# The Phycologist

## The Newsletter of the British Phycological Society.

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**Copy Deadlines**: Copy should be submitted to the editor in electronic form. Copy deadlines are 31.01 for the April issue, 31.05 for the August issue and 30.09 for the November issue.

**BPS Home Page**. The BPS Home Page is: http://www.qub.ac.uk/bb/jbpage/bpshome/bps.htm

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## MESSAGE FROM THE NEW EDITOR

As all of you are no doubt aware *The Phycologist* has been in a state of transition in recent months due to the absence of a permanent editor. Rather rashly and perhaps somewhat naively, I have agreed to take over this position. At the June BPS council meeting there was much discussion over the form that the Newsletter should take to best serve the interests of the members. We finally agreed to revamp this publication in the style of a more modern production, with a newspaper type format and the inclusion of colour reproduction. But don't panic, all of the usual articles will be included, apart from the abstracts for the Winter Meeting, which will be published separately. I would be particularly keen to increase the number of photographs and I already have ideas about at least three longer-running items, a 'Historical Corner' and sections on 'Taxonomic Tips' and 'Phycological Methods'. The one major difference between the new publication and the older versions is that the articles need to be concise and yet informative and I will reserve the right to edit these accordingly. Obviously, the success of this venture depends largely on you, the members. Any comments, advice or suggestions are encouraged. Finally, I would like to thank the acting editor, Richard Geider, for all the work that he has done on The Phycologist, whilst still dealing with his many duties as Secretary of the BPS.

# BPS COUNCIL - CALL FOR NOMINATIONS

The BPS Council solicits nominations for Vice-President/President Elect, Hon. Membership Secretary and Ordinary Members of Council. All such nominations, with the name of a seconder and the written consent of the nominee, should be forwarded to the Hon. Secretary (Richard J. Geider, Marine Biological Association of the United Kingdom, Plymouth PL1 2PB) not later than 3 November 1998.

# BPS WINTER MEETING 1999

4-7 January 1999, University of Dundee, Scotland

The next BPS Winter Meeting will take place from 4-7 January 1999 at the University of Dundee. Professor John Raven is the local organizer. There will be a poster session and 2 1/2 days of papers. The topic of the Applied Day (5 January) will be "Threatened and Threatening Algae." This topic recognizes man's damaging effect on algae and *vice versa* (namely that damage to man by algae is usually a product of man's intervention in the first place). There will be special sessions on "Algae in extreme environments," "Algal taxonomy: where we've been and where we are going" and "Inorganic and organic carbon assimilation by algae." The Manton prize will be awarded for best student presentation. A prize will be awarded for best student poster. The Presidential address will be given by Prof. Brian Moss. The title is "FROM ALGAL CULTURE TO ECOSYSTEM; FROM INFORMATION TO CULTURE." The programme for the Winter Meeting will be distributed together with registration forms in the November Issue of *The Phycologist*.

Abstracts should be submitted on disk (Word 6 or Wordperfect 5.0) or by e-mail to R J Geider, Marine Biological Association of the United Kingdom, Plymouth PL1 2PB, (e-mail: rdg@wpo.nerc.ac.uk). **Abstracts must be received by 1 October**. They should conform to the following format.

**GEIDER, R.J.,** A.N. Other and Y.E.T.I. Third (Marine Biological Association of the United Kingdom, The Laboratory, Citadel Hill, Plymouth PL1 2PB; e-mail: rdg@wpo.nerc.ac.uk)
**How to prepare an abstract.**

Please type the summary of your paper, incorporating the major results and conclusions using an **upper limit of 250 words**. Ensure that the names and institutions of authors are clearly stated. The first author's name should be in bold face upper case type. Other authors should follow, as indicated above. The title should be in bold face type and immediately follow the institution and contact details. If more than one institution is represented, use superscipts 1,2,3 to associate author with institution. Avoid use of sub- and/or superscripts and symbols in the text. To facilitate preparation of the abstract booklet, you are requested to submit abstracts by e-mail to R.J. Geider at rdg@wpo.nerc.ac.uk. If it is not possible to submit via e-mail, then send a copy of your abstract together with a Word or WordPerfect file on diskette to R.J. Geider at the above address. The deadline for receiving abstracts will be strictly adhered to.

