The PHYCOLOGIST

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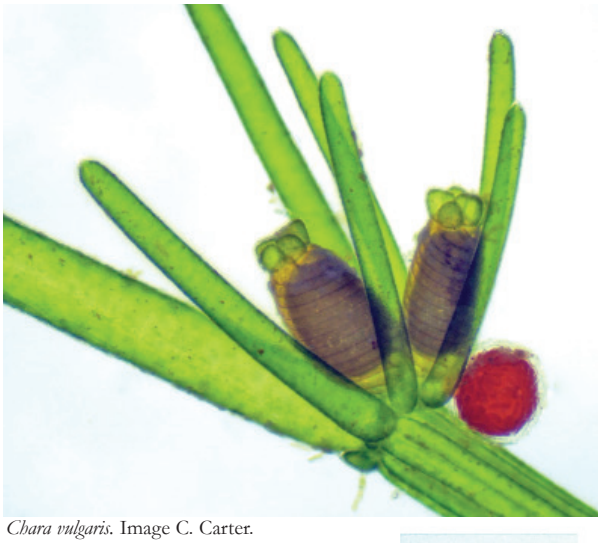
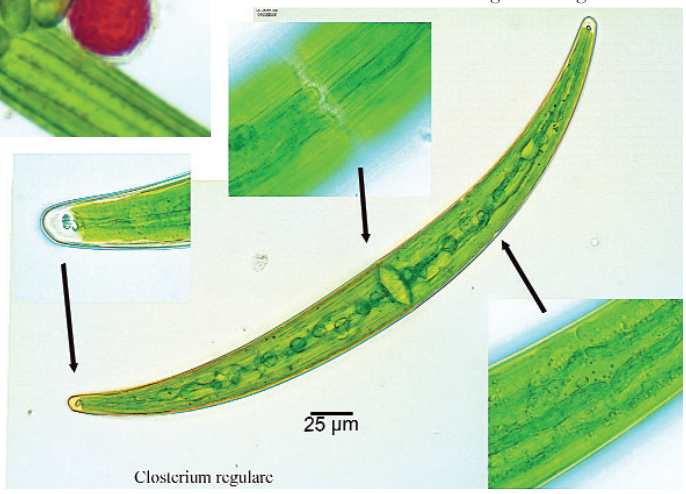


Chara vulgaris. Image C. Carter.

Closterium regulare. Image C. Carter.



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2008
British Phycological Society

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Editorial

Despite the credit-crunch, rising inflation, rising prices, and the doom and gloom we currently read about (and are experiencing in terms of the weather), Phycology is going strong judging by the contents of this autumn edition. It has been a very busy year for everyone, despite the very wet summer, and we have yet another bumper issue for you to read!

We detail minutes from the 56th Annual General Meeting, we have reports from BPS Committees, and we are also requesting nominations for the BPS Council. We have news about FEPS, and news from the Biosciences Federation, and we detail an enquiry into the state of systematics and taxonomy across the life sciences in the UK, with a report detailing the decline in the number of algal taxonomists in the UK.

The BPS provides financial support to students and others to attend meetings and field courses, to present their work - reports from those who have received funding is presented inside. Preference is given to members of the BPS, but non-members may join the Society concurrently with their application. Please note - the application documents for student bursaries and summer projects have been revised - and you can read about theses changes inside. We also have reports from the 2007 winners of the Kathleen Drew-Baker and New Investigator Awards, and we are proud and happy to announce details of a new award - the Hilda Canter-Lund Photomicrograph Award!

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We also hear that further research and investigations are needed to strengthen understanding of current and future impacts of climate change on cyanobacterial bloom toxicity, and we have details on a rediscovered UK desmid.

Our next winter meeting is in London, 5th-7th January 2009, and the first circular is detailed, but do check the BPS web site for further information. AND do remember to brush up on your general knowledge and Olympics trivia for the President's quiz night (how many Olympic world records did Michael Phelps break? How many medals did Team GB bring back from Beijing? How many couples took part in this years Strictly Come Dancing?...).

Now if this hasn't wetted your appetite (and with the thought of Strictly Come Dancing starting again), Im not sure what will...

REMEMBER - do keep sending in your contributions! Write to us with your phycological views, news, work events, or any matter you wish to share with readers of *The Phycologist*. **YOUR** input is required; all relevant material will be considered (job adverts, science reports, book reviews, news items of topical interest, meeting announcements, research news, and suggestions for future articles are always welcome). Without YOU the newsletter would not exist.

As a reminder, previous issues of *The Phycologist* can be downloaded at http://www.brphycsoc.org/phycologist.lasso

Happy reading!

Jan Krokowski
Editor of *The Phycologist*

Implication of Climate Change for the toxicity of Cyanobacterial blooms

The positive responses of bloom-forming cyanobacteria to the increased nutrient enrichment of waters from agricultural, urban and industrial sources have been widely investigated and continue to be so (1,2). By contrast, temperature effects on cyanobacteria, leading to cyanobacterial growth and dominance in aquatic ecosystems, have received less attention in recent years. The current explosion of interest in climate change, including global warming, together with increased knowledge of the production and health significance of cyanobacterial toxins, are perhaps prompting a renewed interest in the effects of temperature on cyanobacterial bloom production.

Findings have varied as to whether increasing temperatures favour the growth of bloom-forming cyanobacteria rather than other phytoplankton groups via a direct influence on their respective biochemistry and metabolism. Indeed, temperature optima, and changes in specific growth rates (q_{10}) between 10°C and 20°C in light- and nutrient-saturated cultures of several bloom-forming laboratory cultures (*Anabaena*, *Planktothrix*, *Aphanizomenon* spp.) were similar to other phytoplankton species when standardised for surface area: volume ratio. However, the q_{10} for *Microcystis* was considerably higher (see 2,3). Indeed in recent studies with a natural population of *Microcystis aeruginosa* with diatoms and green algae in Lake Niuwe Meer Amsterdam, the cyanobacterial population was not reduced by artificial mixing during the hot summer of 2003. This, with confirmatory modelling studies, suggests that higher temperatures favour the growth of *M. aeruginosa* (4) and promote the development of other bloom-forming cyanobacteria (5,6).

Indirect routes via which higher temperatures favour cyanobacterial growth have been identified (2,3,7). These include the increased stratification of waterbodies by the warming of surface waters, thereby reducing vertical mixing and favouring the gas-vacuolate, buoyancy-regulating bloom-formers and the extension of the seasonal occurrence of stratification in temperate latitudes. Positive feedback may be provided via local warming of surface water due to light absorbance by surface blooms. Effects of temperature rise on rainfall patterns leading to periods of high nutrient-run off, droughts leading to increases in water abstraction and lake residence times, and to decreases in river flow rates, can all favour cyanobacterial bloom development (7,8).

Climate change is expected to have multiple impacts on water availability and quality (9,10). According to the Intergovernmental Panel on Climate Change, projected effects on water resources for the mid- to late 21st Century will arise due to e.g. increases in: (i) warm periods and heat waves; (ii) heavy precipitation events; (iii) droughts; (iv) the incidence of high sea levels. These climatic factors, plus projected increases in: (v) human population; (vi) economic growth; (vii) urbanization, and (viii) decreases in recharges to groundwater in natural systems, are likely to create areas of:

- increased water demand and scarcity;
- decreased freshwater availability due to saltwater intrusion;
- increasing water quality problems;
- increasing disruption of water supply.

The water quality problems are likely to include increases in eutrophication and in the production of algal- , particularly cyanobacterial blooms (4-10).

In advocating an increase in research on the population dynamics of cyanobacterial blooms in the light of ongoing environmental observation and projected climate change (7), it is relevant to refer to the environmental (e.g. loss of biodiversity), aesthetic and economic impacts of cyanobacterial blooms. The ability of bloom-forming (and benthic) cyanobacteria to produce a wide array of potent toxins (cyanotoxins), established human and animal health hazards, is a further reason to continue to investigate the likely responses of cyanobacteria to climate change (11). Cyanotoxins have now been identified in many countries and on all continents, including in many regions which already experience eutrophication, excessive bloom developments and bloom-associated health incidents (12). The capacity to recognise, analyse and manage the risks presented by cyanotoxins is, however, patchy: a further reason to specifically include the toxicology of cyanobacteria in climate change research.

The ability of cyanobacteria to produce some of the most toxic-, and researched cyanotoxins e.g. microcystins, nodularins, saxitoxins, cylindrospermopsins and anatoxins, varies between species in the same genus, between morphotypes of the same species and between strains of the same morphotype. Individual morphotypes canalso include different genotypes by the presence or absence of

essential genes for microcystin-, nodularin- and cylindrospermopsin biosynthesis (e.g. 13). For these reasons, natural populations and laboratory strains of cyanobacteria are commonly described as "toxic" or "non-toxic". However, this simplified (but perhaps understandable anthropogenic) view does not take into account cases where bloom toxicity cannot be fully, or even partly explained by the presence of known cyanotoxins (e.g. 14, 15). However, when produced, the ratio of a particular cyanotoxin concentration to cyanobacterial dry weight, biovolume or cholorophyll-*a* content in laboratory cultures and environmental samples can vary from e.g. 2- to 20-fold (14, 16-18). Whilst not ranging through multiple orders of magnitude, such changes in cyanotoxin concentration in waterbodies can make the difference between compliance with-, or failure of- an advisory health guideline or statutory cyanotoxin standard (11).

Surface accumulation of toxin-containing, freshwater cyanobacteria, Scotland, with appropriate protection when sample collecting.

We agree with Paerl and Huisman that more detailed studies on cyanobacterial bloom dynamics are needed and that these should include investigation into competition between toxigenic and non-toxigenic strains (7,19). The toxicity of cyanobacterial blooms is influenced by many factors in addition to the concentration of cyanotoxins per unit volume of water or cyanobacterial biovolume. Additional relevant processes which influence cyanotoxin bioavailability and persistence include cyanotoxin partitioning between producer-cells, other biota, the water phase and sediments, photodegradation, and enzyme-catalysed cyanotoxin detoxification and biodegradation. These processes also require further investigation to strengthen understanding of the current and future impacts of climate change on cyanobacterial bloom toxicity.

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BPS Council

Nominations are requested for:

. 3 ordinary members for a term office of 3 years,

. 1 ordinary member for a term of office for 2 years

. 1 nomination for student representative.

E-mail nominations to Dr Jackie Parry (j.parry@lancaster.ac.uk) with an e-mail from the nominee confirming they agree to this.

Deadline for nominations 1st November.

Paul Hayes

News from the recent Phycological Society of America election: Paul Hayes (University of Bristol, U.K.) has been elected President and will begin his term on January 1, 2009. Congratulations Paul!

The Botanical Research Fund

The Botanical Research Fund is a small trust fund which makes modest grants to individuals to support botanical investigations of all types and, more generally, to assist their advancement in the botanical field. Grants are available to amateurs, professionals and students of British and Irish nationality. Where appropriate, grants may be awarded to applicants in successive years to a maximum of three.

Examples of projects recently supported by the Botanical Research Fund include:

- Development of a vegetative key to the British Flora
- Herbarium research for a monograph of *Strobilanthes* (Acanthaceae)
- Taxonomic studies of the Coralline algae
- Field surveys of seaweeds, bryophytes and *Rubus*
- Laboratory work to investigate the status of *Gladiolus illyricus* in the UK.

The next deadline for applications is February 28th, 2009.

Further details may be obtained from Mark Carine, Hon. Secretary, The Botanical Research Fund, c/o Department of Botany, The Natural History Museum, Cromwell Road, London, SW7 5BD. Email: m.carine@nhm.ac.uk

Important Plant Areas for the Algae Plantlife Award

In June this year, I received a Plantlife Award for Outstanding Contribution to Plant Conservation in recognition of the work undertaken towards Important Plant Areas for the algae. The award was presented by the President of Plantlife, Adrian Darby OBE, at the Annual Members Day which was held at the National Botanic Garden of Wales. I felt very honoured to receive this award but of course the work was a team effort. I was able to give a short talk at the meeting at which I mentioned all the people who had contributed to this work, notably the co-authors, David John, Ian Tittley, Mary Holmes and David Williamson. The work was also made possible because of the sponsorship and support of the British Phycological Society, the Natural History Museum and Plantlife. It's been great to get this publicity for the algae, but looking ahead, we are going to have to continue to work hard to keep them up the conservation agenda.

Juliet Brodie
August 2008

New Photo-micrograph Award - The Hilda Canter-Lund Photomicrograph Award

Dr Hilda M. Canter-Lund, who died in 2007, made outstanding contributions to the ecology and systematics of the fungal and protozoan parasites of microalgae. She was also a superb photographer, as everyone knows who has seen "Freshwater algae: their microscopic world explored", which was co-authored by John Lund and published in 1995 by Biopress Ltd. Hilda's work was recognized formally through a Fellowship of the Royal Photographic Society, a rare feat for any microscopist.

