneath the Sea* is published by Century (ISBN 0 7126 8072 1).

This article is based on an evening talk given to participants of the British Phycological Society Winter Meeting held at the University of Birmingham.

Some reviews of Trevor Norton's book:

"A quirky history that tells of the development of diving through the eccentric experiments of some truly mad individuals. Treats in store include exploding teeth, giant rubber octopuses, fishing with dynamite, a mantrap disguised as a lavatory, and a man who wore a bucket on his head. I loved it."

The Bookseller

"Norton delights infectiously in the sheer courage and ingenuity that led his pioneers to an understanding of the deep sea . . . and writes with wit and a fine eye for poetry in the scientific work . . . His narrative is by turns funny and gripping."

The Guardian

"Surely with diving you have to do it, not read about it. But Trevor Norton has shown that a gifted writer is an alchemist . . . His agile prose is burnished with humour, and he has the natural storyteller's eye for detail. Teeny facts gleam and pass like shoals of tropical fish."

Daily Telegraph

☆ **SPECIAL OFFER** ☆

To receive a copy of this book, at a special reduced price, see the enclosed leaflet.

☆ ☆

TOXIN ANALYSIS AND TOXICITY ASSESSMENT OF ARCHIVED CYANOBACTERIAL BLOOM SAMPLES

Historical records of the toxicity of cyanobacterial blooms are available, but sparse (1, 2). The reasons for the paucity of historical records are due to several factors. There was a lack of awareness of the health hazards presented by cyanobacterial mass populations (blooms scums and mats) and the signs of cyanobacterial poisonings. Investigative and reporting protocols for suspected cyanobacterial poisonings were often incomplete, and adequate and widely available toxicity assessment and toxin analysis methods were not available. Finally, there were a limited number of proactive environmental sampling and cyanobacterial toxin analysis programmes before the 1980's.

However, a high incidence of toxins has been detected in environmental samples and laboratory cultures of planktonic and benthic cyanobacteria in recent years. For example, large-scale surveys of gas-vacuolate populations in several countries have shown 42-90% of those analysed from freshwaters to be toxic (2). This high incidence has been used in the formation of the 'precautionary principle' that a cyanobacterial bloom, scum or mat should be assumed to be toxic, unless analysed and found otherwise (2). This assumption is being adopted in the planning and implementation of water quality policies for health protection and eutrophication management.

Investigations in our laboratory into the persistence and fate of cyanobacterial toxins indicate that the analysis of archived material for toxin production is feasible, depending on the conditions under which the samples have been preserved and stored. However, the addition of Lugol's Iodone (to about 1% v/v final concentration) to environmental samples of hepatotoxic cyanobacterial samples and to purified toxins (microcystins) results in the breakdown of the toxins within a few minutes. These observations unfortunately preclude the chances of microcystin detection in cyanobacterial samples which have been preserved by the universally-popular Lugol's Iodine reagent. Good recoveries of toxins are, however, being obtained from samples of cyanobacteria which have been stored in the dark under the following conditions:

(A) wet samples frozen and stored at -20°C
(B) freeze-dried samples stored at –20°C
(C) freeze-dried samples stored at room temperature

Whilst our own further investigations into the persistence of the toxins will be (literally) limited by time, we would be pleased to carry out toxin analyses and the toxicity assessment of archived samples containing cyanobacteria which colleagues may have stored during the course of their own investigations. A few milligrams (dried weight) of material stored under any of the conditions indicated above (A, B or C) would be necessary.

Such investigations into the toxin content and toxicity of archived material may contribute to a more complete characterisation of cyanobacterial samples, presumably collected and stored for other reasons. The results obtained from these analyses may also contribute to our understanding of cyanobacterial toxin production and the historical record.

