
British Psychological Society Newsletter

EDITORIAL

"Ah!" you cry, "I wondered what happened to the newsletter". Well, we have effectively missed an issue while installing new technology. As you can see I have gone over to a desk-top publishing system for typesetting and layout. However, the changes are more than that as I can now accept copy on electronic mail and a variety of floppy disc formats of which I hope you will take advantage (see below for details). The object of the exercise is to be able to produce the newsletter more quickly and to have greater control over the

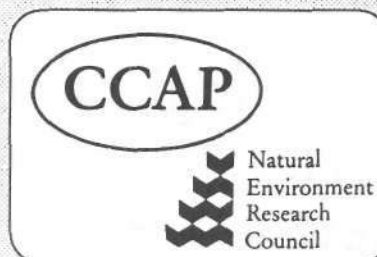
layout (plus spelling and other typo's which hopefully will now be much reduced now I have a machine to check it all for me. I hope you like the new style and will take advantage of the new communication facilities. In fact I would much appreciate if one or two of you, especially in the USA and Australia would try the electronic mail system to check everything's working OK!

ROBERT EDYVEAN, EDITOR.

All articles, notes etc. for the BRITISH PSYCHOLOGICAL SOCIETY NEWSLETTER can now be submitted on computer floppy disc and by electronic mail. Our publishing system is IBM compatible MS.DOS Microsoft word 5. Both 5.25 and 3.5 inch floppy discs can be handled and it is probable that most common word processing languages are acceptable, but please always include an ASCII file of your article on the disc as well. It would be best if the original is as simple as possible in layout (ie. avoid justification etc. This reduces the amount of editing. Electronic mail can be sent via the UK JANET network to the following address: CHE6RGJE@UK.AC.LEEDS.UCS.CMS1 (CHE6RGJE@LEEDS.UCS.CMS1 if sending from within the UK) Type, pen and ink, tablets of stone are still acceptable!!!

NOTE: COPY DEADLINE FOR THE NEXT ISSUE IS SEPT 30 1990

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LA22 0LP, United Kingdom

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Fax: 09662 6914

THE FUTURE OF PHYCOLOGICAL RESEARCH AT THE BRITISH MUSEUM (NATURAL HISTORY)

On Monday 23rd April The Natural History Museum announced that 60 posts will be cut from the current staff of 780 by 1992-93. Most of the lost posts will be in the Science Departments and the majority made by compulsory early retirement and redundancy.

The problems are caused externally by lack of government funding and, internally by failure to stress the fundamental importance of collection-based research. The museums plan is to concentrate the research effort in six areas; biodiversity, environmental quality, living resources, mineral resources, human health and human origins. There will be less emphasis on the fundamental and continued taxonomic research for which the Museum has established its international reputation. The impact on the scientific community will be far reaching.

The Museum proposes to cease research on Recent and fossil mammals, archaeozoology, testate amoeba, sponges, **diatoms and bryophytes, taxonomic computing**, fossil plants and fossil birds, modern bees and non-parasitic wasps, hemiptera (heteroptera) and weevils, etc. This is in addition to research already closed on modern birds and spiders, coelenterates, bryozoans, echinoderms and annelids. In addition some of the major information bases and advisory services are being severely cut.

Several people who are expert in their subjects have built expertise in certain areas have been commanded to change their interests completely. Most of the staff remaining will be held at fixed curatorial or research assistant grades, giving no opportunity for promotion without a complete change of job. the more marked division between curation

and research may lead to Curators not being allowed to develop scientific expertise or knowledge of material in their care and thus not be able to supply constructive support to visiting specialists.

The Department of Botany is one of the most affected by redundancies as it is proposed to make 9 of the 49 staff redundant with the majority of those remaining no longer fluidly graded. No doubt some others will wish to volunteer for early retirement and there are others who will reach retirement age in the next few years. **The cryptogamic side of the department is to bear the brunt of the cuts.** The two cryptogamic divisions are to be disbanded, the Division of Algae and the Division of Lichens and Bryophytes. *The two most senior staff members of the Bryophyte section are to be made redundant.*

Phycology in the Museum is to be particularly badly affected. Four new divisions or "programmes" are to be set up: Curation, Biodiversity, Environmental Quality and Cell and Molecular Biology. *The existing Diatom section is to be disbanded. Its Head made redundant and the other staff transferred to other divisions (one to the Curation division and one to the Biodiversity Division).*

The Marine and Freshwater algae Sections will disappear to be replaced by a single algal section with a staff of two. This, along with the Lichen section will form the Environmental Quality programme. *Other members of staff from the original algal sections are to be redeployed into the Contracts or Curation sections or made redundant.*

Inevitably there will be a decline in phycological research in the Department of Botany since it is to become tightly focused on relatively

few areas. Unfortunately many of those research areas in which the phycologists have established considerable expertise and world-wide reputations will disappear.