As a mark of respect and to encourage others to strive for the highest standards in their microscopy and photography, the Council of the British Phycological Society have decided to offer a prize: the **Hilda Canter-Lund Photomicrograph Award**. This will initially be for a micrograph published in the European Journal of Phycology in the years 2007 and 2008, excluding part 4 of 2008 to allow judging to be completed in time for the award to be announced at the Annual Winter Meeting of the Society. The award is currently worth £150.

Judging will take account of the scientific, technical and aesthetic merit of photographs, which may be based on any type of microscope and use any microscopical technique. The judges will examine both the on-line and the printed version of the Journal in order to reach their decision and will survey the whole content of the journal. However, they also welcome **nominations** for the best micrograph from authors or members of the Society. Please send nominations by email or post to Prof. David Mann, Royal Botanic Garden Edinburgh, Edinburgh EH3 5LR, UK (d.mann@rbge.org.uk). Emails should state **'Canter-Lund prize nomination'** in the subject line.

News from the Biosciences Federation

Richard Dyer, Chief Executive officer
May 2008

I am quite often asked why the BSF (Biosciences Federation) doesn't 'do something' about the career structure for research bioscientists. More often than not the questioner is thinking only about the public sector and especially the career structure for postdocs in universities. I usually answer by asking what exactly the questioner thinks the BSF could do and the response is nearly always rather vague.

Action can only follow an analysis of the problem. In many ways the situation is well understood, but it does require stating. In the public sector, the modern biology that has raised so many expectations is usually conducted by large teams funded by significant amounts of external money. The team may consist of one tenured senior member of the academic staff, perhaps a more junior member of the academic staff and maybe a dozen people on fixed term contracts. In most institutions there will be few, if any, opportunities for the short term staff to join the faculty.

However, they may not all wish to become a university academic. The majority may be postdocs but they will have a range of career aspirations. Some postdocs will have a predominantly technical role. They fill positions that used to be occupied by staff that had completed vocational training, which may have culminated in an HNC, and who became treasured technicians with a tenured post. These positions have largely disappeared. And with them stability in essential expertise: sometimes, probably too often, promising areas of research are closed down because a postdoc leaves and his or her critical skills cannot be replaced.

Other postdocs do not aspire to become team leaders. They have seen the pressure that arises when teams are maintained on grants and want a different 'work life balance'. Although they may want nothing more than a 'first lieutenant' role, many in this cohort are truly excellent scientists. When I was in Bristol, there were tenured University posts of Research Associate and Senior Research Associate. These positions also have largely disappeared.

Finally, some postdocs are truly driven by their research and strongly promote their work at meetings and elsewhere. They are conscious of citation metrics and identify the route for a research career. Many of this smaller cohort succeed.

All of this is well known. I write about it briefly not to indicate a yearning for a golden age (which it was not!), but to emphasise that there are different career paths in research for public sector bioscientists and that separate structures are needed for each. But that is only the beginning, honesty is also needed. How many group leaders really state explicitly that a postdoc is in effect a technician? How many think that their responsibility is discharged by finding another postdoc position for someone who would be better off doing something else - perhaps running a pub!? How many are truly delighted when the ambitious, successful postdoc begins to overshadow them? How many suggest that their postdocs should join a contract research organisation and not think about being an international star? How many acknowledge openly that the biosciences cannot continually expand and therefore all postdocs will not get jobs in the area?

So what does 'do something about careers' actually mean? Certainly I believe it is possible to 'do something'. Whilst at Babraham we created two career paths for postdocs: one for potential team leaders and one for team players. Entry to both paths was very competitive. The potential team leaders were funded by the Institute for 2 years and had to get a significant grant within this time - preferably a prestigious personal Fellowship. Astonishingly, virtually all were successful. There was no promise of a tenured post but all became very much better equipped to find one. The team players had to have needed generic skills and the ability to refresh them: they also had to be excellent scientists. This very successfully opened a much needed career path for some and provided stability in the essential expertise that the organisation needed. But, of course, this cost money and is not something that many other organisations were/are prepared to do.

Let us focus on the last sentence for a moment. Babraham was (is) not cash rich. The Institute decided to reduce the scope of its activities in order to improve the scale. The issue of 'scale and scope' is not systematically addressed in this country. Universities do not have to teach all subjects, or indeed undertake research in any. Some universities do not hesitate to reorganise schools and close subject areas in order to improve the structure and financial strength of the organisation. Perhaps the argument should be made more strongly that human capital is the greatest asset of all and that 'scale and scope' issues apply very strongly to staff at all levels.

So what can the BSF do? Currently we are engaged in working with others on identifying skills shortages - both current and anticipated, both vocational and generic. This work holds promise of important outcomes. But I would be delighted if we could also look at the career question in a potentially constructive way in order to make generic recommendations. Please write to me if you have a view about the constructive way forward.

www.bsf.ac.uk

Minutes of the 56th Annual Meeting of the British Phycological Society,

The University of Bristol, Friday 4th January 2008, 5.00pm

Present: 32 members were present

1. Apologies

Mike Guiry, Michelle Tobin, Sara Marsham, Thomas Proeschold, Lydia King, John Anderson, Sam Fielding, Jan Krokowski, Martyn Kelly, Antonio Quesada and Rupert Perkins.

2. Minutes of the 55th AGM held on the 4th January 2007

The minutes were approved: proposed by Graham Underwood and seconded by Claire Gachon.

3. Matters arising

There were none

4. Reports from Officers

Geoff Codd proposed that ratification of all reports, other than the Treasurer's, would be performed at the end.

a) Secretary

Jackie Parry opened by thanking Paul Hayes for acting as local organiser for the Winter meeting and to Adrienne Whitty and Dierdre McLachlan who had helped in the organisation of such a successful meeting. The meetings had drawn 95 delegates and the programme comprised 50 oral and 27 poster presentations. She thanked Taylor & Francis for sponsoring the drinks reception, all authors, both invited and offered, together with those that had chaired sessions or judged the Manton or Poster prizes. She also thanked Elliot Shubert for acting as auctioneer at the Society Dinner. Special thanks went to Gill Malin and Débora Iglesias-Rodríguez for organising the special session on "Algae and Global Processes" and Jan Krokowski for organising the special session on "Use of novel phycological tools". She encouraged anyone who had ideas for future special sessions to contact her directly.

b) Treasurer

Jackie Parry reported on behalf of Michelle Tobin who sent her apologies. The Society was financially healthy with funds of ca. £99K. Council had expressed concerns about the safeguarding of Society funds as no one bank guarantees more than £35K in assets if it goes bankrupt. Michelle will explore distributing the funds between at least three accounts and the membership requested that one of these be a Euro account. The processing of the 2007 subscriptions was almost complete and those for 2008 would be processed from February 1st. The Journal continued to do well with an income of £26,724 for Volume 41 in 2007. This was slightly down on the previous year (£27,320) but higher than in 2005 (£25,979). Publications costs were similar to 2006 but were due to rise by £1.4K when the invoice for the Autumn edition was processed. The Society had spent half of what it had spent in 2006 on grants, studentships and awards, but expenditure was similar to 2005. Costs in 2006 were higher due to the funding of a Special Project, 3 summer studentships and student attendance at 4 International conferences. The surplus from the 2007 Winter meeting at Belfast looked high at £4323 but this was due to the surplus from the 2006 Plymouth meeting. All surplus money from the Belfast meeting was being used to fund the 2008 meeting in Bristol. Three new administration costs were incurred in 2007. The full membership fee to the Biosciences Federation was £552. The provisional membership fee to the Federation of European Microbiological Societies (FEMS) was £71.22 which is 20% of the full membership fee. This will rise to 40% and 60% full fees in 2008 and 2009, respectively, after which the Society must decide whether or not to become a full member. Just over £1K was provided for hosting the planning meeting of the Federation of European Phycological Societies (FEPS) in Amsterdam. The Society paid for the hiring of the meeting room, dinner for the participants and travel for Geoff Codd (FEPS President) and Elliot Shubert (FEPS Secretary). Michelle passed on her thanks to Council and Society members for their co-operation and support during the year.

Geoff Codd thanked Michelle for her efforts during the year. The Treasurer's report was accepted: proposed by Elliot Shubert and seconded by John Raven.

c) Membership Secretary

Jackie Parry reported on behalf of Sara Marsham who sent her apologies. The active membership of the Society was 455 (345 fully paid up). The membership had increased by 51 in 2007, of which 27 were students. The Society had 10 Honorary members and two further nominations were being proposed at this AGM (Item 8). The on-line membership payment scheme was running smoothly and all renewal notices for 2008 subscriptions had been sent out via BPS-L. She reminded members who pay by standing order that these should be cancelled before mid January 2008. In line with the Constitution, Council can consider applications for corporate membership and it was offering this to the Scottish Environment Protection Agency (SEPA) at an annual cost of £100. Membership would entitle five persons to attend the winter meeting at the reduced (members) registration fees and the Agency would receive one copy of The Phycologist. Over the past few years registration fees for members and non-members attending Winter meetings have been equal but all future local organisers should revert to higher fees for non-members. The BPS membership database is still not perfect and Sara is still checking all addresses. She asked that all members make sure their details are correct on the website. When the membership database is near enough complete it will be more up to date than the database for BPS-L so there are two things Council are proposing to do with this database

for which it seeks approval from the membership. Firstly, Council wish to generate an on-line email list to replace BPS-L. The list would only be used for internal BPS notices and all messages would go through the webmaster: this was approved. Secondly, Council would like to make the membership list available to the whole membership on the password protected section of the website. An 'opt out' clause would be available as (i) a tick box on the membership application form (for new members) and (ii) an announcement via The Phycologist and BPS-L to contact Sara directly. This was approved by the membership but they did request that all members be assured, via a written notice, that the information contained within the database would be secure.

Geoff Codd thanked Sara and Mike for their efforts throughout the year.

d) Joint Editors of the European Journal of Phycology

Eileen Cox reported on behalf of herself and John Day that the first three issues of Volume 42 were printed on time but the last issue was delayed until 21st December due to slow type-setting and late revision of proofs. The page allocation for 2007 remained at 448p and the four issues contained 33 papers and 3 book reviews. Eileen expressed thanks to Matt Dring for his significant involvement with Volumes 42 (1) and 42 (2) and the *Laminaria* review for Volume 43. They were ahead of schedule for Volume 43, with half the manuscripts already at the proof stage and there was a good spread of subjects in the four issues. The Editors needed to concentrate on decreasing the turn around time from submission to publication and would be stressing that supplementary material should be placed on-line only. The EJP has an impact factor of 1.293 for 2006, which is disappointing although the 2006 citation index is close to the historic citation indices. Of the "main stream" algal journals, only the *Journal of Phycology* and *Protist* have high impact factors so the EJP has maintained its position relative to other algal journals. It is hoped that by soliciting more mini-reviews and including strategy papers the impact factor will increase.

Submissions are mainly made via the on-line system (Manuscript Central) and although some teething problems have arisen Elliot Shubert was very helpful in dealing with these. The rejection rate is currently 60-70%. Taylor & Francis (T&F) continue to be proactive in the marketing of the Journal as they consider it to be one of their "flagship" journals. In addition to providing leaflets and other relevant materials at scientific meetings, they are funding two prizes for the best papers published in the EJP in 2007 (£500 cash for one and £150 books for the other). She thanked John Day and Elliot Shubert for their support during the past year and handed over to John to announce the prize winners.

John Day announced that the Kathleen Drew-Baker Award (£500) for the best paper published in the Journal during 2007 was awarded to Dr Alison Taylor for Taylor *et al.* Dynamics of formation and secretion of heterococcoliths by *Coccolithus pelagicus* ssp. *braarudii*. EJP **42**(2): 125-136. The New Investigators Award (£150 T&F vouchers) was awarded to Dr Sebastian Meier for Meier *et al.* Evolution of different life cycle strategies in oceanic calcareous dinoflagellates. EJP **42**(1): 81-89. These awards, and their recipients, would be highlighted in the next issue of *The Phycologist* and within T&F publications.

Geoff Codd thanked Eileen, John, Matt, Elliot, the Associate Editors and all the reviewers for their valuable contribution to the success of the journal that year.

e) Editor of The Phycologist

Jackie Parry reported on behalf of Jan Krokowski who sent his apologies. There had been no problems experienced that year and Issues N°72 and 73 all went out on time. Jan wished to thank Ms Agnès Marhadour for preparing the layout, SEPA's administration staff in East Kilbride for the packaging and posting, and all the contributors. Council had recently given approval to start using 75% recycled paper, as is used for the SEPA newsletter and that all book reviews which are currently published in the EJP would now be published in *The Phycologist* instead. He asked that the membership continue being active in sending him contributions for the newsletter.