1 Codd, G. A. and Beattie, K. A. (1991). *Public Health laboratory Digest* 8, 82-86.

2 Codd, G. A., Ward, C. J., Beattie, K. A. and Bell, S. G. (1999). In *The Phototrophic Prokaryotes*, pp. 623-632. G. A. Peschek, W. Loeffelhardt and G. Schmetterer (eds), Kluwer/Plenum, New York.

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THE BRITISH PHYCOLOGICAL SOCIETY WINTER MEETING

University of Birmingham, 5- 8 January 2000

A total of 117 people registered for the first BPS winter meeting of the new millennium, held at Birmingham University. Accommodation was in Chamberlain Hall and scientific sessions were held in the Arts Building on the University campus.

The meeting opened with a general poster session, with refreshments, on Wednesday evening. On Thursday two special topics *'Algae and the Water Industry'* and *'Restoration, Rehabilitation and Bioremediation'*, both organised by **Barry Leadbeater**, were combined to provide a cross section of presentations from colleagues working in various government agencies, in private industry and in the universities. The Environment Agency was well represented and provided their latest views on management strategies for eutrophication in England and Wales. This was followed by specific examples of studies on Bittell reservoir and Hickling Broad, where trial strategies had been applied.

Water storage in reservoirs often presents problems with algae and some local examples were given where various types of management had been undertaken. Near Nottingham, a combination of water movement, aeration and the use of reed beds and straw were being tested in relation to maintaining water quality. In Warwickshire, chemical stripping of phosphorus had been undertaken with beneficial affects.

Application of macroalgae for the removal of nutrients and industrial waste substances was described. From Queen's University, Belfast, two examples were given where seaweeds were being tested for the removal of inorganic nitrogen and phosphorus and for the removal of heavy metals. The session was brought to a conclusion with some recent work that had been carried out on Windermere and with a discussion of the Environment Agency's algal modelling programme.

Thursday evening was a star event when **Trevor Norton** gave a spirited account of the subject of his recent book *'Stars Beneath the Sea'*, which documents the pioneer divers and scientists who took great risks with themselves to test underwater equipment. His talk particularly focussed on J.B.S. Haldane whose experiments on himself appeared to indicate a death wish but, nevertheless, he survived to tell the tale. Waterstones generously provided a wine reception and the evening closed with the annual auction. Particular attractions at this year's auction included some specially commissioned silver jewellery (pendants and earrings) in the form of phytoplankton, and a set of drawings donated by Professor Fogg.

On Friday, there were a number of contributed papers, mostly associated with photosynthesis, carbon acquisition and primary production. This year's Founders' lecture was given by **Mike Guiry**, from University College Galway, who spoke about *'Terrestrial green algae in Galway city; dogs, humans and weather'*. This was a light-hearted, absorbing and informative story of what happens in the Emerald Isle. It seems that the emerald part of the isle has more to do with dogs than with rain!

Saturday morning consisted of two parallel sessions, one being a special topic on calcification organised by **Bruce Osborne**. This contained some particularly varied, interesting and well-delivered papers and was notable for a number of enthusiastic exchanges, with several comments and interjections from the audience, which certainly livened up the entertainment on a Saturday morning! The other session contained a number of student presentations, all competing for the Manton Prize. The competition was stiff but in the end **Jacqueline Wong**, a student from Hong Kong, but studying for a PhD in Birmingham, won the accolade. The poster prize went to **Mark Clegg**.

My last recollection of the meeting was seeing Brian Moss hurrying away across the campus to University station to prepare for next year's gathering in Liverpool.

Barry Leadbeater

Barry, together with his team of helpers, should be thanked for all their efforts in running and organising the meeting, whilst also arranging two of the special sessions.

The auction netted approximately £600, with the sterling silver 'algal jewelry' a big hit! Again, we should thank **Elliot Shubert**, in particular, as well as **John Berges** and the rest of the team, for making this a regularly successful event. But, as always, the continued success of this event depends on the donations of members, so start thinking now about next year.