The "Science Defence Committee" (Chairman, Dr. Colin Patterson) requests your support and suggests that letters of protest should be sent to the Minister of arts and to the chairman of trustees of The Natural History Museum, The Museums and Galleries Commission and The Royal Society. It may not be too late to help. Write to:-

The Rt.Hon. Richard Luce, MP,
Office of Arts and Libraries,
Horse Guards Road, London
SW1P 3AL

Sir Walter Bodmer FRS,
Chairman of Trustees,
The Natural History Museum
Cromwell Road, London SW7 5BD.

Sir Hugh Leggatt,
Museums and Galleries Commission,
17 Duke st.
London, SW1Y 6BD

Prof. Sir George Porter,
President, The Royal Society
6 Carlton House Terrace,
London SW1

With copies to:-
Dr. N.Chalmers
The Director,
The Natural History Museum
London SW7 5BD.,

The above report is a compilation of several circulars put out in response to the announced reorganisation of the BM (NH). I will leave it to readers to make their own judgements of the implications. I only point out the comparison between this and other articles in this issue, both from museum staff and the more positive reports of museums elsewhere and to pass on a comment made to me some time ago that "University departments didn't need taxonomists, particularly in phycology, as that sort of work was carried out by the BM".

BANGOR '90

CELSYS SPONSORS SESSION

yet another successful Winter meeting was held in January early this year at UCNW Bangor.

Again sponsorship was found for the meeting, allowing a welcoming buffet supper and providing added impetus for the special session on "Algal Biotechnology". A major sponsor was Cell Systems Limited of Cambridge who are developing single celled algal culture techniques and produce spray dried heterotrophically grown marine

microalgae as a high quality algal feed for bivalve spat and broodstock in the bivalve farming industry. Cell Systems Ltd. are also involved in ragworm culture (with partners in the Lynemouth based Seabait Ltd.), in larval Cyropreservation and research into many potential applications of single celled algal culture and cyropreservation.

The Biotechnology session, and indeed the whole Bangor meeting was a great

success, The biotechnology session included papers on the use of immobilised and other algal systems for wastewater treatment, algal diets for rearing bivalve molluscs, various pharmacologically active extractions from algae, algae as indicators of pollution and for screening biocides, biosensors and various commercially important cultivations. All these, together with the papers from other sessions are now available in the

British Phycological Journal, Vol 25 pp 83-100.

Thanks are due to Christine Happey-Wood for the local organisation, which was excellent and we all look forward to next year when the winter meeting will be at Heriot-Watt University, Edinburgh, organised by Martin Wilkinson.



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THE FRESHWATER ALGAE OF SELECTED SITES IN DURHAM, NORTHUMBERLAND, AND CUMBRIA

David M. John, Leslie R. Johnson & Brian A. Whitton.

Dr John Lund led a week's training course on the identification of freshwater algae (29 June-6 July 1989) at the University of Durham. Among the 29 participants were specialists in various algal groups. Dr Brian Whitton, Dr David M. John, Dr Allan Pentecost, and Mr Graham R.W. Hawley organised the course, which was sponsored by the Systematics Association and the British Phycological Society.

Algae were collected from sites in Durham, Northumberland, Cumbria and North Yorkshire. The algal floras of a few of the sites and areas visited are comparatively well-known. For example, Hell Kettles (Hudson et al., 1971) and algal habitats in the area of Malham Tarn (Lund, 1961; Pentecost, 1982). An interesting new record from Hell Kettles was Arthur Marker's find of the comparatively rare brown alga *Pleurastrum lacustris*. The following records are from aquatic habitats visited in Durham, Northumberland and Cumbria. The course was concerned principally with algae other than diatoms so these are omitted from the check-list.

We thank all those attending the course who contributed to this list. Special mention goes to those specialists who assisted with critical taxa: algae (most groups) - Dr J.W.G. Lund; Cyanophyta - Drs B.A. Whitton and A. Pentecost; Chlorophyta, Desmidiaceae - Prof. A.J. Brook; Chlorophyta (exclusive of desmids) - Drs L.R. Johnson and D.M. John; Charophyta - Mrs J.A. Moore. We are also grateful to Tarmac Roadstone Ltd for access to Station Quarry.