**IRENE MANTON PRIZE**: The Irene Manton Prize is awarded by British Phycological Society for the best talk presented by a post-graduate student member of the society at the Winter Meeting. This prize recognises both the quality of the research and the effectiveness of the presentation (clarity, timing, visual impact, etc.). This prize is made available as a result of a donation from the Estate of Irene Manton to the British Phycological Society. To be considered for the Irene Manton Prize, a student must submit an application form (below) and a 1-2 page c.v. with the abstract of the paper to be presented at the Winter meeting.

**POSTER PRIZE**: A prize of £100 will be awarded for the best poster presented by a post-graduate student member of the society at the Winter Meeting. To be considered for the Poster Prize, a student must submit an application form together with the abstract of the paper to be presented at the Winter meeting.

**STUDENT TRAVEL GRANT**: Student members of the Society who are presenting talks or posters can apply for a travel grant to offset up to 1/2 of the cost of attending the winter meeting. Grants will be based on student rail fare between their home institution and the site of the Winter Meeting, although students may travel by other means. Reimbursement will be made by the Treasurer (Dr. J.A. Berges) at the Winter Meeting upon presentation of receipts for costs incurred. In order to be considered for a travel grant, an application must be made at the same time as the submission of the abstract.

Submit applications to :
Dr Richard J Geider, Secretary, BPS,
Marine Biological Association of the UK
Plymouth PL1 2PB

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Application for Manton Prize, Poster Prize and Travel Grant (delete as necessary)

Student's Name:_____

Department:_____

University:_____

Postal Address:_____

_____

Rail Fare: _____

This application will not be considered unless eligibility is confirmed by the PhD supervisor's signature.

PhD Supervisor:_____Signature_____Date_____

**Does blue light control the lower depth limit of charophyte meadows?** Anette Küster, Dept. of Biology, University of Rostock, 18055 Rostock, Germany.

Report on 1997 British Phycological Society Summer Studentship

In 1995/96, together with my colleagues at the University of Rostock, I investigated the depth distribution of charophyte populations along the Baltic Sea coastline of Mecklenburg-Vorpommern, Germany. Several brackish water lagoons contained significant *Chara* populations. This was of special interest, because all charophyte species are included in the Red Data Book of Germany and are therefore protected. The results of the survey showed that the lower limit of charophyte zones correlated well with the availability of blue light (BL), but not so well with red (RL), green (GL) or total light (PAR). Charophyte populations were not observed below depths at which BL was reduced to 15% of the surface value.

I was delighted to receive a 1997 BPS Summer Studentship, which gave me the chance to extend these observations to water bodies with a wider range of optical conditions. Thus, the following three lakes in the charming Lake District National Park of Mecklenburg-Vorpommern were chosen: first, the Drewitzer See, which is a long, deep (>30 m), groundwater-fed mesotrophic lake with extensive cover of benthic macrophytes due to its good water quality. Second, the Inselsee with a mean depth of 9 m and a meso- to eutrophic status due to nutrient inputs from surrounding agricultural land and third, the Döpe which is a small, shallow and strongly eutrophic lake. To estimate the coverage of the existing charophyte populations, scuba divers swam out on 200 m transects from the shore, recorded the positions of the algae, and collected samples at the upper and lower limit of *Chara* zones for physiological analysis (pigments and photosynthesis). To quantify the underwater light climate, spectral irradiance ($I_{(\lambda)}$) was measured with a submersible spectroradiometer and the surface irradiance was monitored with a flat PAR detector. In the laboratory, photosynthesis versus irradiance curves were measured using an oxygen electrode cell coupled with a Light Pipette system for automatic generation of irradiance sequences. Pigments were extracted in acetone and analysed by absorption measurements and HPLC techniques.

The first dives revealed dense and beautiful meadows of *Chara tomentosa* in Drewitzer See and Inselsee. The vertical range of this species was 0.5 to 4.5 m and 0.3 to 1.7 m respectively (Table 1). In contrast, the dominant species in the strongly eutrophic Döpe was *Chara fragilis* with a vertical range of 0.5 m to 1.5 m below the surface.