At the meeting 15 student travel awards, totalling over £2,000 were given out but, be warned, the procedures for this year will be different. Applications must now be received in advance of the meeting and sent to the Algal Affairs committee, c/o Brian Moss. Further details, together with an application form, will be included in issue 56 of *The Phycologist*.

MANTON PRIZEWINNER

Jacqueline Po Kam WONG

School of Biosciences,
University of Birmingham

Title of Paper: Maintenance of Water Quality in Secondary Storage Lakes

Jackie Wong is a native Chinese from Hong Kong. In 1995 she obtained a BSc (Hons) degree in Applied Biology from Hong Kong Baptist University. During the course of her undergraduate study she worked with Professor Ming-Hung Wong on a 12-month honours project on the rehabilitation and revegetation of coal-ash lagoons, using the legume species *Acacia auriculiformis* & *Leucaena leucocephala*. In 1995, Jackie began her M.Phil. research into the heavy metal resistance of microalgae in electroplating wastewater at Hong Kong University of Science and Technology under the supervision of Professor Yuk-Shan Wong. A year later in 1996, she received a 'Best Presenter Award' in a Joint University Biology Symposium. The award of a DuPont Ltd scholarship followed this for her research interests on environmental protection issues. In the same year, she presented a paper at the 3rd Asia-Pacific Conference on Algal Biotechnology, held in Thailand. She was awarded a MPhil degree in 1997.

After receiving a University of Birmingham Hong Kong Scholarship in 1997 she came to Birmingham to study for a Ph.D under the supervision of Barry Leadbeater and Maureen Callow. She is now in her third year of a collaborative project sponsored by Severn Trent Water, studying the ecology of secondary storage lakes which will be used to supplement potable water supplies to the East Midlands in times of drought. Her current research interests include limnology, phycology, algal biotechnology and water quality maintenance, through the employment of various environmentally-sensitive approaches. She anticipates completing her PhD thesis by Christmas 2000, after which she will return to Hong Kong.

SUMMER STUDENTSHIP

In the summer of 1998, I was lucky enough to be offered a studentship by the British Phycological Society. As a result I spent a couple of months carrying out research into the population genetics of species within the red algal genus *Porphyra*. As more emphasis is being placed on biological studies at the molecular level, I was glad of the opportunity to undertake a molecular genetics study of species that are known to have complex life histories. The studentship was undertaken under the supervision of the molecular biologist, Paul Hayes, from the University of Bristol, where I was studying as an undergraduate at the time, and **Juliet Brodie** from Bath Spa University, who has studied the taxonomy of *Porphyra*.

The aim of the project was to identify molecular markers that could be used to produce a quantitative description of population structure for *Porphyra umbilicalis* (L.) J. Agardh and *P. dioica* Brodie & Irvine. Alterations in DNA sequences, in the form of insertions or deletions of regions, or changes in single nucleotides, can be identified *via* several techniques, often using the polymerase chain reaction (PCR). Once identified, such molecular markers can be used in a number of ways. For example, they can be used to identify related individuals within populations and to quantify their degree of relatedness, or used in constructing genetic maps.

For this study Amplified Fragment Length Polymorphism (AFLP) analysis was chosen as the molecular marker technique. This analysis utilises restriction enzymes and PCR to generate defined genetic fingerprints of the subjects, in this case *Porphyra umbilicalis* and *P. dioica*. Basically, DNA isolated from an individual is digested with specified restriction – enzymes and the resultant fragments are ligated to compatible oligonucleotide adapters. The PCR is then primed from the known sequence of the adapters. The PCR products, labelled with ^{32}P, are then separated in an acrylamide gel, according to length and the patterns of the bands can be used to identify markers. By using primers that extend beyond the adapters into the first few nucleotides of the fragments, only those fragments with sequence compatibility to these extensions will be amplified. This will result in the production of fewer bands and, thus, will make the comparisons of individuals easier and any subsequent analysis much simpler.