Geoff Codd thanked Jan, Agnès Marhadour, the staff at SEPA and all the contributors in their support of the newsletter that year.

f) Webmaster

Geoff Codd reported that Mike Guiry had invested a lot of time and effort over the past year in continuing to improve and update the BPS website. The website was turning out to be a major asset and a useful tool. Statistics showed that the site activity is typical of that for a small society and the uptime was 99.97%. Most of the page visits are from Britain and most visits are on Mondays and Tuesdays. Mike appears to enjoy his role as webmaster but for it to be really worthwhile the website does need the active input from the membership.

Geoff wished the meeting to record the thanks of the Society to Mike for his work over the past year.

1. Awards and Training

Barry Leadbeater reported that the committee had awarded a total of £5140 this year for attendance of three students at two courses, one student to an overseas conference, and had funded one summer research project. 13 students had applied for bursaries to attend the 2008 Winter meeting. There was further funding available to support awards and encouraged potential supervisors to apply for Summer Research Projects, with a named student in mind. He reported that the section on students awards on the BPS website was to have a radical overhaul and he was reviewing all the forms so they were explicit. He had already produced written guidelines for students participating in the annual student prizes for best oral and poster presentations at January meetings. These guidelines would form part of a new "Prize" section on the BPS website and also be published in *The Phycologist*. Council had decided that this committee should only consider applications for student funding and would be renamed "Student Awards & Training Committee". Other requests for funding should be sent directly to the Secretary.

Geoff Codd thanked Barry and all the members of the committee for their efforts during the year.

2. Biodiversity & Conservation Committee

Juliet Brodie began by showing the membership the Plantlife publication *Important plant areas for algae: A provisional review of sites and areas of importance for algae in the United Kingdom* written by herself, Dave John, Ian Tittley, Mary Holmes and David Williamson. She thanked all the authors and the BPS for funding the project. Four field meetings were held in 2007 at Plymouth, Galway, Durham and Kindrogan. There was still demand for more field courses and if anyone had any ideas they should contact her directly. The highlight of the year had been the publication of *Green Seaweeds of Britain and Ireland* edited by herself, Chris Maggs and Dave John. This project had been funded by the BPS, SEPA, Environment Agency, Environment and Heritage Service and the Marine Biological Association, which the BPS and SEPA being particularly generous. She thanked all the funders and her co-editors. The *Freshwater algal flora of the British Isles* was still out of print but a 2nd edition was being organised by Dave John. Other Flora volumes were out of print and the committee were working to resolve this issue. The brown volume was progressing and Bob Fletcher was sending material to herself and George Russell. There was concern as to how this publication would now be funded and this would be discussed by Council nearer the time.

Geoff Codd thanked Juliet and all the members of the committee for their sterling efforts during the year.

3. Communication & Education Committee

Jackie Parry reported that the committee had yet to send out a questionnaire to the membership asking for their views and ideas on aspects of communication and education but that this would be done in the coming year. She explained that Council had many ideas for increasing awareness of the Society via educational projects but that the ideas were rather "big" for such a small Society so it was more feasible to participate in larger projects within the Biosciences Federation. She had been nominated for a position on the BSF Education Committee. A BSF project currently underway, which is joint with the Nuffield Curriculum Centre (NCC) is to produce a website to support the teaching of practical biology in schools. Phase 1 of the project is underway to build a website and upload existing NCC resources. Phase 2 aims to enhance the site by adding resources from the BSF member organisations in the form of fact sheets for practical classes. All would have to be relevant to the curriculum. She would provide further information when it became available. In the meantime, if anyone was attending meetings and would like to take copies of the BPS brochure with them, they could be obtained from Eileen Cox and the Natural History Museum.

Geoff Codd thanked Jackie and the members of the committee for their efforts throughout the year.

The reports from Council were accepted: proposed by Christine Maggs and seconded by Martin Wilkinson.

5. Reports on BPS membership of Federations

a) The Federation of European Phycological Societies (FEPS)

Geoff Codd informed the membership that the proposal to establish a Federation, approved that the 55th AGM, was realised when the Charter was signed by the Presidents of the seven founder National Societies at the 4th European Phycological Congress (EPC) in June 2007. The Charter had been lodged with the BPS Secretary and the Constitution will be accessible to all the membership via the BPS website. FEPS is a European body which has potential access to avenues of activity not previously available. It has already stimulated interest in European countries which have no National Society and the establishment of Societies in Norway and Turkey look promising. The new Netherlands-Belgium Society was only established in 2007 and this had become a founder member of FEPS. The BPS is part of FEPS development and Council is pleased to contribute to the birth of the Federation whilst still being careful to ensure the safeguard and future development of the BPS itself. FEPS will now be responsible for organising and hosting future EPCs. The 5th EPC will be in Greece and GAC expressed thanks to the Greek Phycological Society for its rapid agreement to help with this. The cost of membership is €1 per member so the BPS would pay €445 for this year's membership. Income from membership fees would be small and FEPS were seeking sponsorship from Industrial sources and publishers.

Since many Federations have strong links with publishers, much discussion centred around whether FEPS would move towards having its own publications and whether T&F would be involved. Some of the membership were concerned but Geoff assured them that Council was very sensitive to the Society's own publication issues. It felt that a FEPS publication was inevitable but because the BPS was involved in its creation, as a founder member, it would ensure that the new publication complemented, rather than competed with, the EJP. Some of the membership requested that if a proposal was being considered by Council regarding a FEPS publication, the full proposal should be made available to the membership via the website. The membership would wish to have an open discussion about the proposal. Geoff assured the membership that any decision Council proposed to make would require approval from the membership.

b) The Federation of European Microbiological Societies (FEMS)

Geoff Codd reported that the BPS is a probationary member of FEMS along with 12 other Societies. 40 Societies were full members, including the British Mycological Society. The BPS is the only phycological member but its presence does lend weight to the environmental microbiology side. FEMS held a Council meeting in September 2007 which Paul Hayes attended in his place, for which he thanked him. Paul had reported that there were clear grounds for continuing membership at present. Membership provides many funding opportunities to BPS members which have been highlighted in *The Phycologist* and on the BPS Website. FEMS is relatively wealthy and supports Fellowships, attendance at conferences, exchange visits etc and he encouraged the membership to apply. It is not overburdened with applications, quite the reverse. Geoff encouraged the membership to take advantage of these available funds.

c) The Biosciences Foundation (BSF)

Graham Underwood stated that the BPS had joined the BSF a couple of years ago and the BSF was an umbrella of Learned Societies. He found it to be a professional and slick

operation and even though we are a small Society, we have a voice in this forum. The BSF is influential and is busy working across all areas to safeguard biosciences within the UK. They had the knowledge and the mechanisms to take things forward and he stated that the BPS should remain members.

6. Constitution

Council proposed an amendment to Clause 9 of the Constitution to include Webmaster as a full member of Council. This proposal was published in the 73rd Issue of *The Phycologist* and to date, the Secretary had received no objections. The membership at the AGM unanimously accepted the proposal.

7. Future meetings

Geoff Codd informed the membership that the 2009 Winter meeting would be held in Greenwich, January 5-8th. The local organiser would be Eileen Cox and she had asked that all ideas for Special Sessions be sent directly to her. He reported that the 2010 meeting would potentially take place in The Algarve, Portugal and Chris Maggs would further investigate this possibility.

8. Nominations for Honorary membership

Council were proposing two nominations for Honorary membership of the Society, these being Dr Yvonne Chamberlain and Prof Brian Womersley. The membership accepted these nominations: proposed by Jenny Bryant and seconded by Graham Underwood.

9. Nominations to Council and Auditor

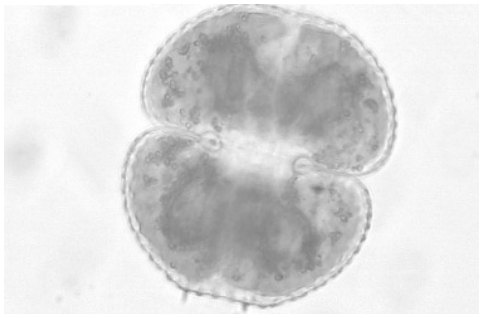
The term of office of three Ordinary Members of Council had come to an end. Geoff Codd thanked Matt Dring, Lydia King and Martin Wilkinson for their contributions over their 3 years. Nominations had been received and these were for Dr Rupert Perkins (proposed by Graham Underwood and seconded by Eileen Cox), Prof Paul Hayes (proposed by Juliet Brodie and seconded by Dave Mann) and Dr Martyn Kelly (proposed by Jan Krokowski and seconded by Geoff Codd). Geoff asked the membership to accept these nominations together with retaining the services of the current auditor Flannigan, Edmonds and Bannon. The membership approved the nominations: proposed by Elliot Shubert and seconded by Jan Krokowski.

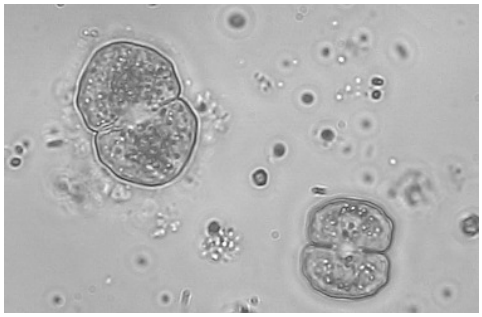
10. Any other business

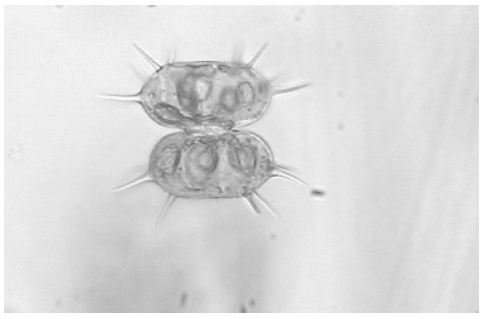
In closing, Geoff Codd welcomed the 27 new student members among 2007's new 51 members. He thanked Dave Mann and colleagues in Edinburgh for hosting the summer Council meeting. He thanked all Council colleagues for their contributions on Council over the past year and especially the Society's Secretary Jackie Parry. He highlighted the publication of major works in 2007 and thanked the authors and editors. He also thanked colleagues for their efforts in raising public awareness of phycology and it's relevance, not least of all Mick Guiry and Juliet Brodie for their BBC Radio 4 interview before Christmas.

The meeting ended at 6.00pm.

Jackie Parry







Report from the Biodiversity and Conservation Committee

The Biodiversity and Conservation Committee met on May 15th 2008 at The Natural History Museum, London. It was an action packed meeting and here is an account of some of the highlights.

Conservation Issues

5th Quinquennial review of Schedules 5 and 8 of the Wildlife and Countryside Act 1981

This review provided the committee with the opportunity to propose the addition of algal species that are considered to be under threat for inclusion in Schedule 8 of the Wildlife and Countryside Act 1981. Three species were recommended for inclusion: *Cruoria cruoriaeformis* and *Grateloupia montagnei*, both rare red algae, restricted to subtidal habitats, the former to maerl beds, the latter to gravel or small maerl fragments, and *Codium bursa*, a green alga which is very sensitive to disturbance and may be extinct in mainland Britain. All three species are threatened by habitat destruction.

Field Meetings

2008 was another good year for field meetings:

1. Marine algal identification course - Francis Bunker and Chris Maggs (April 2008).

2. Freshwater algal identification - Eileen Cox and Elliot Shubert (June 2008).

3. Introductory course on freshwater algal identification - David John and Brian Whitton (June/July 2008).

4. Advanced course on blue-green and green algal identification - David John and Brian Whitton (July 2008).

Flora volumes

Green Seaweeds of the British Isles (eds J. Brodie, C.A. Maggs & D.M. John), which was published in December 2007, has been selling extremely well with over 250 sold (the print run was 1000). The new edition of The Freshwater Algal Flora of the British Isles (eds D.M. John, B.A.Whitton & A.J. Brook) is now underway and it is anticipated that this publication will be available in 2010.

Algal observation projects

In the last edition of *The Phycologist* it was reported that the committee was exploring ideas in relation to studying temporal change in seaweed. At this May meeting, John Tweddle of the Open Air Laboratories Network (OPAL) spoke to the committee about OPAL, a new initiative to increase public knowledge and enjoyment of natural history (http://www.nhm.ac.uk/nature-online/british-natural-history/opal/). Two possible marine and freshwater algal projects discussed by the committee have since been picked up by OPAL. One project is for a National Seashore day or week where the public will gather a baseline set of seaweed distribution around England's shores, and the other is a freshwater project that will link into an OPAL National Pond and Lake Survey and plans to record filamentous algae (including *Hydrodictyon reticulatum*, water net) and algal blooms based on water colour. All being well, it is anticipated that the projects will go ahead in 2009.