As expected, the penetration of light was deepest in the mesotrophic Drewitzer See, and shallowest in the eutrophic Döpe. This was due to differences in the concentrations of phytoplankton and coloured dissolved organic material (cDOM, Table 1). In Drewitzer See, the attenuation spectra showed a broad minimum at 560-580 nm and a mean of 11% of the surface BL was available at the lower limit of *C. tomentosa* (20% of PAR was available at the same depth). In contrast, the Inselsee had twice the cDOM concentration than the Drewitzer See, which caused enhanced attenuation of BL. For the Döpe, both chlorophyll a and cDOM were approximately 4 times higher than in the Inselsee. This resulted in reduced light availability at all wavelengths. The lower limit for charophytes in all three lakes occurred at depths at which blue light was reduced to between 5 to 21% of the amount at the surface, thus agreeing well with our findings from the coastal lagoons.

The photosynthesis measurements showed evidence for a "classic" photoacclimation in *C. tomentosa* from Drewitzer See. Algae collected at 4.5 m (=20% of surface PAR) had a lower $P_{max}$, (light- saturated photosynthetic capacity) with some indication of photoinhibition at the highest irradiances used, a higher $\alpha$ (initial slope of light-limited region), and lower dark respiration rate (R) than those collected near the surface. In addition, the amount of carotenoids in *C. tomentosa* varied with increasing depth. The HPLC analysis showed that shallow water samples contained much higher concentrations of two unknown carotenoids, eluting between chl a and ß- carotene.

The findings from the three freshwater lakes agree very well with our previous results from the brackish water lagoons along the Baltic Sea coast. With the help of the BPS Summer Studentship I have increased my knowledge of *Chara* taxonomy, physiology and ecology, and now have further support for the hypothesis that BL may be an important factor in zonation of charophyte populations. Nevertheless, further investigations are needed for a better understanding of how the underwater light climate influences the population distribution of these plants.

Table 1: Characterisation of the optical status of the three lakes.

| Lake | Dominant species | Vertical range (m) | Trophic state | Secchi depth (m) | Chl a ($\mu g\ l^{-1}$) | $Abs_{450}$ ($m^{-1}$) | $K_{PAR}$ ($m^{-1}$) | PAR 1% depth (m) |
|---|---|---|---|---|---|---|---|---|
| **Drewitzer See** | *Ch. tomentosa* | 0.5 - 4.5 | Mesotrophic | 4.5 | 2.2 | 0.46 | 0.37±0.1 | 12.4 |
| **Inselsee** | *Ch. tomentosa* | 0.3 - 1.7 | Meso-/Eutrophic | 2.0 | 4.2 | 0.85 | 0.53±0.1 | 8.7 |
| **Döpe** | *Ch. fragilis* | 0.5 - 1.5 | Eutrophic | 1.4 | 13.9 | 4.08 | 1.19±0.3 | 3.9 |

**British Standards for Toxicity Tests and Benthic Microalgae.** Martyn Kelly, Bowburn_Consultancy@compuserve.com

At some point in the next five years or so, British members of the society will find their charges for water services increasing. Knowing that algae provided some of the information that precipitated these increases may bring scant comfort to most phycologists. It does, however, provide a reason for the society to ensure that the phycological methods used by the Environment Agency, and equivalent bodies elsewhere in the U.K., are robust and reliable.

With my water rates very much in mind, I attended a meeting of the biological methods group of the British Standards Institute on behalf of the society in April. My route to this meeting was somewhat circuitous, having been co-opted as a corresponding member to a technical committee of CEN, the European standards organisation, a couple of years earlier. Representation on this committee means that the society as a whole can now have a direct input into the work of not just the BSi, but also CEN and ISO, the International Standards Organisation. I shall provide regular updates of the workings of these groups via the bulletin, and hopefully members with a practical interest will be able to pass on their views to me.