Since the project was molecular based, much of the work was carried out in the laboratory. However, a brief excursion from the laboratory was required, with a visit to the Gower peninsula in order to collect samples of *Porphyra*. Thankfully, Juliet Brodie was present to help identify the samples since, to the untrained eye, the differences between *P. dioica* and *P. umbilicalis* can be very difficult to detect. I would have had a very tough time identifying the samples had it not been for Juliet's expertise. With fresh samples collected it was back to the laboratory to carry out the laboratory work.

The samples were washed and dried and their DNA extracted. They then underwent AFLP analysis, as explained earlier. It was very striking that *P. umbilicalis* and *P. dioica* displayed very little, if any, polymorphisms. However, both species were obviously distinct from the closely related species, *P. purpurea*, proving that the technique was probably not at fault and proving to me that I was able to get such a complex, multi-step technique to work. In the limited time that was available I was not able to identify polymorphisms between the two species. This is not to say that the AFLP analysis is not capable of identifying polymorphisms, but probably because there was insufficient time to allow me to discover the best combination of restriction enzymes and PCR primers to use in the analysis.

The practical experience gained from this study was invaluable and, together with my third year undergraduate research project, it helped me decide to continue in research and I have subsequently started a PhD thesis at the University of Warwick.

I would like to take this opportunity to thank the BPS, Juliet Brodie and Paul Hayes for the opportunity to work on this project and hope that the BPS will continue to offer support for students in the future.

Kieran Edwards

NEW COUNCIL MEMBERS : COMINGS AND GOINGS

Several changes in the BPS Council occurred at the beginning of this year. Three new council members, **Michael Guiry, Linda Medlin** and **Graham Scott,** were elected at the Annual general meeting of the BPS, held during the winter meeting. Michael is a stalwart of the society and probably needs little introduction, having done some classical studies on the taxonomic affiliations of different red algal groups. Linda Medlin also has a strong taxonomic bent, but with considerable emphasis on the use and development of molecular probes, both for distinguishing among different algal groups and for understanding evolutionary relationships. **Graham Scott's** interests are in the evolutionary biology of fucoid algae and intertidal algal communities in general. I should also mention **Jane Lewis** who, through an oversight on the part of the editor, was not included previously in the list of council officers. Jane, however, has served on the BPS council previously and is well known to many members. Her interests are in dinoflagellate taxonomy, evolutionary biology and harmful algal blooms.

This was also the final year of office for **Richard Geider**, the former honorary secretary and **Janet Kubler**, whilst **Harriet Jones** resigned. All of these have been actively involved in the running of the society. Richard, in particular, should be thanked for his many secretarial duties and for shouldering the burden of producing *The Phycologist* when there was no editor. **Juliette Brodie**, a former ordinary council member, has become the new secretary. Although **Eliott Shubart** was also due to stand down he has been co-opted on to Council due to his important role as Chairman of the Jubilee Committee.

NEW BPS MEMBERS

Ms A. Alster, Kinneret Limnological Laboratory, PO Box 345, Tiberias, Israel

Ms A Burgess, Department of Geography, University of Plymouth, Drake Circus, Plymouth, Devon PL4 8AA. Aburgess@plymouth.ac.uk

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Ms C. Johnstone, 17 Adelaide Terrace, Dundee, Scotland. C.johnstone@mail1.tay.ac.uk

Ms C. C. Kruk, Urquiza 2512, Montevideo, 11600 Uruguay. Ckruk@fcien.edu.uy

Dr J. La Roche, Institut fuer Mereskunde, Duestenbrooker, Weg 20, Kiel 24105, Germany.