Collecting Sites

The sites (with grid reference) from which the algae were collected are as follows:

1. Cassop Pond (NZ 343 385);
2. River Wear, Wolsingham (NZ 074 369);
3. R. Wear, Willington (NZ 209 343);
4. R. Wear, Finchale Priory (NZ 295 472);
5. R. Wear, near Lumley Castle (NZ 284 508);
6. Cow Green, Red Sike (NY 816 297);
7. Cow Green, Slapstone Sike (NY 813 304), includes main stream (7a) and small pools (7b);
8. Station Quarry, Middleton-in-Teesdale (NY 948 245), includes quarry face (8a), shallow pools (8b), and small stream (8c);
9. Waskerley Reservoir (NZ 023 444), includes plankton tow (9a) and sediment sample in main reservoir (9b), compound containing water from Burnhope Reservoir (9c), and stream below dam (9d);
10. Tunstall Reservoir (NZ 067 420), includes stream entering reservoir (10a) and plankton tow (10b) in main reservoir;
11. Hurworth Burn Reservoir (NZ 407 334), includes plankton tow (11a) and dried mud (11b);
12. Caplecleugh Low Level stream, Nentehead (NY 781 436);
13. Rampgill Level stream, Nentehead (NY 781 436);
14. Allendale Smelter Flue (NY 813 547), damp areas and shallow pools in flue;
15. Bolts Burn (NY 958 498);
16. River Derwent (NY 958 498);
17. Durham City, soil near St Cuthberts College (17a: NZ 272 418) and cobbles at entrance to car park (17b: NZ 277 424);
18. Hell Kettles (the Croft kettle; NZ 281 109).

Systematic List

An asterisk with a taxon or site indicates that it was detected only after samples had been cultured in the

laboratory using Bold's Basal medium (see Bold & Wynne, 1985).

CHLOROPHYTA

Volvocales

Carteria Diesing 1

Chlamydomonas Ehrenb. 1

Haematococcus pluvialis Flotow 3, 7a, 7b

Pteromonas Seligo 1, 10b

Tetrasporales

Tetraspora gelatinosa (Vauch.) Desv. 4, 16

Chlorococcales

Actinastrum Lagerh. 1

Ankistrodesmus Corda 1, 7*, 9* (= *Monoraphidium*)

Chlorolobion braunii (Naeg.) Kom. 5

?*Coelastrum* Naeg. 11a

Crucigenia Morren sensu Kom. 9*

Pediastrum boryanum (Turp.) Menegh. 1*, 4, 7b var. *longicorne* Reinsch 11a duplex Meyen 11a

Scenedesmus Meyen 1*, 3*, 7*, 8*, 9* *acuminatus* (Lagerh.) Chodat 11a *linearis* Kom. 1*, 9d (= *S. bijuga*) *quadricauda* (Turp.) Breb. 1*, 11a

Tetraedron Kuetz. af. *caudatum* (Corda) Hansg. var. *longispinum* Lemm. 11a

Tetrastrum *staurogeniaeforme* (Schroed.) Lemm. 11a

Chaetophorales

Aphanochaete repens A. Br. 1

Chaetophora incrassata (Huds.) Hazen 18

Chaetophora pisiformis (Roth) Ag. 16, 18, 28

Draparnaldia mutabilis (Roth) Cedergrén 8c

?*Gongrosira* Kuetz. 2, 4, 6, 18

Often green crust-forming algae consisting of erect filaments arising from an open or pseudoparenchymatous prostrate system are referred to this rather ill-defined genus. Several green algae have a similar habit and separation is only possible by the use of characters evident only when grown under controlled conditions in the laboratory. Much reliance is placed on flagella number when separating *Gongrosira* from other closely related genera such as *Pseudendoclonium* (see John & Johnson, 1989). Doubt attaching to the attribution of the records from four of the sites visited is because we have yet to complete our investigations of cultures isolated from the samples.

Microthamnion kuetzingianum Naeg.* 1, 9, 12, 18

Stichococcus bacillaris Naeg.* 9, 12

Stigeoclonium Kuetz. 1*, 2, 3*, 8*, 9a, 11*, 12, 13, 18*

Most, if not all, these records are likely to be of *S. tenue* which is the species most frequently encountered.

Stigeoclonium farcatum Berth. 18

Ulotrichales

Klebsormidium flaccidum (A. Br.) Silva, Mattox & Blackwell 1, 2*, 3*, 7a, 8*, 9*, 11*, 12, 13, 15, 18

Microspora Thur. 1, 16

Trentepohlia aurea (L.) Mart. 8, 12 (wall of tunnel)

Ulothrix Kuetz. 1*, 2, 6 *tenuissima* Kuetz. 9c *zonata* (Weber & Mohr) Kuetz. 9c, 16

Ulvaes

Enteromorpha flexuosa (Wulf. ex Roth) Ag. 4, 5

Prasiola crispa (Lightf.) Menegh. 17b

Zygnematales

Desmidiaceae (desmids)