Two areas are of particular interest to UK phycologists. The first of these involves efforts, co-ordinated by ISO, to develop standards for toxicity testing of algae. A marine algal growth inhibition test has recently been published by ISO[1] and a further standard, on algal inhibition tests with poorly soluble and inorganic substances, volatile organic compounds, heavy metals and waste water, is currently in draft. This latter document is a can of worms, and any member with a practical interest in such methods should contact me as soon as possible if they wish to read the document. I do stress the word "practical": the standards are primarily aimed at regulatory organisations and those that provide information to such organisations, rather than to the academic community at large.

The second area of interest to members is the efforts, via CEN, to harmonise methods for the use of benthic algae. The initial stimulus for such work arose out of the need to implement European Directives such as the Urban Wastewater Treatment Directive, but is now expanding to include the forthcoming "Framework Directive" on Water Policy. Attention so far has focused on the use of benthic diatoms as monitors of river water quality. A workshop, supported by the European Commission, was held in northern France last year and provided an opportunity for experts from 15 countries to compare techniques and prepare a draft standard for sampling benthic diatoms. This draft will go before the relevant CEN committee in June this year, but any members who wish to see either this should contact me as soon as possible. A review article[2], based on the findings of the workshop will be published later this year.

Where next? The Framework Directive will require a much broader definition of "good" ecological quality than is currently used by organisations such as the Environment Agency. Macrophytes, benthic algae and phytoplankton are all likely to play a role in such definitions but, compared to invertebrates, such plant-based methods are still relatively rudimentary in terms of factors such as Quality Assurance (QA). QA is important as the data collected will ultimately influence investment programs by the water companies.

In a quiet moment, write yourself into the plot of a John Grisham novel, or an edition of Kavanagh QC, and imagine that you are on the witness stand at a public enquiry. Could you convince a barrister that your data were of a known and reproducible quality? Many Environmental Agency biologists have done this for invertebrate kick samples, thanks to rigorous adherence to standard methods, analytical quality control and external audits of data. I'm not convinced that many phycologists could survive similar cross-examination. That is why we need to work towards national and international standards for methods that we use regularly.

I'll keep you informed of developments in UK and international standards via future issues of the Bulletin. If you want any more information about the work I have described here, please feel free to contact me at Bowburn_Consultancy@compuserve.com (In case the typesetting gremlin strikes again, that is an "underscore", not a "dash".)

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[1] BS EN ISO 10253 : 1998 BS 6068-5.22 : 1998 Water Quality - Marine algal growth inhibition test with *Skeletonema costatum* and *Phaeodactylum tricornutum*

[2] Kelly *et al.* (1998). Recommendations for the routine sampling of diatoms for water quality assessments in Europe. *Journal of Applied Phycology* (in press).

**Further observations on the coast and marine algae of Ghana.** F.G. Hardy. Department of Marine Sciences and Coastal Management, University of Newcastle, Newcastle upon Tyne, NE1 7RU.

In 1992 a party of scientists from the University of Newcastle visited Ghana to carry out survey work on the distribution of marine algae and molluscs along the coast. Field records of the marine algae found, and details of the localities visited, were published (Hardy & Seku, 1993), and the analysed data from the study was presented at a special conference held in Newcastle upon Tyne to commemorate the retirement of Dr. J. B. Buchanan and Dr. F. Evans of the Dove Marine Laboratory, Cullercoats, both of whom had worked at the University of Ghana earlier in their careers (Evans et al., 1993). As a result of that visit 13 locations were visited and records for 60 taxa were collected, and it became apparent, using ordination techniques, that rocky shores on the eastern part of the Ghanaian coast support different communities from those on the western part of the coast. It was also observed that there had been significant changes during the previous 40 years or so in communities on shores where rocky outcrops rise little above sand level and rocks may be subject to sand scouring and periodic burial, as at Ningo and Prampram.

A follow-up visit to Ghana was made from 23rd to 30th March, 1997, when several of the sites in eastern Ghana were revisited and observations made of changes which had occurred in the five year period since the previous visit. Particularly impressive were the populations of *Caulerpa taxifolia* at Prampram, and particularly pleasing was the finding of *Codium guineense* at Teshie. A study is also being made to evaluate the potential of using marine macro-algae to monitor pollution on the coast of Ghana.