T. Mitchell, Department of Biological Sciences, Davy 317, University of Plymouth, Drake Circus, Plymouth PL4 8AA. T.mitchell@plymouth.ac.uk

Mrs J. Pottas, Union Place, 9 Upgang Lane, Whitby, North Yorkshire, YO21 3DT. J.d.pottas@talk21.com

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Ms E. Wells, 3F1, 7 Grindlay Street, Edinburgh, EH3 9AT, Scotland. E.c.wells@hw.ac.uk

Dr E. Young, School of Biology and Biochemistry, Queen's University of Belfast, 97 Lisburn Road, Belfast BT9 7BL. E.young@qub.ac.uk

Dr T. Zohary, Kinneret Limnological Laboratory, PO Box 345, Tiberias 1402, Israel. Tamarz@ocean.org.il

CHANGE OF WEB SITE

You may have already noticed from the front page that the BPS web site has now changed to http://www.seaweed.ie/bps and is also now being managed by **Michael Guiry**. This seems like a particularly opportune time to thank **John Berges** for the establishment of this important database and for all his previous efforts at maintaining this site.

If you have any queries/comments on the site you can contact Mike by e-mail:

mike.guiry@seaweed.ie

THE BPS WINTER MEETING : ADVANCED WARNING AND A CALL FOR CONTRIBUTIONS

I know it seems a long way off, but the BPS Winter meeting is being held at the Univrsity of Liverpool, between the 2-5 January 2001 and is organised by **Brian Moss**. Make this a date for your diaries! There are already proposed special sessions on symbioses, population genetics and an update lecture on evolutionary taxonomy. If you have any queries, suggestions or, more importantly, contributions to this meeting please contact the secretary, **Juliette Brodie**. Further details will be included in the next issue of *The Phycologist*.

NEW PUBLICATION

CHANGES IN THE MARINE FLORA OF THE NORTH SEA

Editors: Graham Scott and Ian Tittley

(ISBN 0 9534857 0 6)

This publication is the proceedings of the 1998 CERCI conference *'Changes in the Marine Flora of the North Sea'*, and contains fourteen papers delivered at the conference. These are available from:

Mary Barry, CERCI
University College Scarborough
Filey Road, Scarborough
North Yorks YO11 3AZ, UK
Tel +44(0)1723 362392
maryb@ucscarb.ac.uk

Price including postage and packing:
£8.00 (UK and Europe)
£10.00 (all other areas).

ANNUAL REPORT OF THE SOCIETY AND STATEMENT OF ACCOUNTS

The British Phycological Society Registered Charity No: 246707

Annual Report for the Year ended 30 September 1999

The Society is an unincorporated association governed by its constitution and administered by its Council (trustees). The addresses of the current office bearers are set out in the European Journal of Phycology.

Membership of the Council of the Society:

Executive Members:

President:	Prof. CE Gibson	Hon. Membership Scty:	Dr L Carvalho (Dr D Iglesias-Rodriguez)
Vice President:	Dr EJ Cox		
Overseas Vice President:	Prof. H Preisig	Hon. Treasurer:	Dr JA Berges
Immediate Past President:	Prof. B Moss	Hon. Ed. (Eur. J. Phycol.):	Dr CA Maggs
Hon. Secretary:	Dr RJ Geider	Hon. Ed. (Phycologist):	Dr BA Osborne

Ordinary Members:

Dr G Pearson	Dr J Brodie	Dr FG Hardy
Dr B Leadbeater	Dr J Kubler	Dr E Shubert
Dr J Lewis		

Principal Bankers:	Bank of Scotland, 39 Albyn Place, Aberdeen
Solicitors:	Wolferstans, 60/64 North Hill, Plymouth
Independent Examiner:	Flannigan Edmonds and Bannon, 14-16 Gordon Street, Belfast

This is the third annual report presented by the current Hon. Treasurer. It is made in this form to meet the requirements of the Statement of Recommended Practice (SORP), issued by the Charity Commission and serves as an annual record of the resources entrusted to the Society and the activities it has undertaken.

