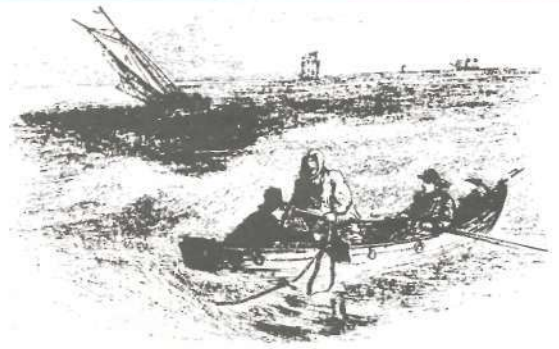


British Phycological Society Newsletter



Editorial

We begin this issue with conference reports, but regretfully acknowledge that too many of the meetings attended by our members this summer have passed unreported. It is remarkable how even the briefest account can help to convey the flavour of a meeting to the many who were unable to attend. So, if you are heading off to a scientific gathering somewhere in 1986, please think of the Newsletter readership with its insatiable appetite for news; and send in a report.

The last issue was largely about matters marine, so we have attempted to restore balance by devoting a great deal of the present issue to freshwater phycology. Once again, however, the picture is very much one of applied as well as pure science, and of considerable

activity in conservation. It is pleasing to see that aquatic botany has still so many unifying features.

Finally, I feel I ought to reassure any outraged members who may suspect me of having foisted upon the Society an unelected logo. The masthead illustration in the last issue was intended simply as a piece of decoration. It was based on an abstract design by Paul Nash, and it may not have been to everyone's taste. For those who prefer more representational art, we have this time an example of untouched Victoriana. There will be a small prize for the first member to give me its correct identity in person at the Bristol winter meeting (no letters, please!). The name of the winner and the identity of the picture will be given in the next issue.

Second International Phycological Congress, Copenhagen, 4-10 August 1985

After the success of the First International Congress in Newfoundland 1982, it was decided to continue with a second congress, with Copenhagen as the venue. An international organizing committee was set up, with Dr Richard Starr as chairman; British members were J.C. Green, D.M. John, T. Norton, and W.D.P. Stewart. The committee met in the autumn of 1983 near Copenhagen in order to make guidelines for the local organizing committee, chairman Ø. Moestrup.

The Congress was hosted by the University of Copenhagen and took place in the H.C. Ørsted Institute, which with its spacious lounge and conveniently located lecture halls and smaller meeting rooms proved excellent for this purpose.

About 500 active participants from c. 40 countries had registered (among these c. 30 British) and c. 75 accompanying persons. They met each other at a get-together party on Sunday evening.

The opening ceremony took place on Monday morning in the Tivoli Theatre, and the participants were welcomed by a tattoo of the Tivoli Guards. The opening ceremony was introduced by a video performance showing an algal ballet with *Volvox* and with *Gonium* (the logo of the Congress) as premiere danseuses, to the music by the Danish composer Carl Nielsen. Three plenary lectures showed the broad scope of the Congress, the last of these, on "Cyano-whatevers" (as introduced by Ø. Moestrup) was given by W.D.P. Stewart from Dundee.

Three mornings of the Congress were devoted to altogether 15 symposia with invited speakers, covering important and more or less controversial themes within

phycology, containing almost 90 papers, with 6 British contributions. Four afternoons contained contributed paper sessions. Altogether c. 180 papers were read, in five concurrent sessions, among them c. 10 British. In addition numerous informal meetings and workshops took place.

The poster exhibition included c. 80 posters (3 British), generally of a very high standard. The Papenfuss Award for the best poster was given to Laura Talarico from Italy.

Excursions were an important part of the programme. Four scientific excursions took place, with altogether 53 participants (1 British, but he took part in two excursions), to Northern Jutland, Southern Sweden, Northern Jutland plus Finland (Tvärminne), and Central Jutland, respectively, two devoted to freshwater phycology, two to marine. Only one of the announced excursions, the one to Greenland, had to be cancelled because of an insufficient number of participants.