Changes to the committee

Finally, I felt, as President-Elect, of the BPS, it was necessary to stand down as the chair of the Biodiversity and Conservation committee. The committee is very pleased that Martin Wilkinson will be taking over the Chair at the next meeting in 2009.

Juliet Brodie
August 2008

Funding for Student Bursaries and Summer Projects - Revision of Application Documents

During recent years the BPS has been anxious to develop and expand its funding activities in line with its charitable status. Currently we are active in supporting student members to attend meetings, field courses and workshops with a phycological connection and in funding summer undergraduate research projects.

The increasing demand for funding by BPS members throughout the world, together with the necessity to move to an electronic application procedure has required us to revise and streamline the documentation available on the BPS website.

Starting on September 1st, a set of revised guidelines and application forms can be accessed on the BPS website. On the Home Page, within the list of the Society's activities, there is a heading 'Funding Opportunities'. By clicking on this entry, the reader is taken to the 'Funding at Courses and Meetings' page. This contains a short description of the funding opportunities available. It also includes direct links to 'Funding Guidelines' and to application forms for: (i) Bursaries for Meetings, Workshops and Field Courses and (ii) Summer Undergraduate Research Projects. Alternatively, the application forms can be accessed by clicking on 'Documents' on the Home Page.

The BPS Funding Guidelines document gives details of the remit of each category of award; the eligibility requirements of applicants; the closing dates; the method of application and the criteria used in deciding the distribution of awards. Applications and correspondence relating to awards must (unless there are exceptional circumstances) be sent by electronic mail to the Chair of the Student Awards and Training Committee.

Barry Leadbeater
Chair BPS Student Awards and Training Committee

The Seventh International Chrysophyte Symposium

Peter Siver and Anne Lizarralde,
New London, CT, USA

The Seventh International Chrysophyte Symposium (ICS), sponsored, in part, by the BPS, was recently held on June 23-27, 2008 at Connecticut College, in New London, CT, USA. There were approximately 60 experts representing a broad spectrum of disciplines from around the world at the four day symposium. Although the overriding theme of the symposium focused on "chrysophytes" in a broad sense, significant contributions representing allied heterokont groups and an infusion of ideas from other fields were also highlighted.

The symposium included several keynote speakers who work in areas peripheral areas to chrysophyte biology, which allowed for a continuous cross fertilization of ideas. Andrew Knoll of Harvard University kicked off the symposium with his keynote talk titled "The Early Evolution of Eukaryotes". The theme for the remainder of the day centred on paleolimnology and included discussions ranging from using cysts to infer climate change to investigating ancient Eocene chrysophytes. A special talk by Jan Hinsch (formerly of the Leica Corporation) on "Microscopes and Diatoms" was a great end to the first day.

Tuesday started off with a keynote presentation by Mitchell Sogin of the Marine Biological Laboratory (MBL) in Woods Hole, MA titled "Microbial Population Structure of the World's Oceans: an Underexplored Rare Biosphere" and followed with a series of talks and discussions on heterokont biology.

Wednesday was set aside to let many of our colleagues from other states and countries explore the area. About half of the gathering went to the Mystic Seaport Museum, considered one of the nation's leading maritime museums, while the rest went on a behind the scenes tour of Yale University's Peabody Museum led by esteemed paleobotanist Leo Hickey. Later that evening we gathered for a New England clam and lobster bake with live sea shanty music.

On the final day of the meeting, F. James Rohlf of SUNY Stony Brook gave the final keynote talk titled "Use of Geomorphometrics in Biology" and Joergen Kristiansen provided a great historical perspective with his talk "A Personal Account of Changes in Chrysophyte Studies Over the Past 50 Years." The relationships of chrysophytes to chemical limnology and taste and odour problems highlighted the final session where Gary Burlingame from the Philadelphia Water Department of Pennsylvania taught everyone what a chrysophyte smells like (see photo)!

During the final banquet, both Joergen Kristiansen and Gertrud Cronberg were honoured for their many years of dedicated service to the field of chrysophyte research.

Work is well underway for a proceedings volume to be published by Cramer under the Nova Hedwigia Beiheft series, which will be co-edited by Jim Wee (Loyola University), Peter Siver and Anne Lizarralde (Connecticut College).

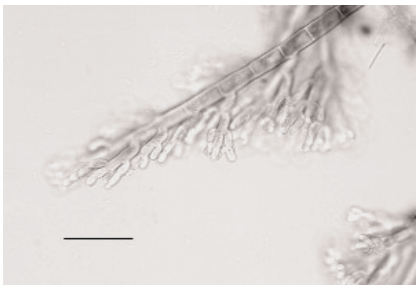
Co-conveners for the next meeting to be held in Prague 2012 are Jírí Neustupa, Yvonne Nemcova, and others. Many thanks to all for helping to make this meeting a huge success!

Collecting and Identifying Seaweeds in Wales (Pembrokeshire)

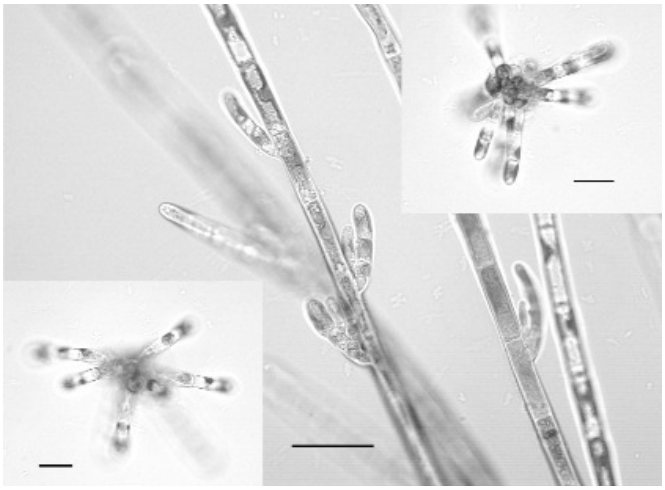
Susan Leta Clayden, UNB, Canada
susan.clayden@unb.ca

This spring, for three days in May, I attended the BPS marine algal field course in Pembrokeshire, Wales. The idea stemmed from a desire to explore the algal flora of a coastline different from the one where I collect at home in Atlantic Canada. The eastern Atlantic, because of geological history, contains genetically related, but potentially divergent species, given the time of separation from the western Atlantic.

I am a Ph.D. candidate studying the systematics of a group of diminutive, usually microscopic, filamentous red algae, referred to commonly as 'acrochaetioids' (from Gk. 'akron' = tip and 'khaite' = long hair). Many of the algae in this group have long hyaline hairs at filament apices. I thought it fitting to examine the evolutionary relatedness of populations of amphi-Atlantic acrochaetioid species. For example, does *Colaconema membranaceum*, an alga endozoic within sertularian hydroids, and known from both the eastern and western Atlantic, show molecular variation between these geographic areas?



Rhodochorton purpureum **from culture, with clusters of spermatangia at branch tips. Host hydroid was** ***Dynamena pumila.*** **Bar = 50 m.**



***Colaconema* sp. from culture. Centre photo is of the parent plant from which released monospores developed into sporelings (insets). Host bryozoan was *Cellaria sinuosa*. Bar, parent plant = 50 m; bar, sporelings = 25 m.**

On our field excursion to Skomer Island, a very special seabird sanctuary off the coast of Wales, I found the host hydroid of *C. membranaceum*, *Dynamena pumila*. The outer thecae of *D. pumila* are often pigmented red due to endozoic filamentous red algae. I collected some of these hydroids, and upon my return to Canada, placed them in culture. Although I recovered several species of red algae developing from spores released in Petri dishes, including *Rhodochorton membranaceum*, *C. membranaceum* does not seem to be present. From a bryozoan, *Cellaria sinuosa*, collected by SCUBA from Martin's Haven by one of the course participants, I have isolated a species of the genus *Colaconema*, from which I plan to obtain molecular sequence data. During the course I was able to observe in situ many examples of *Acrochaetium* species growing epiphytically on various larger macroalgae. This was an extremely valuable experience: to be in unfamiliar surroundings, but to be able to make connections based on my current knowledge, e.g. concepts of particular species, and new material.

Course leaders Christine Maggs, Francis Bunker, and a visit from Juliet Brodie, in addition to the participants, literally made the course. They were knowledgeable, enthusiastic, and patient. I would like to also acknowledge my kind microscopy partner Lou Luddington, and Jack Sewell, a keen and skilled outdoor photographer, and one of his images, of *Halidrys siliquosa*, is an example of an alga that we do not see in the northwestern Atlantic. The British Phycological Society is thanked for a student bursary that helped me to cross the Atlantic.

***Halidrys siliquosa*, submerged. Photo credit: Jack Sewell.**

Microbial Oceanography Workshop (Bermuda Institute of Ocean Sciences)

Malcolm Baptie, Newcastle University

A Conductivity-Temperature-Depth probe with M. Baptie on the right.

Being welcomed at the airport by intense heat and a reggae band, the mainly British, mainly deathly pale students on the workshop knew this would be a trip to remember. Having long held an interest in the microbiological side of ocean science but having never had the opportunity to pursue it to any great extent, the Microbial Oceanography course offered an ideal way to bring my knowledge completely up to date in the space of three weeks.

Craig Carlson and Robert Morris of University of California, Santa Barbara and University of Washington, respectively steered the group through a series of introductory lectures and lab sessions. This led into a day cruise on the impressive National Science Foundation ship based at the Bermuda Institute of Ocean Sciences, Atlantic Explorer to sample water from 2000m depth to the surface. It was demonstrated through elegant and relatively straightforward techniques that one can obtain a community fingerprint, in this case of pelagic bacteria, through the use of terminal restricted fragment length polymorphism. Simply, it uses a restriction enzyme to cut 16s mRNA into fragments of different length according to the organism. Already this got me thinking of ways to apply it to phytoplankton 18s mRNA.

The remainder of the week was occupied with everyone trying a range of techniques all designed to add another piece to the jigsaw of describing the dynamics in the bacterial community, and recreating some classic experiments published by the course organisers. All this was set against the backdrop of early morning swims in the warm sea, watermelon for breakfast and a quick familiarity with the ingredients of Bermuda's two national drinks: The Dark and Stormy and the Rum Swizzle.

For the first time, this workshop was merged with another on marine genomics, run by Steve Giovannoni of Oregon State University and John Heidelberg of the University of Southern California. Stepping out of the laboratory and into the minefield of deciding what is true and what is untrue when one searches a sequence on a database was quite a shock. While challenging, this element opened my eyes to things I'd never have thought to look for before when looking for similar sequences.

Hurricane Bertha briefly threatened to delay me on the island for a few more days but turned North at the last minute. With a heavy heart and an equally heavy bag of duty free rum, I made my way onto the plane and headed back to the UK, my microbiological knowledge much the richer for the experience.

Tropical Field Phycology Workshop (Bocas del Torro, Panama)

Participants at the Tropical Field Phycology Workshop.

Thomas Sauvage, MSc Student
Botany Department
University of Hawaii at Manoa

The touristy city of Bocas del Toro, located on "Isla Colon", Panama, hosted the first Tropical Field Phycology workshop (TFP08) lead by Dr. Suzanne Fredericq, Dr. Wilson Freshwater and Dr. Brian Wysor. The outstanding facilities of the Smithsonian Tropical Research Institute (STRI) welcomed 13 algal enthusiasts (11 graduates and 2 undergraduates), students coming from Colombia, Costa Rica, El Salvador, but also France, Germany and the US. I was fortunate to receive funding from the British Phycological Society. This bursary enabled me to travel from the distant Pacific island of Oahu, in the Hawaiian archipelago, where I currently prepare my degree in the Botany department (University of Hawaii at Manoa). I had been eager to learn about Caribbean algae and this was an opportunity I could not miss.

Each morning began by a short lecture on a particular group of algae, covering aspects of their biology, ecology and current taxonomy, often incorporating information drawn from molecular systematic. We would then head to the boats, equipped with our snorkel, mask and fins, sunscreens, zip bags, and underwater cameras for a short ride to a chosen collection site.

Upon our return and after a quick lunch, a second short lecture started the afternoon, for which, technical topics were favoured. For instance, Dr. Brian Wysor introduced us to algal culturing techniques, and Dr. Amy Driskell exposed us to the ins and out of the Smithsonian Institute's DNA Barcoding project. The remaining hours were spent processing our daily collections, closely working together to press specimens, preserve samples for barcoding, and enter collection information into the TFP08 database. Over the length of the course we processed more than 400 specimens that were donated to the Bocas station's reference collection and the University of Panama herbarium.