The Society has continued to give financial support to activities that promote phycological research, disseminate phycological knowledge and assist young phycologists to present their findings at scientific meetings. The annual winter meeting and AGM were held at University of Dundee. The standard of presentations were very high and congratulations go to the Manton Prize winner Alison Sherwood, and Irene Karlsson, who received the annual Poster Prize. Sixteen Student Members received support to attend this meeting from the Scientific Meetings Fund (SMF) (sixteen in 1998). The auction raised £565, thanks in large part to the enthusiasm and initiative of Dr E Shubert. These funds were transferred to the SMF; the meeting was well-managed and returned the deposit of £500. Grants to support preparation of a Freshwater Flora totalled £2, 019.13; this came from a £10, 000 allowance from General funds. The Summer Studentships programme (allowing promising undergraduates to undertake research) received no applications this year; Council will discuss ways to improve advertising and uptake of these Studentships. The Society provided £500 to support two students at a specialist Freshwater Algal Field Course in Scotland and also made a contribution of £175 towards the travel expenses of an Eastern European Student Member who attended the course. Furthermore, the BPS made a contribution to the running of the Second European Phycological Congress (EPC2, £1, 011) and assisted the attendance of five student members with travel awards.

Honoraria were paid to Executive members for whom it was felt the time committment of the positions was exceptional. Due to an error last year, Honoraria were overpaid; this was corrected in the current year. The Hon. Membership Secretary and Hon. Treasurer received £750 each, while the Secretary and Hon. Editor of the Phycologist each received £500.

The BPS paid £750 this year for the upgrading of its aging membership database to modern and Year 2000-compatible software. This will provide for better management and more rapid responses to member's inquiries.

The Society's financial situation remains good. Named funds are in good shape; additional allocation to the SMF from General funds will be considered in the new year.

The Journal has continued to perform well financially. Due to lower production costs in 1998, the balance to the Society from Volume 33 was £16, 293.75 (£9,300.17 for Volume 32).

It is with sadness that I report the untimely death of the Society's Independent Examiner, Alan Johnston. Alan examined our accounts with great care and efficiency and took the time to educate the Society's fledgling Treasurer in accounting practice. His services, as well as his kindness and good humour, will be greatly missed. Arrangements were made with Alan's firm for examination of the accounts this year .

The British Phycological Society

Statement of Financial Activities for the Year ended 30 September 1999

	Note	Unrestricted Funds General	Restricted Funds S.M.F.	Restricted Funds Manton	Restricted Funds F.W.F.F	Total 1999	Total 1998
		£	£	£	£	£	£
Income and Expenditure							
Incoming Resources							
Subscriptions		13,779.38				13,779.38	13,884.59
Surplus from Journal		16,293.75				16,293.75	9,300.17
Surplus from Winter Meeting			4,468.64			4,468.64	0.00
Auction proceeds			565.00	0.00		565.00	697.00
Sales of T-Shirts							
Sales of Strictly Marginal		0.00				0.00	26.00
Donations			0.00			0.00	390.00
Credit card charges recovered		332.50				332.50	278.00
Interest		2,738.32	444.95	376.09		3,559.36	4,803.05
Total Incoming Resources		33,143.95	5,478.59	376.09	0.00	38,998.63	29,378.81
Resources Expended							
Grants, studentships & awards	2	3,155.13	4,300.41	253.00		7,708.54	11,829.92
Publications expenditure	3	18,280.09				18,280.09	20,963.97
Publicity - New recruitment leaflets						0.00	225.00
Meetings & Committee Expenses	4	2,899.35				2,899.35	3,267.11
Administration Costs	5	2,329.38				2,329.38	4,913.70
		26,663.95	4,300.41	253.00	0.00	31,217.36	41,199.70
Net Incoming Resources for the Year		6,480.00	1,178.18	123.09	0.00	7,781.27	(11,820.89)
Fund at 1 October 1998		40,496.05	6,675.41	5,676.83	0.00	52,848.29	64,769.23
Fund at 30 September 1999		46,976.05	7,853.59	5,799.92	0.00	60,629.56	52,848.29