Almost all congress participants took part in the Mid-Congress Excursions; 10 tours took place, which included a variety of phycological and scenic/historical sights. On the same evening the Institut for Sporeplanter kept open house, and facilities were accessible for inspection of the day's phycological samples, along with a beer and a sandwich - or for the more energetic a guided tour of the Botanical Garden.

A special programme for accompanying persons included three excursions to places of historical/touristic interest in and around Copenhagen.

Other social events were the City Hall reception where B. Nebelong, the mayor, welcomed the participants to magnificently provided tables, and the Congress Banquet in the old Stock Exchange, ending with music and dancing. A bicycle race in the immediate area had threatened the access to the Banquet, but there were in fact no serious problems, and participants were welcomed at the entrance by "vikings" blowing their traditional lures.

The closing ceremony on Friday evening included a slide show of the Congress just finished, and the invitation to the next to be held in Australia 1988.

J. Kristiansen, Institut for Sporeplanter, University of Copenhagen, Ø. Farimagsgade 2D, DK-1353, Copenhagen K, Denmark.

5th International Symposium on Marine Natural Products

The 5th International Symposium on Marine Natural Products was held in Paris from the 2-6th September, 1985. The meeting was sponsored by the International Union of Pure and Applied Chemistry, la Ministère de l'Environnement, le Secretariat d'Etat Charge de la Mer, le Centre National de la Recherche Scientifique and la Societe Francaise de Chimie. There were over 180 participants from 25 countries. The papers presented numbered 36 and 62 posters were displayed.

A paper on algal carotenoids was delivered by Liaen-Jensen and co-workers in which recent work was reviewed and the chemotaxonomic implications of the findings discussed. Another paper on carotenoids was given by Bjørnland in which the use of thin-layer chromatography for the separation of these compounds was outlined.

Several communications reported constituents of the Dictyotaceae. One, by Rao *et al.*, working with *Dictyota dichotoma*, described numerous dolabellane derivatives, a new dolastane/clavularane and a new tricyclic compound named dichotane, which has an unusual oxygen ring system. Kelecom and co-workers gave details of dolastane and seco-dolastane diterpenes from *D. cervicornis*, while Kakisawa *et al.* reported a new diterpene, spinacetal from *D. spinulosa*, in addition to two stereoisomers of this compound which were extracted from *D. dichotoma*. Another new diterpenoid, acetyl pachytriol, was found in *Pachydictyon coriaceum*. Gonzalez and co-workers, working with an unidentified *Dictyota* species collected in the Canary Islands, isolated and characterised four new bicarbocyclic diterpenes. Another paper on *Dictyota dichotoma* by de Rosa *et al.* reported the isolation of diterpenes containing the perhydroazulene ring system, together with pachydictyol,

dictyol B acetate and a new diterpene with the same skeleton. The results show that the same species living in different habitats produces different secondary metabolites.

A communication by Banaigs *et al.* gave details of the isolation and characterisation of secondary metabolites recently isolated from *Cystoseira mediterranea*. It was suggested that the compounds are involved in chemical defences of the alga. Another paper, on *C. sauvageana*, reported novel acyclic tetraprenyltoluquinols and their possible role as biogenetic precursors of the cyclic *Cystoseira* metabolites.

Three papers were delivered on the subject of betaines in marine algae. One by Chillemi *et al.* gave details of the structure elucidation of a new compound, 6-amino-6-carboxy-2-trimethylammoniohexanoate, from the red alga *Schottera nicaeensis*. Blunden and co-workers presented spectroscopic and mass spectrometric data useful for the characterisation of betaines and tertiary sulphonium compounds in marine algae. In a second paper, the same authors gave the results of a study of the distribution of these compounds in marine unicellular algae.

New acetylenic non-isoprenoid compounds isolated from *Laurencia obtusa* were reported by Ruano and co-workers from the University of La Laguna. Another paper on *Laurencia* species gave an account of a spectroscopic study of two halogenated metabolites isolated from Mediterranean species.