At night, after long hours spent on the microscope, we were always rewarded by a tasty local dinner specially prepared by STRI's "official" cook. This gave us strength for our last activity for the day, student presentation, with everyday the chance to discover the research project of one of our classmates. This allowed me to introduce my investigations on the genus *Caulerpa*, its confusing morphologies and uncertain taxonomy in Hawaii.

As a final assignment and as part of our training in tropical taxonomy, each student picked a few preferred species on which to write an illustrated description. This resulted in a quite impressive preliminary field guide to the common marine algae of Bocas del Toro, which already regroups 50 species of green, red and brown algae!

The last field day was spent in the beautiful marine preserve of Cayo Zapatilla, a small island located 40 minutes from Bocas station by boat. We were taught about Turtle conservation research and projects led on the island. We even participated in the excavation of a hatched nest, a procedure necessary to estimate reproductive output of local turtle populations, a once in a lifetime experience.

I sincerely wish to express my gratitude to the British Phycological Society for facilitating my attendance to this class. I am also grateful to our instructors for sharing their knowledge, demonstrating patience and running the class so smoothly. Finally, I would like to acknowledge my classmates for their kindness, numerous cultural exchanges and some truly unforgettable moments. I have furthered my interest for algae and comforted my desire to pursue a PhD in the field of Phycology, an excellent experience all around.

Freshwater Algae Course (Kindrogan)

Roksana Majewska
University of Gdańsk, Poland

At the end of May this year I came to Glasgow Airport with just a rucksack, wellingtons, an almost empty wallet and imperturbable optimism to attend a freshwater algae identification course in the Perthshire region of Scotland. When my friend told me about the course I knew that it was something excellent for me: I could satisfy my hunger for knowledge, and meet people who are very fond of the same subject as me. Finally, I could see the famous green hills of Scotland, which was always my childhood dream (ever since I saw "Highlander").

Next evening, after quite a complicated (but also quite interesting and funny) journey from Glasgow to Kindrogan, I came to a captivating old white house on the hill in the middle of Kindrogan Wood. There I met the other participants, our incredible tutors, professional staff who looked after us really nicely, and the birds, squirrels and many, many sheep. We were surrounded by an old forest, river and ponds, which are a perfect place to relax and enjoy the natural beauty of the Scottish Highlands. It could not be better! We did not need anything more: we had a well equipped laboratory, library, comfortable bedrooms, delicious organic meals five times a day…we even had a pub with the best Scottish drinks (!).

During the course we collected samples from various habitats. Our days were filled with looking down the microscope, algae identification and class discussion. We had similar activities every day but I never felt bored or tired.

The course was open to individuals with different backgrounds ranging from beginners to those who would like to just refresh their knowledge of algae, or who wanted to experience collecting samples from different regions of the world. To my great surprise I was the youngest participant, but it did not make me feel bad - just the opposite - I felt really comfortable talking with the older and probably more experienced people, who really wanted to listen to me and know my point of view. I met people from all walks of life who had the most interesting stories to tell me. The Kindrogan course was attended by hobbyists as well as real professionals, but it did not make any difference, and at the end of the course we were one great team of people who like knowing more about the world of amazing nature.

During the Freshwater Algae Course I had the opportunity to study samples from a range of habitats, using professional equipment, and gaining useful instructions and the best advice. I was able to try traditional Scottish dishes, experience the international sense of humour, and take part in algae charades (!). But thanks to my Scottish adventure I also saw a wonderful piece of the world, met unique people from different part of Europe and found new friends. I strongly recommend the week with algae in Kindrogan to everyone, who like natural science, people and great fun!

Advanced Freshwater Course on Blue-Green Algae Identification (Durham)

Aimar Rakko
Institute of Agricultural and Environmental Sciences, Centre for Limnology, Tartu, Estonia

In the beginning of July, I attended an advanced course on blue-green and green algae identification in Durham. The course was held at Hild-Bede College and School of Education, University of Durham.

I am the first year PhD student at Estonian University of Life Sciences. Basically I am responsible for phytoplankton data in state monitoring program including identification and counting of phytoplankton. During my PhD studies I would like to focus more on cyanobacteria, their ecology and distribution in lake habitats. Hence, one of the reasons why I wanted to participate in the course was to find out more about the species found in other habitats.

In addition to me, the participants of the course were 12 people from Scotland, Ireland, England and Kuwait, including students as well as employees of water enterprises. The course lasted for 4 days and was very intensive. It was made up of lectures, practical work and an excursion. Thus, our days were quite long.

The supervisors of the course, Professor Brian A. Whitton from the University of Durham and Professor David M. John from the Natural History Museum, London were real experts of the field. Brian's lectures on the systematic, morphology and ecology were thorough and interesting. In places even too in-depth, making it more difficult to grasp the whole information communicated right away. Yet, it definitely did not lessen the value of the lectures since the missing part was made up for by the excellent conspectus of the course prepared by the organizers. Also, all the participants had a chance to identify several species of blue-green alga with a microscope.

The existence of blue-green algae has been reported in a wide range of environments - from thermal springs up to glaciers in polar regions. However, the course was confined with introduction of the local vegetation that included a number of species I had never set my eyes on before. One of the most singular species was definitely *Pleurocapsa minor*, which with its irregular shape does not really bear any significant resemblance to a typical blue-green alga.

The lectures of David John were of a more practical nature, focussing on introduction of various groups of green algae. This is a very diverse group that includes species with various morphology and ecological requirements. Similarly to blue-green algae, the green algae are not always invariably green. For example, some of them may be red, e.g. *Haematococcus pluvialis* that can be easily found in the birdbath in front of Hild-Bede College.

Besides lectures and practical work in the laboratory, on one day we got acquainted with the local vegetation in the region of Sunbiggin Tarn. The treeless pastures covered mostly with heather had a few running waters with quite a diverse algal flora. A small stream contained several algae

Durham field course participants.

attached to stones such as blue-green algae (*Nostoc*, *Rivularia*) and the green alga *Gongrosira incrustans*. The adjacent springs, rich in lime, were abundant in macroscopic colonies of *Scytonema myochorus* (with a diameter of up to 5 cm). On the face of it, it was quite similar to the mass of grass "processed" by the sheep, grazing on the fields nearby. So much so, that the author of the current article personally was misled by the resemblance upon taking a sample. In addition to terrestrial algae, a sample of plankton was taken from a lake close by. The plankton was also indicative of a high nutrient content in the lake. The prevalent species were the genus *Microcystis* (*M. bortys*, *M. flos-aqua*) and filament-forming blue-green algae *Anabaena curva*. The latter species is found in several lakes in Estonia but had never been identified in England before. Also, this species was found in very high number in sample taken from Corrowmore Lake, Ireland. On the last day, we were introduced to the identification guide on CDROM, intended for identification of blue-green and green algae in lakes. Alan Donaldson who instructed the participants of the course in the use of the CDROM identification key was also of great help. The first attempts at identifying some species found in a sample were not that futile at all. Most of us succeeded in identifying, if not to species, at least to genus.

One of the most interesting and inseparable parts of the course were certainly the discussions that continued after the lectures at a local pub.

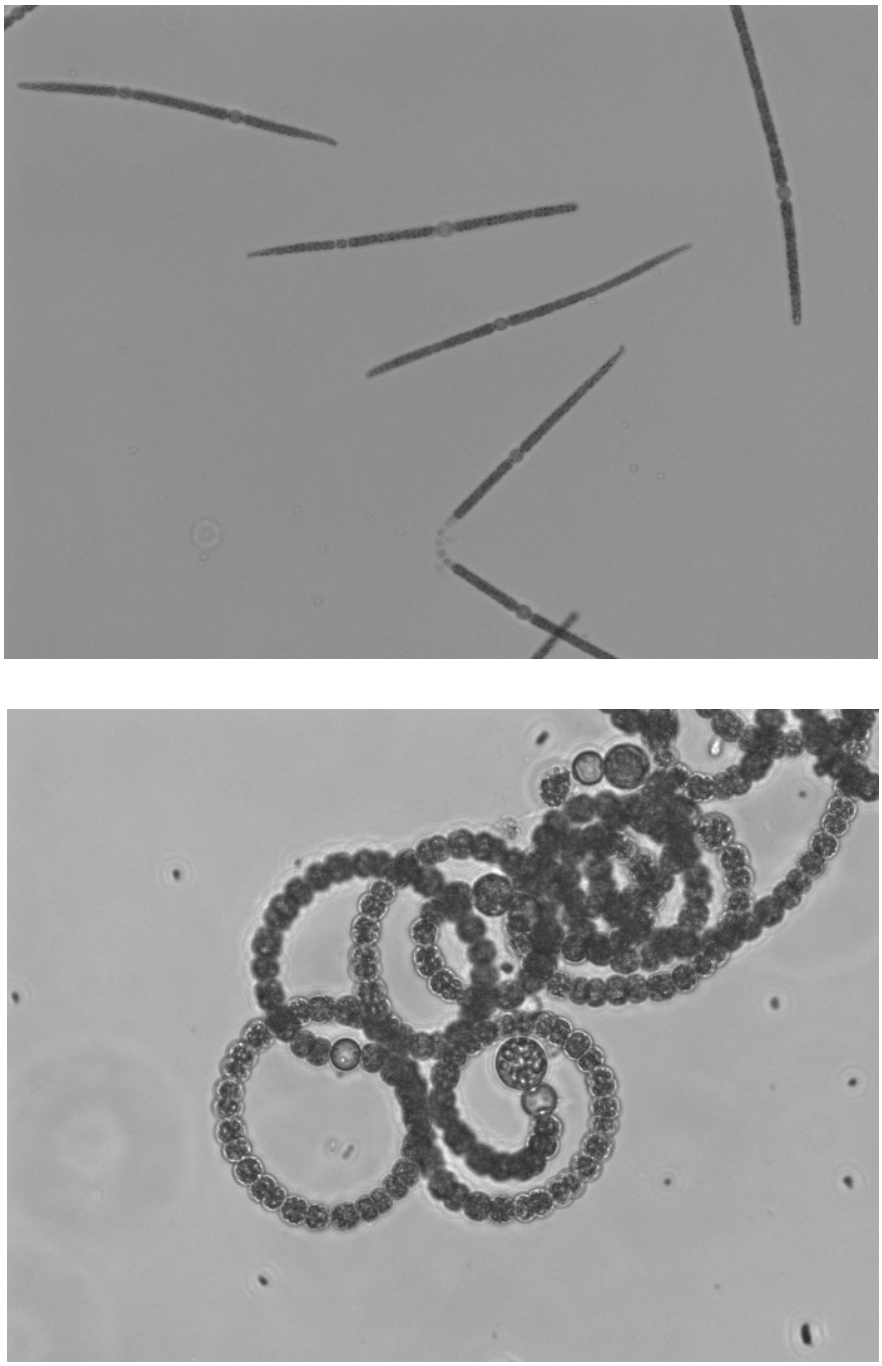
Thanks Brian, David and Alan for the interesting course and to the British Phycological Society for financial support.

Macroscopic colonies of *Scytonema myochorus*.

Freshwater and Terrestrial Cyanobacteria (České Budějovice)

Paula de Tezanos Pinto
University of Buenos Aires, Argentina

I recently participated in the "Determination Course of Freshwater and Terrestrial Cyanobacteria" lectured by the eminent Dr. Komárek, at the University of South Bohemia, Czech Republic. The taxonomy of Cyanobacteria is very complex and it is nowadays being thoroughly reviewed on the light of molecular approaches. The course focused on determination of freshwater and terrestrial Cyanobacteria in the context of modern molecular taxonomy. We were 18 international students, fascinated with Cyanobacteria ecology, systematic classification and taxonomic criteria. I had the opportunity to determine my own material isolated from a Cyanobacteria bloom during my PhD studies in Argentina. The species were *Aphanizomenon gracile*, *Anabaena minderi* and *Anabaena torques-reginae* (Nostocaceae) - all planktonic, solitary, isopolar filaments, with gas vesicles, and capable of fixing atomspheric nitrogen. An. torques-reginae has coiled filaments while *An. minderi* and *Ap. gracile* have straight filaments. The taxonomy of these species requires the presence and the distribution pattern of heterocytes (cells where nitrogen fixation occurs) and akinetes (resting cell). Within filaments of a given species, heterocytes and akinetes show a particular and recurrent distribution which is genetically determined and is genera specific. For example, heterocytes and akinetes pattern in *Aphanizomenon* is sub-symetric while in *Anabaena* is metameric (regular). In these three species akinetes always arise from the fusion of vegetative cells; akinetes in *Ap. gracile* are cylindrical and located distant from the heterocytes, in *An. minderi* they are ovoid and next to the heterocytes and in *An. torques-reginae* they are rounded and next to the heterocytes.