The British Phycological Society

Balance Sheet as at 30 September 1999

	Note	1999 £	1998 £
Current Assets			
Debtors	7	2,179.49	3,631.83
Short term deposits		57,761.02	53,728.30
Cash at bank		16,004.55	9,393.16
		75,945.06	66,753.29
Liabilities: amounts falling due within one year	8	15,315.50	13,905.00
Net Assets		60,629.56	52,848.29
Funds			
Unrestricted		46,976.05	40,496.05
Restricted		5,799.92	5,676.83
Designated		7,853.59	6,675.41
		60,629.56	52,848.29

Signed on behalf of the British Phycological Society

John A Berges

Dr John A Berges
Hon. Treasurer
10 December 1999

The British Phycological Society

Notes to the Accounts for the Year ended 30 September 1999

1 Accounting Policies

The accounts have been prepared in accordance with applicable Accounting Standards and the SORP - Accounting by Charities issued in October 1995. The comparative figures have been restated in accordance with the revise format. A summary of the more important policies, which have been applied consistently, is set out below:

Basis of Accounting
The Accounts are prepared in accordance with the historic cost basis of accounting.

Subscriptions
Subscriptions include amounts received from members during the year. No amount is included in respect of subscriptions outstanding at the year end. Subscriptions received in advance for future years are included in deferred income.

Funds
Restricted funds comprise unexpended balances of donations and interest to be applied for specific purposes. At 30 September 1999 the Society's only restricted fund was the Manton Fund.

Designated funds are those set aside out of unrestricted funds for specific purposes. At 30 September 1999 the designated fund of the Society was the Scientific Meetings Fund ("S.M.F.").

Cash Flow Statement
The Society has taken advantage of the exemptions provided in FRS 1 "Cash Flow Statements" for small entities and has not prepared a cash flow statement.

	Unrestricted Funds General £	S.M.F. £	Restricted Funds Manton £	F.W.F.F. £	Total 1999 £	Total 1998 £
2 Grants, Studentships & Awards						
S.M.F. awards for 1998 Winter Meeting & EPC2		3,625.41			3,625.41	2,393.65
S.M.F. awards for field courses		675.00			675.00	500.00
Manton Prize			253.00		253.00	250.00
Poster prize at 1998 Winter Meeting	125.00				125.00	250.00
Grants for Freshwater Flora work	2,019.13				2,019.13	6,936.27
Summer Studentships					0.00	1,000.00
Meeting Sponsorship (EPC2)	1,011.00				1,011.00	500.00
	3,155.13	4,300.41	253.00	0.00	7,708.54	11,829.92
3 Publications expenditure						
Journal	13,785.50				13,785.50	16,196.25
Hon. Editor's Honorarium	1,500.00				1,500.00	1,500.00
E.J.M.C. Expenses	1,157.24				1,157.24	332.00
Phycologist	1,837.35				1,837.35	2,935.72
Strictly Marginal						
	18,280.09	0.00	0.00	0.00	18,280.09	20,963.97
4 Meetings & Committee Expenses						
Expenses of Council Meetings	2,543.85				2,543.85	1,237.05
Flora Committee Expenses	315.50				315.50	227.46
Freshwater Flora Committee Expenses	40.00				40.00	130.00
Expenses of members representing the Society					0.00	235.60
Winter Meeting					0.00	1,067.00
Print Framing					0.00	370.00
	2,899.35	0.00	0.00	0.00	2,899.35	3,267.11
5 Administration Costs						
Executive expenses	29.00				29.00	130.00
Subscription to Institute of Biology	223.00				223.00	214.00
Subscription to Foundation for Science & Technolo	45.00				45.00	43.00
Public liability insurance	156.00				156.00	156.00
Data Protection Act Renewal	75.00				75.00	
Independent Examiner's Fee	125.00				125.00	125.00
Credit Card Charges	415.88				415.88	366.70
Bank Charges	10.50				10.50	129.00
Executive Honoraria	500.00				500.00	3,750.00
BPS database update	750.00				750.00	
	2,329.38	0.00	0.00	0.00	2,329.38	4,913.70

Notes to the Accounts for the Year ended 30 September 1999 (cont)

6 Reimbursment of Council members' expenses

Twelve (1998: Ten) Council members received £2,543.85 (1998: £1,237.05) as reimbursment of travel and overnight accommodation for expenditures incurred during the year on Society business. No monies were paid to any Council member in respect of subsistence.