The extraction and determination of cyclohexadienones from the red alga *Desmia hornemanni* was reported by Higa *et al.* Some of the isolated compounds and derivatives of them had significant cytotoxic and antiviral activities. Antiviral activity was also reported for carrageenan extracts of red algae collected in Senegal.

The occurrence of new terpenoids in the red alga *Sphaerococcus coronopifolius* was recorded by Cafieri and co-workers and new norlanostene triterpenoids were reported from *Tydemania expeditionis* by Laurent *et al.* Tringali and collaborators isolated fasciola-7,18-dien-17-al, a diterpene with a new tetracyclic ring system, from the brown alga *Dilophus fasciola*.

The French workers, Durand *et al.*, reported the production of ciguatoxin-like and maitotoxin-like compounds by the dinoflagellate, *Gambierdiscus toxicus*, in culture. Antarctic diatoms were studied by Sancho and co-workers who reported on the occurrence of mannitol and related polyols.

The occurrence of an N-acetyl-D-galactosamine specific lectin in *Codium fragile* subsp. *atlanticum* and subsp. *tomentosoides* was presented by Rogers and Loveless. The purified lectins from both algae were shown to be similar.

G. Blunden, School of Pharmacy, Portsmouth Polytechnic, Park Building, King Henry I Street, Portsmouth PO1 2DZ, England.

The Phycological Society of America Summer Meeting 1985

The venue for the 36th Annual Meeting of the American Institute of Biological Sciences (AIBS), held on August 11-15 1985, was the University of Florida at Gainesville. The ten participating societies, including the Phycological Society of America (PSA), sponsored a wide range of field trips, workshops, symposia,

contributed paper and poster sessions, a large trade display and other events. The total number of participants was around 800, of whom some 130 were phycologists. The local organization for the PSA was in the very competent hands of Lynn Hodgson.

For those of us who arrived early (the PSA meeting did not start until August 13, because of the IPC meeting at Copenhagen) there were a large number of local scientific field trips and four workshops. The two I participated in viz. Isolation and Fusion of Higher Plant Protoplasts (organizer David Biesboer) and A Clearing Technique for Plant Tissues (organizer John Herr Jr.) were excellent. Also well worth the visit was Walt Disney's Epcot Center, a fascinating world of exciting futuristic ideas and technologies.

President Mike Neushul opened the PSA sessions and over the course of the following three packed days, there were four major symposia (three of which were on applied phycology), as well as contributed paper and poster sessions. Macroalgal Biomass Production (organizer Dennis Hanisak) and Commercial Algal Products and Uses (organizers Klmon Bird and Robert McIntosh) were wide-ranging, topical and useful symposia. Algal Biofouling (organizers Kyle Hoagland and myself), which is to be published, brought together for the first time most profitably fresh water and marine workers in this area, and revealed our different approaches but a lot of common ground. The symposium on Light-harvesting Pigment-protein Complexes in Algae (organizer Beth Gantt) summarised very nicely our current state of knowledge in this field, but also showed what a lot there is that we do not yet know. One of contributed paper sessions also covered applied phycology and this, together with the Bold Award papers (won by Kirk Apt) and the contributed sessions on algal taxonomy, ecology, physiology and biochemistry, and development,

cytology and ultrastructure illustrated the wealth of good work being done in phycology in the U.S. at the present time.

The PSA Headquarters was cheerfully manned by Bob and Ruth Hoshaw, selling T-shirts, sponsored books and mugs etc. (proceeds go to the Education Fund of the PSA Ednowment), and providing continuous free coffee and up-to-date information. Also helping the Fund was the sale of (donated) colour transparencies from the PSA slide project, and a lively and good-humoured auction (auctioneer Russ Chapman) of items contributed by members also raised over \$800. Social events included Wine and Cheese Mixers, and the PSA Banquet, where the distinguished speaker, Beth Gantt gave a polished talk on algal photosynthesis, with particular reference to her own elegant work on phycobilisome structure and functioning. The final event, the PSA field trip (led by Lynn Hodgson and Margaret Hall) was to the historic "old Florida" town of Cedar Key on the west coast, and from there by the UF's research vessel, the Lowe Pierce, to the marine station and adjacent shore at Seashore Key. A most enjoyable and relaxed day.