Anabaena minderi **(top);** ***Anabaena torques-reginae*** **(bottom).**

The course helped me to better grasp Cyanobacteria taxonomy and diversity, highlighting the importance of a good ecological description (marine, freshwater, planktic, benthic, on rocks etc.) and morphological characterization (colony form, cell size and shape) of specimens for accurate taxonomical studies. Traditional taxonomical approaches are absolutely necessary for building solid species inventories (pictures, measurements, ecology and potential toxin), particularly for early toxicity risk assessments during bloom events. Moreover, even if molecular taxonomy (using 16S rRNA) is capable of distinguishing among different genera (not all genera) it is generally not able to distinguish among different species within a genera.

The knowledge gained during this course will markedly improve the quality and widen the scope of my future studies on Cyanobacteria ecology. I am very thankful to the British Phycological Society for the financial aid provided for covering the course fee, and to the course organisers for their help, stimulating discussions and unforgettable moments.

Ectocarpus Conference (Oban)

Daniela Schmid, PhD student, Max Planck Institute for Chemical Ecology, Jena, Germany

In summer this year I attended the conference *Ectocarpus* 2008, held in Oban, Scotland. I was fortunate to receive funding from the British Phycological Society. This award enabled me to present my first results from my PhD thesis at an international congress. I presented a talk titled 'Comparative proteome analysis of brown algal gametes'. My main interests are in sex-related proteins of brown algae especially *Scytosiphon lomentaria* and *Ectocarpus siliculosus*. So far little is known about the perception of the pheromone or the recognition of possible mating partners during sexual reproduction of brown algae in general.

About 40 people attended the *Ectocarpus* 2008 conference; among them large groups from Roscoff, France and from Japan. I was also pleased to meet Prof. Dieter Müller, who investigated the complicated life-cycle of *E. siliculosus* and who characterized the first algal pheromones, which are playing an important role during reproduction.

The program of the conference itself was very diverse. Such different topics like genetics, cell biology and chemical ecology, to mention just a few, were discussed, giving a broad overview about what is going on in the field of *Ectocarpus* research. The whole conference took place in a very family-like atmosphere, thus giving the possibility for fruitful and deep discussions. Moreover coffee breaks and also the conference dinner were times and opportunities to make new friends.

The two excursions at the weekend were a great opportunity to increase knowledge about the algal flora in Scotland, especially the comments from the experts, which enlightened several discoveries. Furthermore I got the chance to snorkel in the warm waters of Scotland, which was more than fascinating; also because the weather was absolutely great during these two days.

Participants to the *Ectocarpus* Conference 2008

Gamete release *Scytosiphon lomentaria*.

Overall the conference was an intense learning experience, giving me the possibility to discuss the issues with the experts. I got the opportunity to discuss my first results of my thesis, and by meeting all these people new ideas for my thesis arose for the future.

I sincerely wish to express my gratitude for the funding from the BPS. Furthermore I would like to thank the organizers of the conferences, especially Frithjof Küpper, for their extremely well organization, and for giving me the possibility to experience giving a talk on an international conference.

Ectocarpus and Algal Culture Collections Conference (Oban)

Sebastian Hess.

Sebastian Hess,
University of Bonn, Germany

Being a student of the University of Bonn in Germany, maybe somebody would ask why I wanted to participate in the algal meetings hosted by CCAP in Oban this June. Since my school time, I have been interested in protists including freshwater microalgae, and over the years it has developed to a passion. I spend much of my free time with microscopic observations of freshwater samples and the isolation and culturing of protists, with a special focus on taxonomy and ecology. Unfortunately there are no scientists at the University of Bonn who study protists or algae, and that is why I am currently looking for potentially interesting research groups where I could conduct the research for my diploma thesis. When Dr. Frithjof Küpper invited me to the meetings I was very happy, because I expected to get in touch with phycologists from all over the world. Furthermore I was looking forward to the talks and discussions, and I knew Oban, CCAP and SAMS from an earlier trip in 2007. I felt that the CCAP and its idyllic setting are very appropriate to host such meetings. The atmosphere was very relaxed and everyone was able to forget the daily grind for a while and to focus on the topics of the conferences.

The *Ectocarpus* meeting brought a lot of totally new insights for me. As I had not worked on marine algae before, I learnt a lot about brown algae in general, about Ectocarpus and the establishment of a new model organism. Furthermore I got to know a lot of new techniques to investigate DNA, the whole genome and proteins. One of the most beautiful experiences was the field trip to look for some marine macroalgae. If you deal with a special group of organisms, for example freshwater microalgae, for a certain time you get the feeling that you know the group in a general way. Indeed you can find new species which you have not seen before, but you have lost the feeling of the overwhelming astonishment about totally strange organisms. This feeling only occurs if you deal with groups which are more or less unknown to you. When I saw the beautiful structures of the macroscopic brown algae, the strong colours of the red algae, and heard the interesting facts about their strange life cycles I was crazy about this new 'world of marine macroalgae' which I had never seen before. The microscopic observation of our samples was also very exciting to me.

The Algal Culture Collections meeting exhibited a lot of interesting insights into the aims and the research interests of the culture collections and related disciplines. Besides talks about the taxonomy and ecology of special algal groups, new culturing techniques and also new findings about harmful algal blooms were presented. The greatest discussion arose about the species concept in protists, the conservation of species and the detection of species with genetic fingerprints. This was the most interesting part for me. It is difficult to realize that in a lot of cases we have to detach ourselves from the classic morphospecies concept, if we want to work with monophyletic groups. I feel confident that the methods of DNA and genome analysis will improve rapidly in the future and raise new possibilities in respect to phylogeny and taxonomy of protists.

All in all I enjoyed the high input of knowledge and the inspiring discussions during my time in Scotland. I got to know a lot of interesting people and I'm very glad about the fact that this travel to Scotland strengthened my plan to work on algae in the future. At this point I would like to thank the BPS for the bursary which supported my travel.

Algal Culture Collections Conference 2008.

Kathleen Drew-Baker Award and New Investigator Award

In the last issue of *The Phycologist* (number 74, Spring 2008), we announced that Taylor & Francis, publishers of the *European Journal of Phycology* sponsored two prizes to the author(s) of outstanding papers published in the *E. J. Phycol.* in 2007. Here we detail the winners:

Kathleen Drew-Baker Award

Dr Alison R. Taylor

Department of Biology and Marine Biology, University of North Carolina, Wilmington, USA. Email: taylora@uncw.edu

On behalf of myself and my co-authors I am delighted to accept the Kathleen Drew Baker Prize 2007. The work described in the selected paper (Taylor et al. 2007) arose as part of our research program investigating the cell biology of coccolithophores, and involved work conducted both at the Marine Biological Association and the University of Plymouth, UK. The research was generously supported by the Natural Environmental Research Council and the Biotechnology and Biological Sciences Research Council and involved masters students in the MBA- University of Plymouth graduate program in marine biology.

But where did it all start? My interest in cell biology, signal transduction and membrane transport of marine protists emerged during my undergraduate studies in The Department of Biological Sciences at Leicester University UK and through several postdoctoral appointments in the UK and USA. This interest was specifically focused on the cell biology of diatoms and coccolithophores during my appointment to The Marine Biological Association, first as a Leverhulme Research Fellow, and later as a Marine Biological Association Research Fellow. Marine protist cell biology continues to be a central research theme of my research as a new faculty member of the Department of Biology and Marine Biology, University of North Carolina, USA. In collaboration with Professor Colin Brownlee at the MBA and other colleagues in the UK and USA we continue to pursue these research goals to unravel mechanisms of biomineralisation, environmental sensing and cellular homeostasis.

The subject of the paper was the production and secretion of coccoliths by coccolithophores - unicellular calcifying photosynthetic protists that account for up to 50% of global calcification. They therefore play both long term and short term roles in biogeochemical cycling of carbon. The remarkable feature of these unicells is the internal precipitation of a highly ordered calcium carbonate coccolith in a specialised Golgi-derived compartment that is essentially isolated from the external seawater. Once complete, each coccolith is extruded through the plasma membrane to form the external coccosphere. From a cell biologists view, there are many processes related to this extraordinary feat that remain poorly understood but which could provide crucial information to enable more accurate predictions of how intracellular calcification may be affected by and adapt to climate change and increased ocean acidity. Moreover, the exploration of such 'extreme' physiology also provides unique insights into fundamental cellular processes of cellular ion transport and homeostasis. Such questions include; how are the necessary ions transported to the intracellular vesicle? Which processes contribute to regulation cytoplasmic Ca^{2+} and pH during calcification? How is the formation of coccoliths coordinated with other processes such as cell division? How are the metabolic demands of calcification met? What are the processes by which cells, shape, secrete and position the coccoliths on the exterior surface in such a regular manner? Indeed, while coccolithophore calcification has been the subject of decades of research, detailed information regarding the actual act of secretion was lacking (Paasche 2002).

The goal our paper therefore, was to document the major structural components and temporal characteristics of heterococcolith production in *Coccolithus pelagicus* ssp. *Braarudii* using both live cell imaging and higher resolution electron microscopy (Taylor et al. 2007). We were able to show that the coccolithophore cells exhibit highly dynamic behaviour; including rotations and contractile movements during coccolith formation (approx 2 hours) before rapidly secreting the mature coccolith in a dynamic exocytotic event (1-2 min). Once the coccolith is secreted a new one starts to form within seconds. Our observations also led us to hypothesize that the external organic layer that underlies the coccosphere plays a critical role in enabling the cells to rotate and position coccoliths in such a manner as to maintain a complete coccosphere without 'gaps'. A video of coccolithophore production and secretion will be available for those interested in seeing this amazing process in a time-lapse movie format at the following research website: http://www.uncw.edu/bio/faculty_taylor.html. Our work now continues on a number of aspects of calcification and we are applying higher resolution live cell approaches to monitor effects of pH and the role of the cytoskeleton on coccolith production in these truly fascinating cells.

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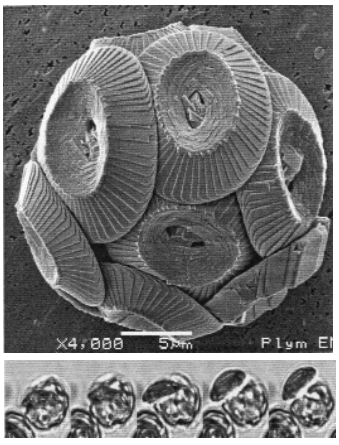
Taylor, AR; Russell, MA; Harper, GM; Collins TFT, Brownlee C (2007) Dynamics of formation and secretion of heterococcoliths by *Coccolithus pelagicus* ssp *braarudii*. *European Journal of Phycology* 42: 125-136.



Upper plate scanning electron micrograph of *Coccolithus pelagicus* ssp *braarudii* showing the beautiful heterococcoliths overlapping to form the coccosphere. The lower series of light micrographs show a previously decalcified cell in timelapse showing a sequence of secretion of an intracellular coccolith though the plasma membrane and organic layer - whole sequence is 150th s.

New Investigator Award

Dr Sebastian Meier
Christian-Albrechts-Universität zu Kiel, Germany

Winning the new investigator award in a phycological journal is a special honour for me as a trained geologist/palaeontologist, and I thank the *European Journal of Phycology* for giving me the award. I started my career by looking at the fossil remains of the Thoracosphaeraceae, a group of dinoflagellates that produces calcareous cysts, trying to make use of the nicely preserved microfossils for palaeoceanographic reconstructions. I was always interested in the biological background of my research, as the biology of dinoflagellates, and especially their life cycle are obviously of central importance for their occurrence in the water column. Surprisingly, this fact still needs more attention in many organism-based palaeoceanographic reconstructions. During the work for the *EJP* paper, I was on an EU funded Marie Curie Fellowship at The Natural History Museum, London, to study the life-cycle of calcareous dinoflagellates. This brought me into the world of ploidy levels, meiosis, mitosis, syngamy, etc. and left me with a (hopefully) fuller understanding of how my favourite microfossils are being produced and how they evolved. It certainly left me with a head full of new ideas of what else I would like to know about them. In particular, I am interested in the evolution of calcification within the Thoracosphaeraceae, which takes places during the haploid or the diploid life cycle phase in two distinct lineages, respectively. I am studying different ultrastructures that may represent the different biomineralisation modes in calcareous dinoflagellates. Currently, I am working as the SEM lab manager at the Institute of Geosciences at the Christian-Albrechts-Universität in Kiel.

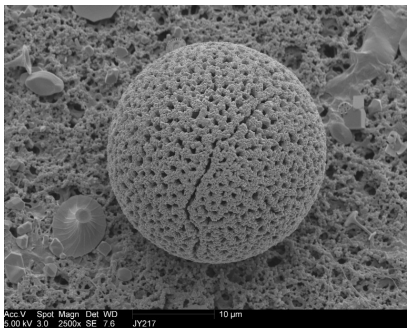


Image of a calcareous dinoflagellate cyst (*Calciodinellum albatrosianum*). S. Meier.