7 Debtors

	1999 £	1998 £
VAT		
Interest receivable	20.18	4.02
Prepayments	2,159.31	3,127.81
		645.00
	2,179.49	3,776.83

8 Liabilities: Amounts falling due within one year

Accruals		
Deferred Income	125.00	250.00
Provisions for the Journal and the Phycologist	990.50	1,105.00
	14,200.00	12,550.00
	15,315.50	13,905.00

9 Analysis of Net Assets between Funds

Fund balances as at 30 September 1999 are represented by	Unrestricted Funds £	Restricted Funds £	Designated Funds £	Total Funds £
Current assets	62,291.55	5,799.92	7,853.59	75,945.06
Current liabilities	(15,315.50)			(15,315.50)
Total Net Assets	**46,976.05**	**5,799.92**	**7,853.59**	**60,629.56**

Report of the Independent Examiner to the Members of the British Phycological Society

I have carried out an independent examination of the accounts for the year ended 30 September 1999 set out on pages 2 to 4.

Respective responsibilities of the Society and the Independent Examiner
Charity law requires the Society to maintain proper accounting records in respect of the charity and to prepare accounts for each year. It is my reponsibility to conduct an independent examination of the accounts and report my opinion to you.

Basis of opinion
My work was conducted in accordance with Section 43 of the Charities Act 1993 and the Directions given by the Charity Commissioners. These procedures provide only the assurance expressed in my opinion.

Opinion
In my opinion:

(a) the accounts are in agreement with the accounting records kept by the charity under section 41 of the Charities Act 1993; and
(b) the accounts have been prepared in accordance with The Charities (Accounts and Reports) Regulations 1995; and
(c) no supplementary information requires to be included in my report to enable a proper understanding of the accounts to be reached.

Flannigan Edmonds & Bannon

Flannigan Edmonds and Bannon Chartered Accountants
Belfast, Northern Ireland 29 December 1999

Notes to the Accounts for the Year ended 30 September 1999 (cont)

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Flannigan Edmonds & Bannon

Flannigan Edmonds and Bannon Chartered Accountants
Belfast, Northern Ireland 29 December 1999

2000
British Phycological Society
Council Officers

President

Professor C.E. Gibson (1999-2001)

President Elect

Dr E.J. Cox (1999-2001)

Immediate Past President

Professor B. Moss (1999-2001)

Vice Presidents

Dr E.J. Cox

Professor H. Preisig (Overseas; 1999-2001)

Hon. Secretary [1]

Dr J. Brodie (2000-2002)

Hon. Treasurer [2]

Dr J.A. Berges (1997-2001)

Hon. Membership Secretary [3]

Dr M.T. Brown (1999-2001)

Editor of The Phycologist [4]

Dr B.A. Osborne (1998-2000)

Editors of The European Journal of Phycology

Dr D. Maggs (1994-)/Dr M. Dring (2000-)

Members of Council

Professor C. E. Gibson
Dr E. Cox
Dr J. Berges
Dr J. Brodie (1997-1999)
Professor M. D. Guiry (2000-2002)
Dr G. Hardy (1998-2000)
Dr M. D. Iglesias-Rodriguez (2000-2001)
Professor H. Preisig
Dr B. Leadbeater (1999-2001)
Dr J. Lewis (1999-2001)
Dr C. Maggs
Dr L. Medlin (2000-2002)
Dr B.A. Osborne
Dr Dr G. Pearson (1998-2000)
Dr G. Scott (2000-2002)
Dr E. Shubert (Chair, Jubilee Committee)

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