Scientifically and socially, an excellent meeting, but the weather undoubtedly did take some getting used to. If the temperature (95,F) didn't get you, then the humidity (also 95) certainly did! However, in spite of that, thanks to universal air-conditioning, it was a thoroughly enjoyable, memorable and rewarding meeting.

L.V. Evans, Department of Plant Sciences, Baines Wing, The University, Leeds LS2 9JT, England

The Conference Season — Again

'Wasn't that awful?' 'Terrible, couldn't hear at the back, even once he'd got his slides the right way up.' 'Funny the first time someone burrowed around the lecture bench trying to find the light switch but a bit much by the fifth.' 'Did she ever explain why she was doing the work - what are techno-manipulative strategies anyway?' 'Patronising old b....r wasn't he?' 'I switched off when he started to read his notes.' 'Her overheads were unreadable - tables straight from her thesis!'

You've heard it all before; most of you have said it all before. There are those saintly souls who tolerate politely even the worst end of the range from competent to 'something should be done' in speakers at most conferences, but I notice that I am not alone. Others also quietly leave after morning coffee to find something more fulfilling to do. We have all recognised the problem for years but despite a plethora of books about how to give talks (and how to write papers) the standard of communication is still abysmal. Perhaps it is time to look a bit more deeply at why conference lectures are as they are.

I think there is a single main reason. It hinges on speakers feeling they ought to give a talk in a certain way whilst perhaps instinctively knowing that this way is really nonsensical. There is a peculiar fiction that science is something completely objective and does not involve the personalities, conditionings, prejudices, ambitions, joys, fears, insecurities and sheer humanity which many scientists are taught to believe should have no influence on what they do. Whether scientists like it or can cope with it or not such human frailty is always a part - an enriching, not a detracting part - of the work

they do. The conference lecturer tries to deny this and sees him or herself as the embodiment of objectivity. Members of the audience half accept this - in their turns they lecture, too. But in the anonymous half light they are also processing the lecturer's performances through the nexus of their own feelings and experiences and can allow themselves to be much more in touch with the reality of the work. The lecture, the more it separates scientists from science, becomes progressively unreal. We have encouraged ourselves to think that we are not talking as people to people but carrying out, in the lecture, some religious rite designed to awe. It does not awe, it often bores. The lecture desk has become the altar of audience sacrifice.

Can this be changed? Yes, by following the hints the books give - simple tables; at least half the slides pictures not data; speak simply and naturally, avoiding grandiosity; master the switches before the session starts; rehearse so many times that the notes are superfluous (and never read from them); and so on. but all these mechanics will be to little avail (and have largely failed to bring much improvement) without an understanding of what a speaker should be doing. You are not there to impress, to show how clever you are, to glorify a research group or a current fashion. You are the servant of your audience, not its high priest; you are there to communicate, to try to help each member of it make more sense of his or her experiences through the medium of your own. That is not so difficult - the qualification is to accept that you are human and to understand that your audience also is human.

B. Moss, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, England.

The Culture of Algae and Protozoa (CCAP), Cambridge

Phycologists everywhere will probably know by now that CCAP is shortly to be disbanded, an early victim of the present financial stringency. The history of the Collection is familiar to many. It was based on the cultures established by E.G. Pringsheim in Prague in the early years of this century. Pringsheim brought many of his strains with him when he came to England before the Second World War and on his return to the Continent, the Collection was left under the care of E.A. George in Cambridge University Botany Department. With the increasing awareness of the importance of cultures of micro-organisms for teaching, research in many fields, and biotechnological applications, and after some assiduous campaigning on the part of Eric George, supported by other phycologists and protozoologists, the Collection finally moved, as a component body of NERC, to its own building in 1970. Its status as a component body in its own right was, however, short-lived (perhaps it was too small for bureaucratic comfort?) and in 1975 it was incorporated into the Institute of Terrestrial Ecology (ITE). Even at the time this did not seem to be the wisest decision; after all, it is probably true to say that CCAP had little in common with the mainstream research projects of ITE!