Arthrodesmus Ehrenb. 1

Closterium Nitzsch *ehrenbergii* Menegh. ex Ralfs 4, 5 *leibleinii* Kuetz. 10a *lunula* (O. Muell.) Nitzsch 7b, 16 *moniliferum* (Bory) Ehrenb. 4, 5, 15 *parvulum* Naeg. 16 var. *cornutum* (Playfair) Kreig. 10a *pseudolunula* Borge 4 *strigosum* Breb. var. *elegans* Breb. 10a *striolatum* Ehrenb. 10a *subulatum* (Kuetz.) Breb. 10a

Cosmarium Corda 9* *abbreviatum* Raciborski 8b *botrytis* (Bory) Menegh. 7b, 10a *impressulum* Elfv. 15, 16 *undulatum* Corda 15

Hyalotheca mucosa (Mert.) Ehrenb. 9a

Micrasterias papillifera Breb. 7b

Staurostrum punctulatum Breb. 10a, 15, 16

Mesotaeniaceae

Cylindrocystis brebissonii (Menegh. ex Ralfs) De Bary 7 ?*Mesotaenium* Naeg. 14

Zygnemataceae

Mougeotia Ag. 1, 6 (3 spp.), 7a, 8b (3 spp.), 9c, 10b, 12, 16 af. *quadrangulata* Hassall 9a

Spirogyra Link 1 (2 spp.)*, 6, 8a, 8b, 9a, 9c (2 spp.), 11a, 16, ?18 *crassa* (Kuetz.) Czurda 1

Zygnema Ag. 2, 6, 7a, 8b, 9a (2 spp.), 9c (2 spp.)

Oedogoniales

Oedogonium Link 1, 2, 9*

Siphonocladales

Cladophora glomerata (L.) Kuetz. 2, 3, 4, 5, 9d, 18

Rhizoclonium hieroglyphicum Kuetz. 2

CRYPTOPHYTA

Cryptomonas Ehrenb. 1, 10b, 11a

PYRROPHYTA

Ceratium hirundinella (O.F. Muell.) Schrank 10b

CHRYSOPHYTA

Dinobryon Ehrenb. ?*bavaricum* Imhof 10b *cylindricum* Imhof ex Ahlstrom 10b *divergens* (Imhof) Lemm. 10b, 11a

XANTHOPHYTA

Botrydium granulatum Grev. 11b

Ophiocytium gracileps (A. Br.) Rabenh. 9*

Vaucheria De Candolle 2, 4, 5, 11b, 14*

Likely to be *Vaucheria sessilis* as previously reported from most of the sites. All the material was sterile so making it impossible to identify to species.

PHAEOPHYTA

Pleurastrum lacustris A. Br. 18

EUGLENOPHYTA

Colacium Ehrenb. 11a

Phacus Dujard. 1, 10b

Trachelomonas Ehrenb. 1

CHAROPHYTA

Chara hispida L. var. *major* (Hartm.) R.D. Wood 18

Chara vulgaris L. var. *contraria* (A. Br. ex Kuetz.) R.D. Wood 8b

Unusual due to the unevenness of its cortex and the presence of peculiar spine-cells.

RHODOPHYTA

Batrachospermum Roth (af. *moniliforme*) 8c, 15, 16

Hildenbrandia rivularis (Lieben) Ag. 4

Lemanea fluviatilis (L.) Ag. 2

Porphyridium cruentum Naeg. 5, 17a

CYANOPHYTA

Anabaena Bory* 1, 18

Chamaesiphon polymorphus Geitl. 15

Gomphosphaeria aponina Kuetz. 8b

Oscillatoria Gom. 1*, 3*, 7*, 8*, 9*, 10b, 18*

Rivularia Roth 6, 8c, 18

Records for site 18 were listed incorrectly as *Gloeotrichia* by Hudson *et al.* (1971).

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B.A. Whitton, Department of Biological Sciences, University of Durham, Durham DH1 3LE.

The Books and Collections of Dr. Elsie Burrows

After the death of Dr. Burrows in September 1987, her daughter, Gill Rogerson, very kindly made all her botanical specimens, documents and books, other than rare historical treatises, available to us so that we could make the best disposition of them. We placed the specimens and card indexes in the British Museum (Natural History) to be incorporated in those collections. Various algal textbooks and collections of reprints concerning red and brown algae were purchased by specialists in these groups. The bulk of the reprints naturally concern green algae and these were passed to Professor Frank Round for dispersal.

Three works, annotated mainly by Margery Knight were sent to Port Erin for the library there, these were: *Marx Algae* by Knight and Parke; *A Revised list of British Marine Algae* by Holmes and Batters, and *Report of the Marine Algae of the L.M.B.C. District* by Harvey-Gibson.