The most obvious physical change at all the locations visited was the extent of coastal erosion, with coconut palms being washed into the sea as a result of sand being scoured from around their roots (as at Kokrobitey, Prampram and Ningo). Near Tema the shore and adjacent road had been severely damaged by tides and reclamation was taking place. According to Sikiron (1986) the average loss of coastline due to sand erosion is 1-1.5 metres per year. At Chicken Bar Point and at Teshie the sand bars had been completely washed away causing the lagoons to empty at low tide (since their contents were no longer being retained by these natural barriers) and this resulted in considerable deposits of sand on the adjacent shores, often burying rocks on which marine algae were attached. It would be interesting to know the extent to which the local floras have been affected by these changes: some ideas may be gleaned from the species lists which follow.

Changes in the environment due to changes in the human use of the coast were also apparent. Twenty years ago Paradise Beach, adjacent to Tema New Town, was a tourist site with beach huts, and the area was kept clean to attract visitors. This attempt at tourism has now ceased and the area has degraded into a local fishing community with considerable amounts of disorder and rubbish. By comparison, new metalled roads have been built to Prampram and to Ningo (replacing red dust roads) and the latter is now the centre for considerable development with numerous beach huts backing the shore. Prampram is a very active fishing village with a large number of traditional fishing boats; some boats are also active at Ningo (and the fishing nets are tied up to dry among the coconut palms). The beach at Ningo is extremely clean; that at Prampram rather less so, particularly adjacent to the village. Both these sites are at the centre of a marine turtle conservation project ("Don't catch them! Don't kill them!! Don't eat them!!!"). The shore at Chicken Bar Point appeared much cleaner than it had been in 1992.

Regrettably, the shore at Teshie is somewhat excessively polluted, being used as an outdoor lavatory facility.

Species lists were assembled for each site and these may be compared with the 1992 records as follows:

**Ningo (visited 27th March, 1997):** *Enteromorpha flexuosa, Ulva fasciata, Chaetomorpha antennina* (1992 only), *C. linum, Struvea anastomosans* (1992 only), *Bryopsis pennata* (1992 only), *Bachelotia antillarum, Ralfsia expansa, Chnoospora minima* (1992 only), *Colpomenia sinuosa* (1992 only), *Dictyopteris delicatula, Dictyota ciliolata* (1992 only), *Padina durvillei, Sargassum filipendula* (1992 only, drift), *S. vulgare, Gelidiopsis variabilis* (1992 only), *Gelidium corneum*(1992 only), *Hypnea cervicornis* (1992 only), *H. musciformis, Polycavernosa dentata* (1992 only), *Gigartina acicularis* (1992 only), *Jania rubens* (1992 only), *'Lithothamnia', Cryptonemia crenulata* (1997 only, drift), *Hildenbrandia rubra* (1992 only), *Rhodymenia pseudopalmata* (1992 only), *Centroceras clavulatum* (1992 only), *Laurencia majuscula* (1992 only), *Spatoglossum schroederi* (1997 only, drift, with epiphytic *Dermatolithon* sp.), *Gymnogongrus tenuis* (1997 only, drift), unidentified blue-greens.

**Prampram (visited 27th March, 1997):** *Enteromorpha flexuosa* (1992 only), *E. linza* (1992 only), *Ulva fasciata, Chaetomorpha antennina* (1997 only), *C. linum, Boodlea composita, Struvea anastomosans, Bryopsis pennata, Caulerpa taxifolia, Bachelotia antillarum, Basispora africana* (1992 only), *Ralfsia expansa, Chnoospora minima, Colpomenia sinuosa, Dictyopteris delicatula, Lobophora variegata* (1992 only, drift), *Padina durvillei, P. tetrastromatica, Sargassum filipendula* (1992 only, drift), *S. vulgare, Gelidium arbusculum* (1992 only), *G. corneum, Hypnea cervicornis* (1997 only), *H. musciformis, Gracilaria foliifera* (1997 only), *Polycavernosa dentata, Gigartina acicularis, Jania rubens* (1992 only), *Fosliella farinosa* (1992 only), *'Lithothamnia', Cryptonemia crenulata* (1992 only), *C. luxurians* (1992 only, drift), *Hildenbrandia rubra* (1992 only), *Rhodymenia pseudopalmata* (1992 only), *Centroceras clavulatum, Bryocladia thyrsigera* (1992 only), *Laurencia majuscula*, unidentified blue-greens.