In its lifetime CCAP has contributed a valuable service to science both as a supplier of material and, in recent years, through the research activities of its own staff. There have been outstanding contributions to our knowledge of algal and protozoan fine-structure and taxonomy in both marine and freshwater species and significant advances have been made in cryopreservation and cryobiology. In addition, the laboratory has attracted a number of visitors who have also contributed to its scientific reputation. However, it is probably true to say that the expansion of CCAP in 1970 came too late for it to become thoroughly established in its new form;

the national economy was already showing signs of decline and it was clear that little further expansion would be possible. The situation was aggravated from 1975 when it became necessary to compete within ITE for funds.

To some extent, therefore, it was no surprise when, after some key staff members had left and not been replaced, rumours began to circulate that CCAP might close. A number of moves were made by individuals and organizations such as the UK Federation of Culture Collections and the BPS in order to preserve the Collection, but these were unsuccessful. At the time of writing, by the end of 1986 the freshwater algae and possibly the protozoa are to pass into the care of the FBA and the marine algae to SMBA, whilst the future of the cryobiology unit and the remaining CCAP staff is uncertain. One can only urge NERC to consider seriously the importance of the culture collections for which they are responsible and to ensure that those who manage them are adequately supported both in expertise and finance so that the achievements of more than half a century are not totally wasted. Furthermore, NERC should reconsider the pricing structure it has imposed. It is impossible for most Collections to run on the income from the sale of cultures and with the high prices currently charged in order to try to cover the 'full economic cost', it is not surprising that many former CCAP customers are buying material elsewhere, often from culture collections abroad.

Finally our best wishes go to senior scientist, John Baker, and his colleagues at this difficult time.

(I have accepted the wish of the author of this article, who is known to me, to remain anonymous: Editor)

Phycology at the Freshwater Biological Association

Aquatic botany has been a primary area of research at the FBA, almost since its formation in 1929. This long tradition is founded upon the outstanding contribution of individual scientists whose names have become closely identified with that of the Association: W.H. Pearsall, W. Pennington and J.W.G. Lund. Each used the freedom to pursue exhaustively the research of his or her own choice to achieve the level of understanding of factors governing distributions of plants that has proved such an inspiration to research workers who followed them.

The same principle of stimulating creative research by encouraging individual researchers remains the Association's present-day policy, although it has been necessarily adapted following Rothschild, successive government expenditure cuts and, most recently, the publication of the NERC Corporate Plan. Today, the research programme has greater emphasis on "strategic" and "practical" problems that concern external sponsors, and it employs one third fewer staff than it did in 1970. It is fortunate that most contracts have continued to allow the FBA to pursue scientifically-rewarding research; in consequence, neither the output of research publications nor, it is believed, their quality has altered significantly.

Botany is one of the five primary areas into which the FBA's current programme is subdivided (the others being chemistry, microbiology, invertebrate- and fish-biology). It embraces the pioneering studies, led by Mr D.F. Westlake at the FBA's River Laboratory, near Wareham, Dorset, of the biology, photosynthetic physiology and ecology of aquatic macrophytes; results from these studies have permitted development and implementation by Dr F.H. Dawson of several different management schemes, to moderate weed growth in watercourses and to improve river systems.

However, it is the activities directed towards the lower plants that will be of most interest to readers of the BPS Newsletter. These necessarily include the work of Dr H.M. Canter (Mrs J.W.G. Lund) on the fungal and protozoan parasites of freshwater algae, which has identified many species new to science and many facets of the interactions among infective organisms and their potential hosts. Besides having been a major botanical influence in her own field, Dr Canter has made a unique contribution to phycology, not least through her outstanding photomicrographs.