We would like to take this opportunity of making known the whereabouts of Dr. Burrows' collections and are most grateful to Gill for having made these items available.

Yvonne Chamberlain, Bill Farnham and Bob Fletcher.
The Marine Laboratory, Ferry Road,
Hayling Island, PO11 0DG.

A Northernmost Find

Roy Merritt, 20, St.John's Grove, Morecambe, Lancashire, LA3 1ET.

1988 has been a good year for continuing identification and mapping of salt-marsh *Vaucheriaceae* in the environs of Morecambe Bay. Over the last four years this family has presented me with problems of identification. Without the reproductive bodies the fragile filaments of the different species look alike. They have also proved, in my hands, reluctant to reliably reproduce in culture.

Of the thirty or so plaques collected from any one site, from low water to above high water and from saline into fresh water, I can never guess what species will form reproductive structures. There will usually be two or three old regulars fruiting in many of

the jam jar cultures and, joy of joys, one or two of the cultures will have something special that make everything worthwhile.

Of special note is *V.erythrospora*. This species has only previously been recorded in the British Isles from the south coast counties of England and from Norfolk (T.Christensen, P.Polderman). Its presence is now confirmed and mapped from Walney Island to Lytham St. Anne's in the Morecambe Bay area.

Given below are two tables of *Vaucheria* in order of frequency of occurrence in 10km squares and at individual sites.

10 km sq.			Sites		
1.	<i>V.campacta</i>	13	1.	<i>V.campacta</i>	21
2.	<i>V.litorea</i>	10	2.	<i>V.synandra</i>	17
3.	<i>V.coronata</i>	9	3.	<i>V.litorea</i>	15
4.	<i>V.synandra</i>	9	4.	<i>V.coronata</i>	12
5.	<i>V.erythrospora</i>	8	5.	<i>V.erythrospora</i>	10
6.	<i>V.medusa</i>	5	6.	<i>V.medusa</i>	7
7.	<i>V.subsimplex</i>	5	7.	<i>V.subsimplex</i>	7
8.	<i>V.sescuplicaria</i>	4	8.	<i>V.sescuplicaria</i>	5
9.	<i>V.arcaissonensis</i>	3	9.	<i>V.intermedia</i>	4
10.	<i>V.intermedia</i>	3	10.	<i>V.arcaissonensis</i>	3
11.	<i>V.velutina</i>	1	11.	<i>V.velutina</i>	1

If the tables are not merely a list of the ease of fruiting of *Vaucheria* species under cultivation then *V.erythrospora* is the fifth most commonly occurring *Vaucheria* species in South-West Cumbria and North Lancashire.

Finally, I would like to thank, and dedicate the verse below, to all those professional phycologists who have helped and encouraged me. Peter Haan, who sent me my first illustrated key; that of Professor Simons. Dr.

Linda Parry (nee Smith) for her description of culturing. Dr. P.J.G.Polderman for his papers and advice (It had taken me two days to write to him in Dutch. He wrote back to say that such a letter deserved a reply in DUTCH! - it took me another two days to translate his reply. I can hear him laughing now!). Professor J.L.Blum for going to such trouble to send me a copy of his book, and Professor A.Rieth for a copy of his book entitled "Xanthophyceae von Mitteleuropa". Professor Trevor Norton for the many occasions on which he has taken the time to write or talk over the phone and, especially, Professor

Tyge Christensen for his papers, encouragement and advice.

Post Script

For fear of loosing the self claimed title of Northernmost occurrence of *V.erythrospora* in the UK. I collected some material from the English and Scottish shores of the Solway Firth in the spring of 1989 and *V. erythrospora* grew in culture from many of the samples. My Northernmost site is now at 54 degrees 59.5'N on the Scottish shore of the Solway Firth.

Roy Merritt

Ode to *V.erythrospora* Christensen (1956)

I love you, low yellow-green weed,
Tho' your thread sports no flower, no seed.
So far North you should be sparse,
Yet here you lie twixt mud and grass.
You fill my veins with Botanic lust.
I take you home with muddy crust,
From breezy air at littoral Heysham
To salty water in a jar empty of jam.
There you soak, strip light lit
Now is time to do your bit.
Do not dally and do not dilly
To prove your name - grow eggs and antheridy.
Let all see post-coital blush
Glaze your eggs with reddy flush.
I've claimed for you eight 10K squares,
You grace them with your tender hairs.
You are my claim to seaweed fame
It is true, it is a shame.
I took you from your well washed shore,
But "all is fair in love and war".