Other news

FEPS News

The FEPS Council Meeting was held in Brussels as scheduled on Friday July 18. This was followed immediately by the first AGM of the Federation. As specified in the FEPS Constitution, this AGM brought to an end the "Founding Phase" of FEPS, confirming the full establishment of the Federation.

It was proposed that the governance of FEPS should be along the lines of that used in the founding Phase with some changes.

The Constitution was approved.

I was asked to serve as FEPS President, which I shall be pleased to do. Period of appointment: 2 years, with 2 years to follow as immediate Past President.

A post of Vice-President (President Elect) has been established and Prof. Marina Aboal (President Spanish Phyc. Soc.) has agreed to serve.

The posts of Secretary and Treasurer are to remain as a single appointment at present and Elliot Shubert has kindly agreed to serve in this dual role.

FEPS Membership fees are to remain unaltered for the coming year (1 Euro per member per year in each Full Member).

The following points were also ratified:

- a FEPS publication is to be developed.

- the European Phycological Congresses are FEPS activities (staring with Rhodos 2011)

- FEPS website (under development).

G.A.Codd, July 2008

SYSTEMATICS AND TAXONOMY:

House of Lords Report with Evidence, published 13 August 2008

An enquiry into the state of Systematics and Taxonomy across the life sciences has been held this year by the UK's House of Lords. This has included assessments of :

- The role of systematic biology in the delivery of policies

- The health of the discipline in the UK - professional taxonomists, volunteers, recruitment

- Tools and technologies for the 21st Century

- Funding and resources

- Government awareness

The Report (ISBN 978 0 10 401349 6) was published by the UK Government's Science and Technology Committee and is available for purchase from The Stationery Office (TSO):

www.tsoshop.co.uk

customer.services@tso.co.uk

The British Phycological Society contributed written evidence to the Enquiry on the state, role, outputs, and present and projected skills base relating to the systematics and taxonomy of freshwater and marine algae in the UK. See Report, pp. 217-221.

I thank Prof. Juliet Brodie, who co-ordinated our response, Profs. Christine Maggs and David John, and David Mann and other members of the BPS Council for their contributions.

Geoffrey Codd, BPS President

The decline in the number of Algal Taxonomists in the UK

In February this year, the British Phycological Society responded to a call for evidence on systematics and taxonomy from the House of Lords Science and Technology Committee. The report: Systematics and Taxonomy: Follow up, published in August 2008 is the result of the third inquiry into systematics and taxonomy by this committee. The first was in 1992 with a follow-up inquiry in 2001-02. For its most recent exercise, the House of Lords committee chose to see whether, in essence, systematic biology in the UK is in a fit state to generate the taxonomic information required and whether the UK has the skills to predict the impact of climate change on biodiversity. The report concludes that the state of systematics and taxonomy is unsatisfactory, even to the point of crisis in some areas such as mycology. The report's proposals include the establishment of a more effective dialogue between users and producers and the incorporation of relevant issues into school curricula. The committee is worried that the Government and Research Councils do not appear to have recognised this concern.

The report, including the submission of the BPS can be found at:

http://www.publications.parliament.uk/pa/ld200708/ldselect/ldsctech/162/162.pdf. As part of the evidence presented by the BPS, we compared the number of algal taxonomists in the UK 10-20 years ago with those now (Table 1). The data were assembled by a small group of us based in museums and botanic gardens, aided by BPS council members and others. We restricted 'taxonomist' to mean those who have engaged in taxonomic research and published in this field. We therefore excluded people who use taxonomy in their phycological research but do not publish taxonomic papers, but we did include people whose primary focus is, for example, ecology or palaeoecology but find themselves having to solve taxonomic problems. It is quite possible that we missed a few people and we apologize to them; it is also possible that we got a few ages wrong, and we may have been optimistic in our assessment of current activity in some cases. Nevertheless, we believe our assessment is by-and-large correct and the outcome is clear, with current levels of algal research taxonomists at 25 % of the numbers 10-20 years ago.

Is it too late to reverse, or even stop the decline in the UK systematics and taxonomy knowledge and skills base, and in phycology in particular? No, but only if short- and long-term measures are supported and implemented, and without much further delay. The response of the government to previous House of Lords reports has not been encouraging but the persistence of the senior House in returning to the topic shows that there is yet some hope. BPS will continue to gather evidence about the condition of algal taxonomy in the United Kingdom and elsewhere: something for the new Federation of European Phycological Societies to address perhaps?

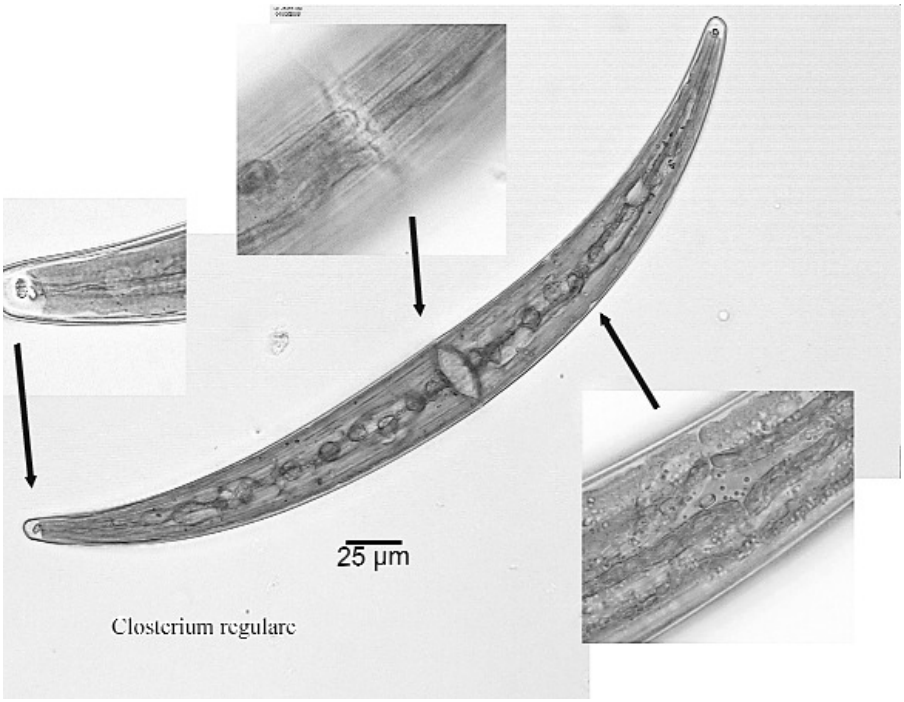
Profs Juliet Brodie, Geoffrey A. Codd and David Mann

Table 1. The number of algal research taxonomists in the UK: 10-20 years ago and current.

University/ other institution	Number of taxonomists 10-20 years ago	Number of current research taxonomists	Age of current research taxonomists
Dunstaffnage Marine Laboratory	0	1	40+
Freshwater Biological Association	2	2 retired	60+, 90+
Heriot Watt University	1	1	60+
King's College London	1	0	n/a
London University (North London Poly)	1	0	n/a
NHM	11 in post, 2 retired	3.5 in post, 4 retired	40-80+
RBGE	3	2	55+
Royal Holloway, University of London	1	0	n/a
Queen's University Belfast	1	1	50+
Plymouth Marine Lab	2	1 retired	50+
Portsmouth University	4	0 in post, 3 retired	60-75
Scottish Marine Biological Association	1	0	n/a
University College London	2	2	40+-55-
University of Birmingham	1	1 retired	65+
University of Bristol	3	1 retired	80+
University of Buckingham	1	0	n/a
University of Dundee	1	1	60+
University of Durham	1	1 retired	70+
University of Glasgow	1	0	n/a
University of Leeds	1	0	n/a
University of Liverpool	3	0	n/a
University of Plymouth	0	1	45+
University of Wales, Bangor	2	0	n/a
University of Westminster	1	1	50+
Independent professional	2	2 retired	70+
Non-professional	5	1 retired	70+
TOTALS	**52 +2 retired**	**13.5 + 16 retired**	

A rediscovered UK desmid: *Closterium regulare* Bréb

Christopher F. Carter[1] and David B. Williamson[2]
[1] 6 Church View, Wootton, Northampton, NN4 7LJ.
[2] 15 Brocks Hill Drive.Oadby, Leicester, LE2 5RE



***Closterium regulare*. Image C. Carter.**

Brébisson (1856) was the first to describe *Closterium regulare* in a catalogue of Desmids from Lower Normandy; it has sometimes been considered a 'doubtful species' and has not been recently recorded in the UK.

The English Midlands are not often in the spotlight for freshwater algae:- that is usually an honour for the Lake District or the Outer Hebrides. One of us however (CFC) has been recording the desmids and stoneworts within an interesting Northamptonshire SSSI which contains a large number of ponds that started as holes left after the excavation of clay blast walls between ammunition stores. The area is now regularly used for police and military training and is relatively isolated from agricultural activity.

As always with desmids the identification to species level can be fraught with difficulty and Chris had asked David for help concerning an unusual feature of the large local population of *Closterium praelongum*. This particular pond sample was quite rich in algae and contained a number of other *Closteriums* and some *Cosmariums*: one taxon had been initially identified as *Closterium striolatum* but David noticed that certain taxonomic features were not quite right and after some further study came to the conclusion that this one was actually the very rare *Closterium regulare*.

We are currently monitoring the ponds in question in the hope of finding zygospores; culture is being attempted and the local ecology and water chemistry studied. It is hoped that a full paper on the species can be produced before too long.

Closterium regulare is indeed described in West W. & West G.S.(1904) from two localities in the British Isles but their description does not entirely line up with the most modern European Flora of Coesel (2007) nor with our material; it is not in the standard "Coded list of British algae" (Whittton et al. 2003) and it will take time to check the references behind a number of very old plates from the invaluable Fritsch collection. It is very similar to *Closterium striolatum*, *Closterium costatum* and *Closterium laterale* but has a unique set of characters in the apex, striations, pyrenoids and cell wall.

Since this SSSI is the only known UK site for this desmid we are well on the way to claiming a place in the provisional list of "Areas of Importance for Algae" (Brodie et al. 2007) and will be working hard to meet the other criteria for selection. This discovery is an encouragement to all of us to keep our eyes open since the authors of this report tell us that there are many other desmids that have not been recorded for several decades; these are probably sitting in a forgotten pond somewhere near you!

Thank you to Dr Liz Howarth and Elaine Monagham at the Fritsch collection at Windermere, Cumbria. Thanks also to Dr David John for constant help and encouragement.

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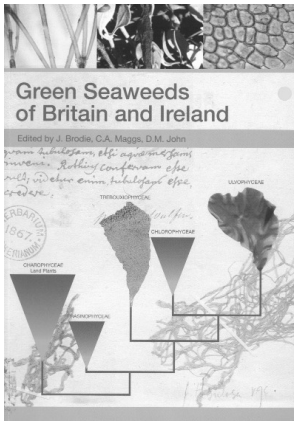
WANTED:

FEEDBACK FOR GREEN SEAWEEDS OF BRITAIN AND IRELAND



We, the editors of Green seaweeds of Britain and Ireland (Brodie et al., 2007), are very keen to obtain feedback from anyone who is using this book. Please let us know what works and what does not, any errors you spot, omissions and any other comments that we would find useful to improve this work. Send your feedback to Juliet Brodie J.Brodie@nhm.ac.uk.

Reference

Brodie, J., Maggs, C.A. & John, D.M. (Editors) (2007). Green seaweeds of Britain and Ireland. Printed for the British Phycological Society by Dataplus Print & Design, Northern Ireland.

WANTED:

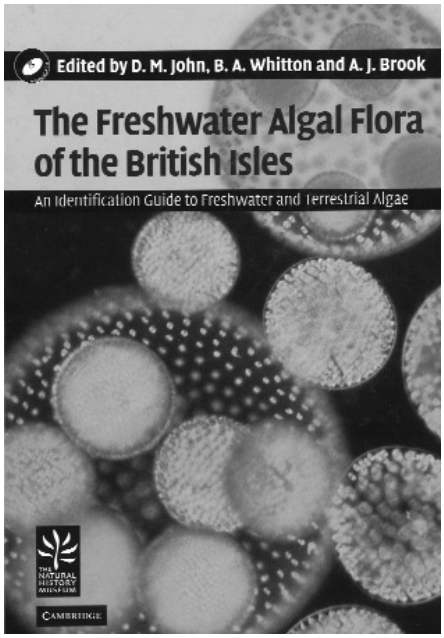
FEEDBACK FOR FRESHWATER ALGAL FLORA OF THE BRITISH ISLES

Since publication by Cambridge University Press in 2002 over 1,500 copies of the Flora have been sold with about two-thirds of sales in Europe. The original edition was planned and organised by the Freshwater Algal Flora Committee of the BPS (1991-2002) and was edited by David John, Brian Whitton and Alan Brook who contributed the general chapters and about half of the material. The remainder was written by 24 specialists of whom about a third were based overseas. Accompanying the Flora was a CD containing a photo catalogue of over 800 images of freshwater and terrestrial algae. These images and about a further 200 became available in 2004 as a searchable electronic database 'AlgaeVision' (York & John, 2004). On the front cover of the Flora are the logos of the main sponsors, the British Phycological Society and the Natural History Museum (London).