A major part of the present phycological work at the Windermere Laboratory is directed towards the study of seasonal and longer-term changes in the phytoplankton of a number of lakes in Cumbria and north-west England which, together, cover a range of limnological properties and trophic states. Some of the records, initiated by Dr Lund, now extend over forty years. Such "bread-and-butter" studies have a vital role in the perception of ecological patterns and the formulation of hypotheses regarding the driving variables that bring them about. Exceptional events provide useful pointers in this respect. The number of sites, both at home and abroad, for which prime data are available has been increased. Considerable importance is now attached to the analysis of these data and the daunting task of transferring past data-sets to computer file is well in-hand.

Many between-lake and between-season variations are sufficiently self-evident to stimulate more detailed investigations on the biological properties of planktonic communities, of the component species and of the interactions among processes influencing their spatial and temporal distributions. These studies, led by Dr J.F. Talling, Dr S.I. Heaney and Dr C.S. Reynolds, have involved detailed field observations through critical episodes, supplemented by controlled experiments conducted in the laboratory, or in model environments provided by limnetic enclosures of varying scale. The largest of these are the "Lund Tubes", the butylite cylinders that each isolate some 18,000 m³ of Bielham Tarn and its sediments. Processes that have been determined empirically include *in situ* photosynthesis, nutrient-uptake and growth rates and the effects thereon of interactions among light, shading, fluctuations in ambient temperature and nutrient availability as well as such loss mechanisms as grazing by zooplankton, parasitism, settling, death and decomposition; moreover differential effects, in terms of the population dynamics of individual species, can now be distinguished. Because these factor interactions could often be related to seasonal variations in the physico-chemical environment, once the appropriate scales and dimensions had been identified, it is now becoming possible broadly to account for the strong seasonality of individual species. Most recently, these hypotheses have been supported by the results of field-scale manipulations of the environments in Lund Tubes. These techniques, supplemented in many instances by the results of particular collaborative studies with university colleagues, have also enabled autecological reconstruction of the factors regulating the growth of several prominent and cosmopolitan species (notably *Asterionella*, *Ceratium* and *Microcystis*).

Analogous investigations have been made on benthic stream algae by Dr A.F.H. Marker and his associates at the River Laboratory. Despite the statistical complexities arising from the inherent heterogeneity of lotic environments, Dr Marker has been able to detect consistent patterns of growth and production of attached algae in chalk streams and to relate these to seasonal variations in nutrient supply, to flow-dependent factors and to the activities of grazing invertebrates. Again, enclosures ranging from

specialized glass containers, developed to measure photosynthesis in benthic communities, to the "closed-stream" provided by the experimental circulating channels at Waterston have enabled him to test many of his hypotheses under controlled field conditions.

Determination of community responses to environmental change over much longer periods of time requires quite different approaches. Building on the reconstruction of post-glacial environments afforded by Professor W. Pennington's researches, Dr E.Y. Haworth's painstaking investigations of morphological variability in diatoms and their stratigraphy in lake sediments are now proving especially rewarding. The historical presence of characteristic diatom assemblages are matched to contemporaneous climatically-influenced fluctuations in the catchment vegetation, hydrology and nutrient loading. Dr Haworth has already demonstrated the good relationship that exists between the recent sedimentary record, corresponding to the last forty years or so, to documented changes in the same lake basins over the same period. She is therefore able to evaluate and predict the responses of algal communities to changes in catchment land-use and to the modern problems of pollution and acid deposition.

Scientists at the FBA, and from further afield, are able to derive considerable benefit from an actively-maintained collection of cultured algal strains, mostly isolated from local lakes, and from the Fritsch Collection of Algal Illustrations, which has survived a series of recent threats to its maintenance and continues to be curated and updated, under the sustained supervision of Dr Lund. The FBA also has a good record on the in-house development of methods and techniques in the study of aquatic sciences and of suitable apparatus with which to apply them. The excellence of its library services is world-renowned.