The red alga *Thorea* in the British Isles

Following the recent publication of our note in volume 24 of the British Phycological Journal (pp99-102) we have heard from Osborne Morton of the existence in the Ulster Museum of

six specimens of "*Thorea ramosissima*" collected by John Templeton (1766-1825). The specimens have the Museums accession numbers F42 to F47. Mr. Morton kindly loaned us

specimens F43 and F44 and provided photocopies of the remaining sheets. The specimens examined proved to be a narrow form of *Batrachospermum* growing on the moss *Racomitrium* sp. and the liverwort *Pleurozia purpurea*.

Our failure to discover *Thorea* invalidates the records of its occurrence in Ireland, since all are based on a note by Templeton in the unpublished manuscript of his 'Flora Hibernica'. So far the only substantiated records of *Thorea* in the British Isles come from the River Thames and its tributary, the Lea.

We are very grateful to Osborne Morton of the Ulster Museum, Belfast, for bringing the templeton specimens to our attention and to the Bryophyte section, Department of Botany, British Museum (Natural History), for identifying the bryophytes.

**D.M.John, J.A.Moore and
L.R.Johnson,
Department of Botany, British Museum
(Natural History)
Cromwell Road, London SW7 5BD.**

Anglo-German Collaboration

Professor T.A.Norton has been invited to be one of a selection committee of six academics to evaluate projects and allocate funds for the British-German Academic Research Programme. This is a new initiative to increase collaboration between academic research groups in the UK and Federal Republic of Germany in order to enhance research in science, engineering and business related studies.

The programme is being jointly financed and managed in Germany by the British Council, with additional support from the Anglo-German Foundation for the study of Industrial Society. The funds in the first year will be sufficient to support about 80 projects funding collaborative exchange visits of two kinds:

1. Exploratory Visits

There is no closing date for applications.
An application for an exploratory visit

by a British Research Group to Germany should be made on the blue British Council form (plus two photocopies).

2. Collaborative Projects

Again There is no closing date for applications. However, approval will be given twice a year. Applications received by the end of April will be reviewed in June and those received by the end of September, in November. An application to set up a collaborative research project between research groups in Britain and Germany should be made simultaneously by both groups. The British research group should send the white British Council application form (plus 4 photocopies) direct to:

Science Officer, The British Council,
Hahnenstr. 6, 5000 Cologne 1
West-Germany
Tel:-0221-20644-33
Fax:-0221-20644-55
Telecom Gold: 81:BC0024

PHYTOPLANKTON DISCUSSION GROUP - BALANCING THE FLUXES

Ron Bishop, University of Ulster

The 5th meeting of the Phytoplankton Discussion Group took place at Greenmount Agricultural College, Antrim, Northern Ireland, on 31 August and 1 September 1989. It was hosted by the Freshwater Biological Investigation Unit, and some forty participants mixed a day and a half of science with an enthusiastic social programme sponsored by the Northern Ireland Tourist Board and the Department of Agriculture. The theme of the discussion meeting was "Balancing the Fluxes".

Pete Williams (UCNW Bangor) opened a discussion on "Constraining carbon and oxygen fluxes" by reviewing PQ (O_2 output/ CO_2 uptake) values by phytoplankton in a variety of environments. Far from approximating to the predicted value of 1, they could be very much higher and seemed to be bimodally distributed. He tried hard but unsuccessfully to find mundane reasons for such "aberrantly" high values, and proposed that we may have overconstrained our view of the metabolic products of the cells. High PQ values could result from cells producing some nitrogen-rich and/or very reduced compounds, in addition to the orthodox lipid, protein, carbohydrate and nucleic acids. Even methane would yield a PQ value of only 2; products like methylamine and dimethyl sulphate would give better agreement with the observed values of 3-4. Perhaps we have been measuring the wrong products?!

John Raven (Dundee) considered "Phyletic and environmental influences on resource use efficiencies". He extended the Redfield ratio to 1060 photons: 106 C: 16 N: 1 P: 0.01 Fe: 0.001 Mn, on the grounds that the additional parameters could also be

limiting in many environments. He argued that the ratio would be much more usefully normalised to carbon which, unlike phosphorus, forms a relatively invariant proportion of cell material. Large-celled species can make less efficient use of individual chromophores than can small-celled ones, and have a lower rate of absorption of photons per unit cell volume because of increased self-shading. Small cells are also more efficient in nutrient uptake. Many phytoplankton species appear to synthesise a CO_2 -concentrating mechanism. He tried to estimate whether the energy involved in making this necessarily-leaky CO_2 pump would balance the saving in the amount of Rubisco and photorespiratory enzymes that would otherwise be needed for the same rate of CO_2 incorporation. His calculations suggested that it would, provided that the pump leaked no more than three CO_2 for every one fixed. Iron and manganese availability could affect cellular levels of enzymes and electron transport components, and he showed several examples of phyletic differences in photosystem ratios (which would influence the Fe and Mn requirements of the cells) and of environmental circumstances where variations in resource supply alter the pattern of gene expression (e.g. flavodoxin rather than ferredoxin synthesis under iron deficiency).