**Chicken Bar Point (visited 29th March, 1997):** *Enteromorpha flexuosa, Ulva fasciata, Chaetomorpha antennina, C. linum, Boodlea composita, Bryopsis pennata* (1997 only), *Bachelotia antillarum, Ralfsia expansa* (1997 only), *Chnoospora minima, Colpomenia sinuosa, Dictyopteris delicatula* (1992 only), *Dictyota ciliolata* (1992 only), *Lobophora variegata* (1997 only), *Padina durvillei, P. tetrastromatica, Sargassum vulgare, Gelidiopsis variabilis, Gelidium corneum* (1992 only), *Hypnea cervicornis* (1992 only), *H. musciformis, Polycavernosa dentata, Gigartina acicularis, Jania rubens* (1997 only), *'Lithothamnia', Centroceras clavulatum, Bostrychia radicans* (1997 only), *Bryocladia thyrsigera* (1992 only), *Laurencia intermedia* (1992 only), *L. majuscula, Pterosiphonia* sp (1997 only), unidentified blue-greens.

**Teshie (visited 29th March, 1997):** *Ulva fasciata, Chaetomorpha antennina, C. linum, Struvea anastomosans* (1992 only), *Boodlea composita (*1997 only), *Bryopsis pennata* (1992 only), *Codium guineense* (1997 only), *Bachelotia antillarum* (1992 only), *Basispora africana* (1992 only), *Ralfsia expansa, Chnoospora minima* (1992 only), *Sphacelaria brachygonia* (1992 only), *Dictyopteris delicatula, Dictyota ciliolata* (1997 only), *Padina durvillei, P. tetrastromatica* (1992 only), *Sargassum vulgare, Gelidium corneum* (1992 only), *Hypnea cervicornis* (1992 only), *H. musciformis, Polycavernosa dentata, Gigartina acicularis, Jania*

*rubens* (1997 only), *Fosliella farinosa* (1992 only), *'Lithothamnia', Hildenbrandia rubra* (1992 only), *Centroceras clavulatum, Ceramium* sp. (1992 only), *Bryocladia thyrsigera* (1992 only), *Laurencia majuscula* (1992 only), *Polysiphonia ferulacea* (1992 only), unidentified blue-greens.

Evans, S.M., Gill, M.E., Hardy, F.G. & Seku, F.O.K. (1993). Evidence of change in some rocky shore communities on the coast of Ghana. *J.Exp.Mar.Biol.Ecol.*, 172, 129-141.

Hardy, F.G. & Seku, F.O.K. (1993). Some notes on collecting sites and field records for marine algae in Ghana. *The Phycologist*, 36, 2-7.

Sikiron, A.K. (1986). Man's impact on the geomorphological evolution of the gulf of Benin coastal plain (West Africa). *Thalassas*

Acknowledgements: A particular debt of gratitude is due to Francis Seku, without whose invaluable assistance any trip to the Ghanaian coast would be greatly hindered: his knowledge of the Tropical West African marine macroalgae is enormous. Thanks are also due to Professor C.J. Vanderpuye, Department of Oceanography and Fisheries and to Professor A.A. Oteng-Yeboah, Department of Botany (both University of Ghana) for their help and hospitality. The visit was funded by the British Council.

**Algal reference collections at Liverpool Museum**. Linda Irvine (Natural History Museum, London) and John Edmondson (National Museums & Galleries on Merseyside, Liverpool).