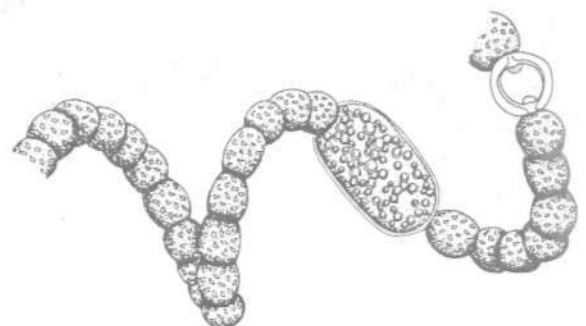
Lest the impression be given that botanical research at the FBA proceeds in isolation from other disciplines, it is opportune to refer to the extensive collaborations with zoologists, microbiologists and chemists. Recent joint publications attest to the valuable and commercially-exploitable insights thus gained on (for instance) the regulation of food resources to higher trophic levels and the control of biogeochemical cycles and whole-lake metabolism.

It can be seen that, although the frontiers of phycological knowledge are being advanced on a broad front, with a bias towards the formulation of generalized principles, more detailed investigation of specialized topics remains prominent. This balance enables us to assimilate more readily the relevance of particular processes to the regulation of freshwater algae and to focus on those topics which are likely to contribute most to an improved understanding of ecosystem functioning in fresh waters. In this respect, the traditional aims of the FBA remain unaltered.

C.S. Reynolds, Freshwater Biological Association, The Ferry House, Ambleside, Cumbria LA22 0LP, England.

A Future for the Fritsch Collection of Algal Illustrations?

The personal reference collection of algal illustrations begun by Professor F.E. Fritsch and given by his wish to Dr John Lund at the Freshwater Biological Association, has been maintained by the F.B.A. ever since. The Collection is now over 70 years old and the additions still scarcely keep abreast of published material. During this time many people, taxonomists and ecologists in both basic and applied sciences, have come to use the original sheets or have had access to the microfiche copies marketed by the Inter Documentation Company. Their use and staunch support has been instrumental in keeping the Collection going.



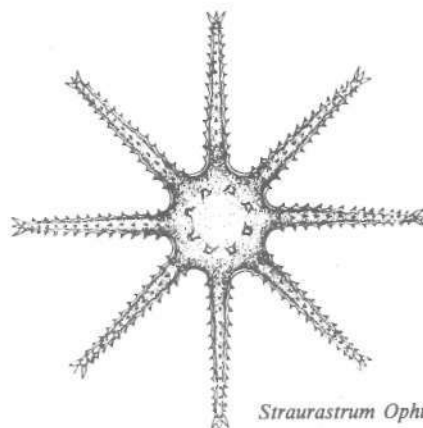
Anabaena circinalis Rabenh. ex Born. et Flah

The cutback in science dictated by the NERC Corporate Plan now threatens to end the addition, maintenance and use of this unique record of reference to the world's freshwater and brackish water algae. The relevant staff post would be one of the first lost by the FBA.

To prevent this we are now seeking the finance to set up a 'FRITSCH FUND' that, hopefully, will be sufficient to generate the salary of the Assistant Curator, presently working under Dr Lund's supervision. This would provide a more secure future for the Collection and obviate the necessity for continuous cases of justification or fund raising to support the post.

'Algal' and 'non-algal' members of the FBA have already readily responded to our Appeal. Algologists (or phycologists!) can help us in three different ways:

- 1) Financial help either in the form of a single donation or, more usefully, a covenanted subscription from which we can derive the tax refund;
- 2) Promoting the Appeal with any financial or commercial concerns who could be persuaded to support the Collection either because of their interest in the science or because of their conscience as environmental hazards!



Straustrastrum Ophiura Lund.

- 3) Continued use and support of the Fritsch Collection because therein lies our rationale for its continuation.

Further information and donation forms are available from the Fritsch Collection Curator, E.Y. Haworth, Freshwater Biological Association, Ferry House, Ambleside, Cumbria LA22 0LP, U.K.