Dave Jewson (Ulster) considered "Survival strategies of diatoms - the influence of resting and sexual stages". He discussed the importance of sexual reproduction to the ecology of planktonic diatoms. Using examples from populations of the species *Aulacoseira (Melosira) subarctica* in Lough Neagh, he showed that the organism needs a combination of

particular cell dimensions and low light conditions to induce sexual stages. As this normally only happens when the population size is small and relatively few of the cells are at the appropriate developmental stage, it can very easily be missed. This must be part of the reason why sexual reproduction is so rarely seen in other marine and freshwater populations. It also introduces another factor to be considered when discussing the ecological implications of cell size in phytoplankton.

Pete Tyler (Tasmania) presented an overview of the diversity of lake types in Tasmania, classifying them as green-window or red-window lakes on the basis of their spectral characteristics. To those used to European lakes, his idea of remoteness introduced a new dimension to limnology. Remote in Tasmania meant a week's back-packing to get samples!

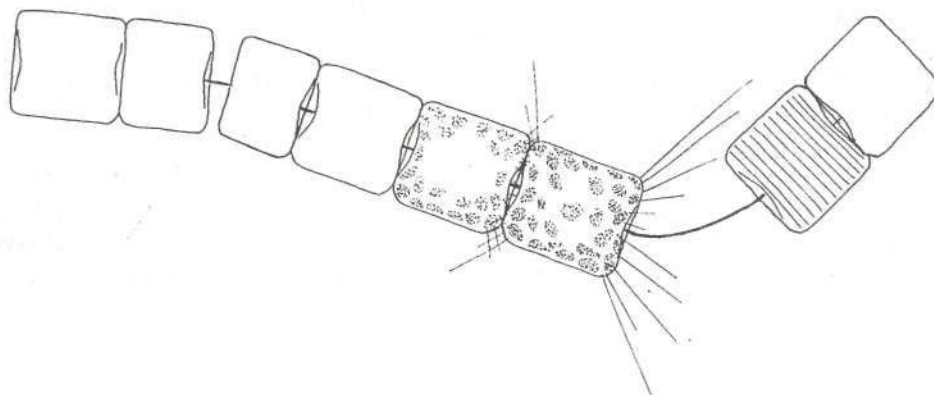
Jack Talling (FBA) considered "The natural phytoplankton community under stress: generalisation or dogma?" This took the form of a series of provocative comments about concepts like "budgets", "strategies", "new versus old production" and "nutrient ratios". He examined the ways in which the concepts had arisen and considered whether they helped or hindered our understanding. He questioned the usefulness of unifying hypotheses which could not be quantified ("what units are a concept expressed in. ? ? ? ? . . ?") and worried about the use of ratios rather than absolute values, clearly preferring to stick to hard data.

Pete Williams (UCNW Bangor) again drew the short straw for the task of

waking everybody up, and started the second day by giving an overview of the NERC BOFS (Biogeochemical Ocean Flux Study) programme. 23 projects are looking at the mechanism of CO_2 distribution between the atmosphere and the Atlantic Ocean, in cooperation with US, Dutch and German programmes. He described the 1989 cruise in RRS Discovery, including the most impressive instrumentation for the continuous analysis of chlorophyll a, temperature, conductivity and an on-line pumping system for the analysis of micronutrients, pCO_2 , total CO_2 and pH.

Philip Boyd (Queen's, Belfast) presented a preliminary draft of the data. Jim Aitken (IMER, Plymouth) rounded off the proceedings with some startling remote sensing pictures showing the very large scale inhomogeneity of the North Atlantic which illustrated the extreme difficulty of organising a sampling programme that is in any way really representative of the ocean. He also suggested that the large increase in reflectance (estimate at 30%) caused by cast coccoliths is a factor in the energy budget of the ocean that needs very careful consideration.

A coach tour around the Antrim coast to the Giant's Causeway provided a magnificent diversion from the problems of phytoplankton and finished off an excellent couple of days of talking science. The next meeting of the group is planned for the Institute of Freshwater Ecology at Lake Windermere in the summer of 1991 - details from Ivan Heaney, Ferry house, Ambleside, Cumbria LA22 0LP.