Following discussions with the main sponsors and the publisher the editors have decided to prepare a new and somewhat enlarged edition to be published in 2010. Some sections need little revision, although others require a considerable rewrite to take account of new records, nomenclature changes, new information and sometimes conflicting views on the taxonomy. For instance, the blue-green algae need a detailed and critical treatment because of the differing approaches of authors, as well as the need for more thorough treatment of the ecology of species and their distribution in the British Isles. A further 150 desmid species will be added since, only about one-third (300) were in the first edition. The second edition will list colourless forms (especially euglenophytes) and about a further 20 half-tone plates will be included. New Coded Checklist numbers will be generated where needed. Some introductory material will be rewritten to take account of the requirements of the European Water Framework Directive, a directive introduced subsequent to the first edition. The accompanying DVD (rather than a CD) will include much new material (check list, video-clips of motile forms, etc.) in addition to the photo catalogue. The changes will increase the length of the second edition by about 10%.

The original authors have already started to update their contributions and several new specialists have agreed to participate. All authors are encouraged to adopt a fairly conservative approach, introducing changes only if the supporting evidence is overwhelming, and to discuss present and likely future implications of the findings of molecular studies on taxonomy and classification. Nonetheless, the Flora remains essentially a practical guide designed to enable accurate species-level identification using characters seen with the light microscope.

A year after publication of the first edition there was a second printing (April 2003) in which minor errors were corrected and dates of recent works added. Both these changes and a few more errors are listed by John & Whitton (2003). If you are aware of errors not listed there, have met problems with the identification keys or have any other suggestions for improvements then please let us know. Additional images for the photo catalogue would be welcome and any used will be fully acknowledged.



References

John, D.M. & Whitton, B.A. 2003. Corrections to the April 2002 printing of 'The Freshwater Algal Flora of the British Isles'. The Phycologist 24: 16-18 (this issue of The Phycologist can be downloaded as a PDF from the BPS website)

York, P.V. & John, D.M. 2004. AlgaeVision: virtual collection of UK freshwater algae and habitats. Version 1. Worldwide Web Electronic publication (http://www.nhm.ac.uk/research-curation/projects/algaevision/index.html).

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Freshwater Algae Course 2009

Where and when?

Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, Scotland (near the tourist area of Pitlochry), Friday, 5 June - Friday, 12 June, 2009. This is the 14th year that the course has been offered.

http://www.field-studies-council.org/kindrogan/

What is the course about?

The course takes full advantage of the excellent range of aquatic and terrestrial habitats in this beautiful area of Highland Perthshire to provide a sound introduction to the recognition, identification and ecology of freshwater algae. Emphasis will be placed on the use of the microscope and taxonomic keys (print and electronic) for the identification to generic and species level and their ecological importance.

For those with some prior knowledge of the algae, we hope that the opportunity to study samples from a range of habitats will broaden their knowledge and/or allow them to focus on particular groups. Field trips, on foot or by vehicle, will be varied, but not strenuous and will be complemented by laboratory work, illustrated talks and class discussion. The course focuses on how to get to grips with identification, and the broader aspects of algal morphology, structure, reproduction, and classification (morphological and molecular).

Who are the course tutors?

The course tutors, Dr Eileen Cox and Prof Elliot Shubert, have taught this course for the past 13 years and they have a wide-ranging expertise on freshwater algae. Eileen and Elliot conduct research at The Natural History Museum, London, specialising in diatoms and green algae respectively. Eileen has published a key to live diatoms and is Co-Editor-in-Chief of the *European Journal of Phycology*. Elliot has published a key to the non-motile coccoid and colonial green algae and is Editor-in-Chief of Systematics and Biodiversity.

We will be joined for part of the course, by Guest Tutor, Dr Laurence Carvalho, Centre for Ecology and Hydrology, who will give a presentation on the EU Water Framework Directive with special reference to lakes and he will describe also detail phytoplankton counting methods.

Who are the participants?

The course is open to individuals with different backgrounds ranging from beginners to those who would like to refresh their knowledge of particular groups of algae or experience collecting in a different region of the world.

What is the full cost of the course?

The course costs £440 per person (approx 545€ or $802), which includes accommodation, all meals (please notify the Centre if you have any special dietary needs) and tuition. This is excellent value for money and costs significantly less than other freshwater algal courses on offer. This is a reduction in the 2008 fee.

Is there support for students?

Yes, support for a student stipend is available from:

1. The British Phycological Society
http://www.brphycsoc.org/funding.lasso

The deadlines for applications are: 30 September, 1 December, 1 March and 1 June. The sooner you apply, the better are your chances are of receiving a stipend.

DO NOT DELAY, APPLY TODAY.

2. Graduate students who are members of the Phycological Society of America are eligible for financial support to attend a phycology course at a field station from the Hannah T. Croasdale Fellowship.

http://www.psaalgae.org/soc/croasdale.shtm

The deadline for applications is 1 March 2009.

DO NOT DELAY, APPLY TODAY.

3. The British Ecological Society (http://www.britishecologicalsociety.org) has Specialist Course Grants available for BES members (undergraduate and graduate) allocated on a first-come-first-served basis. The grant covers the course fee which includes accommodation but not travel. Application is by form, available from the BES office and downloadable from this webpage.

http://www.britishecologicalsociety.org/articles/grants/attendmeetings/

How do you get to Kindrogan?

Edinburgh and Glasgow have international airports. The airports have a coach connection to the main railway station in the respective cities. The nearest mainline railway station is Pitlochry, which is on the London Kings Cross-Edinburgh-Inverness route. Participants will be met at Pitlochry by Kindrogan staff.

Where can I find more information?

For detailed information about the Kindrogan Field Centre:
http://www.field-studies-council.org/kindrogan

For course information, go to (web link not available at this time):

http://www.field-studies-council.org/2009/courseinfo.aspx?id=503

For a booking form, go to (web link not available at this time):

http://www.field-studies-council.org/professional/2009/bookinginformation.aspx

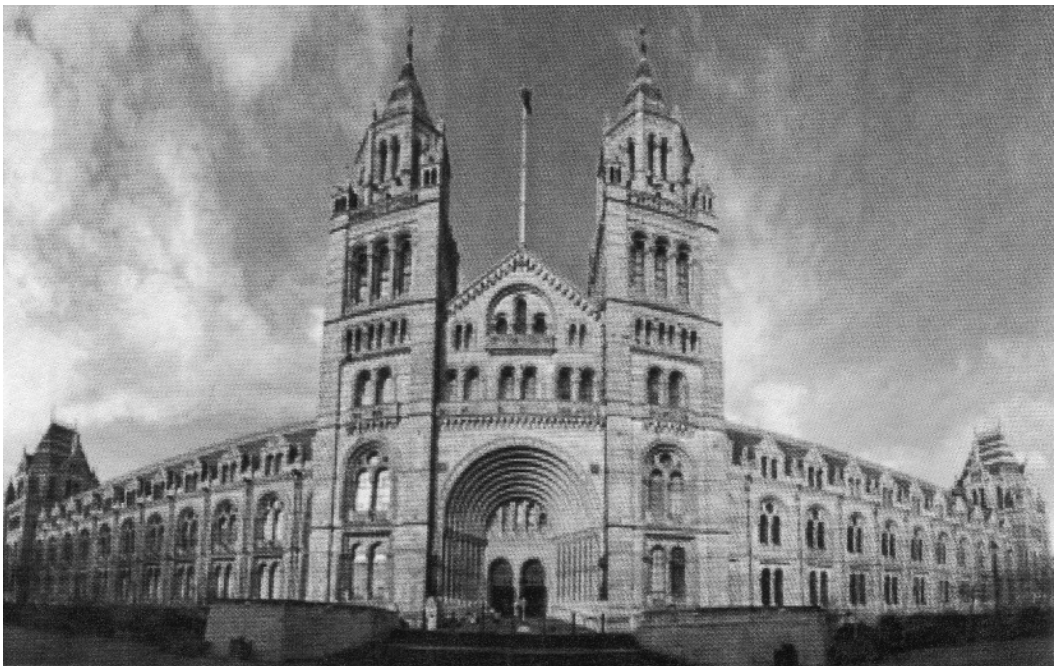
A non-refundable deposit of £50 (approx 62€ or $91) is required (credit cards are accepted).

If you have any other queries, please contact:

e.shubert@nhm.ac.uk
Prof Elliot Shubert; Department of Botany
The Natural History Museum, Cromwell Road,
London SW7 5BD, United Kingdom

Tel 020 7942-5606 (UK)/Tel +44 207 942-5606 (international)
Fax 020 7942-5529 (UK)/Fax +44 207 942-5529 (international)

British Phycological Society
57th Winter Meeting, London 2009



First circular

The 57th Winter Meeting of the British Phycological Society will be hosted by the Natural History Museum. There will be 2½ days of talks starting in the afternoon of Monday January 5th and ending on Wednesday January 7th. The poster session on the first evening, January 5th, will be accompanied by a wine reception and buffet, and the President's quiz night will take place after dinner on the Tuesday night. The meeting will end with the conference dinner and auction on the evening of January 7th, with delegates heading home on the 8th.

There will be two special sessions during the meeting: "Algal - non-algal interactions" organised by Prof. Paul Hayes and Dr Thomas Pröschold, and "Aliens and introductions - uncovering histories" organised by Prof. Juliet Brodie and Prof. Christine Maggs. As he reaches the end of his 2-year term of office, Prof. Geoff Codd will be giving his Presidential address, and there will also be the usual Manton prize presentations. It will be possible for delegates to visit the algal herbarium after the meeting, but please contact Ms Joanna Wilbraham (joaw@nhm.ac.uk) beforehand to plan your visit.

Abstracts

In order to finalise the scientific programme, contributors should complete and return an abstract form by 26th September 2008. Please indicate whether you are giving an oral or poster presentation (noting the maximum size allowed). Students should indicate whether they are entering the Manton prize or student poster prize sessions.

Oral presentations should be planned to last 15 mins, with 5 mins for questions. Presenters should bring their presentations on a memory stick (not a CD), in a PC compatible form, ensuring that the file is clearly labelled with their name.

Posters should be prepared to fit a maximum size of 85cm wide, 120 cm high (portrait layout). Larger posters will not be accepted. Students should indicate clearly if they wish to be entered for the student poster prize. It will also be helpful if they include a photo of themselves on the poster.

Please send your abstract electronically as a word attachment (details available on the BPS website) or as plain text within the body of an e-mail, following the word limit on the form.

Registration forms will be available from early October. The cost of the meeting will include tea, coffee, lunches and dinners, including the conference dinner on Wednesday. However it will not cover the cost of accommodation or breakfast. Delegates are responsible for finding their own accommodation.

There is obviously a wide choice of accommodation in London and we will post list of hotels and hostels with an indication of distance from the museum. We recommend that you book early, and that you try the web for special deals.

Instructions for Contributors

Copy which is submitted for publication in *The Phycologist* should be concise and informative. Articles should be scientifically sound, as jargon free as possible and written in a readable scientific magazine style. Unless absolutely essential, references should not be included. All types of relevant material will be considered, these include job advertisements, scientific reports, book reviews, news items of topical interest, meeting announcements, grant awards, promotions, appointments, profiles of eminent phycologists and obituaries. If you are interested in submitting material that does not fall within any of these broad categories, or you are unsure of the appropriateness of a potential article, then contact the editor. Suggestions for future articles or a series of articles are welcomed.

Copy should be submitted, preferably as attachments to email or on disc (MS Word for Windows or Rich Text Format). **Illustrations and photos to accompany copy are welcomed and should be supplied in JPEG or TIFF file-format no less than 600 dpi resolution**. The editor reserves the right to edit the material before final publication.

Submission of Copy and Deadlines

Copy should be submitted to:

Dr Jan Krokowski
Scottish Environment Protection Agency,
Redwood Crescent, Peel Park, East Kilbride,
Glasgow G74 5PP
Tel. +44 (0)1355 574200
Fax. +44 (0)1355 574688,
E-mail: jan.krokowski@sepa.org.uk

Deadlines are **March 1st** for the April issue, **September 1st** for the October issue

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