Liverpool Museum, part of N.M.G.M., has an extensive algal reprint collection (stored in 68 boxes). It was presented by Dr George Russell, of the University of Liverpool , and incorporates the reprints acquired by Helen Blackler (1902-1981) who lectured at the University of St. Andrews from 1947 to 1968. The reprints are arranged partly by author, but many are grouped by subjects such as geographical area or taxonomic group. One purpose of this note is to publicise the collection; enquiries are welcomed. There is also a working herbarium of around 10,000 sheets of mainly marine algae, including some non-British material; dissecting and compound microscopes are available for visitors' use. The liquid-preserved collection was recently supplemented by the acquisition of 700 jars of seaweeds from the University of Liverpool's Port Erin marine laboratory, Isle of Man. An exhibition of framed herbarium specimens collected by the Liverpool artist Gustave Hiller (1865-1946), accompanied by watercolour sketches of algal reproductive structures, with the title "Details from an Underwater Garden", is available for hire to registered Museums. The Botany Department's library includes some standard works on algae, together with Thomas Velley's own copies of his work on "Coloured figures of marine plants, found on the southern coast of England" (1795) and Stackhouse's "Nereis Britannica; containing species of fuci, natives of the British coast" (1801); the Liverpool City Library also contains a good collection of classical botany books. Photocopying facilities are available, including scanning of colour images of specimens and figures. The library facilities would suit students wishing to scan some of the older literature, and there is space available to add to it if further reprint collections become available.

Contact details: Department of Botany, Liverpool Museum, William Brown Street, Liverpool L3 8EN. Tel: 0151 478 4370 Fax: 0151 478 4390 Email: john.edmondson@dial.pipex.com

**BOOK REVIEW: P. C. Silva, P.W. Basson and R.L. Moe. Catalogue of the Benthic Marine Algae of the Indian Ocean.** University of California Publications in Botany, volume 79. (Available from University of California Press, c/o CPFS, 1445 Lower Ferry Road, Ewing, NJ, USA 08618). 1996. US $130 (shipping extra), hardbound. xiv + 1259 pp. ISBN 0-520-09810-2.

A full review of this book by John Huisman was published in the August 1997 issue of the European Journal of Phycology. Huisman's review correctly described it as a 'remarkable work' with a 'wealth of information', but he did not comment on one aspect of the book which I would like to draw attention to now. This is its major importance and relevance to the nomenclature of European seaweed species.

I will mention only a few nomenclatural points, mostly those with relevance to my own research, which have been drawn to my attention since publication of the checklist. I think it is safe to extrapolate, however, and suggest that this checklist will contain information of importance to everyone working on any taxonomic aspect of the European algal flora.

Rhodophyta. Silva et al. discuss the correct name for the species currently known as *Phycodrys rubens* (Linnaeus) Batters. They consider that the earliest available name for this species is *Phycodrys crenata* (S. Gmelin) P. Silva; while some phycologists may not agree with this conclusion, everyone should be aware of it. They also show that the name *Ceramium nodulosum* (Lightfoot) Ducluzeau cannot be used for one of the entities often known as *C. rubrum*. This is disappointing, as *C. nodulosum* has begun to be accepted and to help clarify identification in this group, but it offers the challenge of finding a valid name for this species. Appendix II ('Taxonomic and Nomenclatural Notes') contains valuable discussions on the nomenclature of European species of *Gracilaria* and *Gracilariopsis, Ceramium flaccidum, Polysiphonia/Lophosiphonia*, and various family and generic names in the Bangiophycidae.

Phaeophyta. Appendix II discusses the nomenclature of *Ectocarpus siliculosus* and *E. onfervoides*, with serious implications for the use of the name *E. confervoides* as an infraspecific taxon of *E. siliculosus*. The circumscription of our species of *Dictyopteris, D. membranacea*, also comes under scrutiny. *Stilophora rhizodes* should now be called *S. tenella* (Esper) P. Silva, a change already adopted in at least one European checklist (Michael Guiry's).

Chlorophyta. Amongst other pertinent information, Silva et al. clarify the nomenclature of some species of *Enteromorpha*. The species authorities for *E. compressa and E. intestinalis* are corrected. *Enteromorpha muscoides* (Clemente y Rubio) *Cremades* is shown to be a valid older name for *E. ramulosa*, while *E. crinita* is not legitimate.

Christine Maggs, Queen's University Belfast.