CURRENT STATUS OF THE PHYCOLOGICAL RESOURCES OF THE HERBARIUM OF THE UNIVERSITY OF CALIFORNIA AT BERKELEY (UC)

Paul C. Silva

As part of a major administrative and physical reorganization of the biological sciences on the Berkeley campus, two new buildings have been constructed to house molecular research. The venerable Life Sciences Building, in which the Herbarium has been housed since 1930, is scheduled to be completely rebuilt in accordance with present-day seismic standards. After reconstruction (scheduled for completion in about four years), the Life Sciences Building will house organismal and population biology, including a greatly expanded Herbarium. Meanwhile, the Herbarium has been relocated to an industrial area 5 km from campus, where it occupies a relatively small part of a gigantic building (the Marchant Building), where office machines were once manufactured.

The move, which required more than a year of planning, was carried out in five months (March through July). Although the Herbarium has lost its privileged location on the beautiful and conveniently located campus, this disadvantage is more than compensated for by the spaciousness of the temporary quarters, which allows the phycological resources to be systematically and efficiently organised for the first time.

With regard solely to the phycological resources, the move to the Marchant Building involved the following logistics.

68 herbarium cases containing dried algae (sheets and boxed specimens)

247 large boxes of liquid preserved algae

284 large boxes of unprocessed specimens, reprints, unfiled correspondence, etc.

37 units of bookshelving (ca. 200 meters)

9 card files, each with 10 double-drawers

9 correspondence files, each with 4 or 5 drawers

After being paralysed by the move since the beginning of March, the phycological section of the Herbarium of the University of California is once again ready to function and to welcome visitors and borrowers. The postal address remains the same with the deletion of "Department of Botany", which ceased to exist July 1, 1989. Thus, the postal address is simply:

Herbarium,
University of California
Berkeley, CA 94720, USA

Our telephone numbers are unchanged:

Phycology Section (Paul C Silva,
Richard L Moe, Kathy Ann Miller)
. (415) 643-7007

Director's Office (Thomas O Duncan) .
. (415) 642-6992

Operations Office (Barbara Ertter) .
. (415) 642-2465

The Marchant Building is on the west side of San Pablo Avenue, occupying the third block south of Ashby Avenue. It lies at the juncture of the cities of Berkeley, Oakland and Emeryville. Visitors to the Herbarium should enter the building at 6701 San Pablo

Avenue, sign the register, take the elevator to the second floor, and follow signs to the Herbarium Office. Someone there will show the way to the phycology section, which is located on the first floor but without a public outside entrance. Street parking for automobiles is available in a one-hour zone adjacent to the entrances to the building and for unlimited time

elsewhere, including the residential area east of San Pablo Avenue. The nearest rapid transit (BART) station is ASHBY on the Fremont-Richmond and Daly City-Richmond lines. Bus line 6 runs west on Ashby Avenue to San Pablo Avenue.

New Honorary Secretary

From July the Society has a new Honorary Secretary. She is Eileen J.Cox. Dr. Cox graduated in Botany from Bristol University in 1970, and, while holding a departmental demonstratorship there moved into phycology for a Ph.D. under the watchful (?) eye of Frank Round. Having spent a total of 9 years in Bristol, as long as she has spent in any one town so far, the real gipsy came out and she began to wander Europe, first at that far flung outpost CCAP at Cambridge and then three years in Oxford but eventually was lured by the D-mark for eight years, first at the Biologische Anstalt Helgoland (but on Sylt not Helgoland) and then the Max-Planck-Institut für Limnologie (in Plön and then Schlitz) before returning to the UK and Sheffield. In the course of all that her work has ranged over aspects of tube-dwelling diatoms, the taxonomy of *Navicula sensu lato*, cultural studies into the reproductive behaviour of naviculoid diatoms, the ecology of benthic diatoms in lake and stream systems with particular reference to microhabitats, attempts to integrate studies of live cells into diatom systematics and, for a real change, a sortie into ecotoxicology (*Daphnia magna* and green algae).

However, from October, she will be combining all these different strands in a NERC funded study into the effects of environmental factors on diatoms in relation to their use as bioindicators.

With such a history she can hardly be accused of narrow-mindedness; single-mindedness is another question! Whether the acquisition of pretty fluent, colloquial German along the way will be a useful skill as Hon.Sec. remains to be seen, but with 1992 and possibly wider European horizons for the Society, Who knows?

Dr. Cox can be contacted at the following address:-

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Department of Animal and Plant
Sciences
The University of Sheffield
Tel:0742 768555 extn 4772
Fax:0742.760159

I'm sure that all members of the Society will want to join me in thanking Rob Reed for his excellent contribution as secretary over the last few years. It is an onerous and time consuming job with little obvious recognition. -
EDITOR

Editorial address

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E-Mail CHE6RGJE@UK.AC.LEEDS.UCS.CMS1 N.B. COPY FOR INCLUSION IN THE NEXT ISSUE MUST REACH THE EDITOR BY SEPTEMBER 30 1990.