Algae, Broads and Environmental Scientists

Imagine lots of thinking ten-year-olds scampering out of the conversation tent at the Royal Norfolk Agricultural Show bearing two-inch badges saying 'Ban Algae' and you would not think this a fertile ground for a BPS recruitment campaign! It happened as part of the Broads Authority's education and action programme to bring about a reversal in the fortunes of the Norfolk Broads. Many people still think that the only problem of the Broads is the damage that boats cause but the central issue is the (very rough) total, on an average summer's day, of about 2×10^{18} phytoplankters. It seems a modest aim, but a reduction to about 2×10^{16} would send some of us down here in very-flat-Norfolk into raptures.

The old gaffers remember gin-clear water, carpets of charophytes, coot shoots and pike of mythical size. Instead of gin we now have a greeny-brown brew and hardly an aquatic plant is to be seen in the main waterway. The reason, of course, is severe eutrophication, and the optimists among us are hoping that one day we can reverse the changes and have an aquatic plant (and epiphyte)-dominated ecosystem again. The algal communities of the drainage ditches, where these are isolated from the sewage-effluent, are rich and interesting, but, though we do a little, the esoteric Xanthophytes and Chrysophytes must largely be ignored whilst we sort out the plankton. We hope we can get rid of the vast *Cyclotella*, *Melosira*, *Synedra*, *Diatoma* and *Oscillatoria* populations either by chemical and civil engineering (phosphorus precipitation and isolation of Broads by dams) or by husbanding the sorts of zooplankters that might eat them (a process which, if only I could sell it as biotechnology might attract more funds) or both.

Looked at from an algologist's viewpoint the Broads present some splendid plankton patterns and oddities. There are well-defined sequences of communities down-river and from riverine to more lake-like Broads. The trend is from centric diatoms to pennate diatoms and filamentous cyanophytes to pennate diatoms and colonial cyanophytes, and seems to be linked with decreasing flushing rates. Then there is the contrast of the Thurne Broads (Hickling and Horsey Mere) which receive salt water by percolation under the North Sea dunes and have a flora of rather small species including *Chaetoceros* and *Prymnesium parvum*. *Prymnesium* killed many fish in the 1970's but is now much less important - perhaps a function of reduced fertility of the water as the great flock of black-headed gulls which roosted on Hickling Broad has mysteriously dwindled.

Thirdly there is the lack of blue-green algal blooms. Many people find this unexpected even when I explain I am using the term in its proper sense. All those that I can recall have been in the middle range of water fertility and seem to have followed heavy *Daphnia* grazing of other algae. Our thoroughly mixed metre-water-columns preclude elegant hypotheses about buoyance regulation and our chalky waters rival-hypotheses and carbon-limitation. And finally there is the *Fragilaria* nightmare. *Fragilaria* was apparently the dominant diatom for long periods of the Broads' history. In slides made from sediment cores as many as 90% of the diatoms can be *Fragilaria*, almost all of them lying in girdle view. The nightmare is counting and identifying them.

For these and other reasons the School of Environmental Sciences at UEA is a good place for a phycologist to be. The other reasons include involvement with problems that reach the national spotlight, so that people and politics are heavily interwoven with scientific work from many disciplines, an increasing interest among my chemist colleagues in phytoplankton which produce reduced sulphur compounds which may have important roles in stabilizing atmospheric chemistry (and preserving our very

existence), a city of great beauty, and, reputedly, warm Norfolk summers.

If the pessimism about the environment which grips me far too much of the time does not finally wear me out, I hope that in the next ten or fifteen years we will have shifted the balance of the Broads' algae from phytoplankton to epiphytes. Anyway we have the designs for the 'Ban aquatic plants' badges all ready

B. Moss, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, England.

Letters to the Editor

Dear Colleague,

As a comment to the British Phycological Society Newsletter Nr. 19, p. 1, I wish to tell you that there exist at least seven phycological societies, including the PHYCOLOGICAL SOCIETY OF UPPSALA, founded in November 12, 1958.

Dr K. Thomasson, Eriksbergsvägen 16, S-752 39 Uppsala, Sweden. (With apologies to the Phycological Society of Uppsala : Editor.)

Dear Dr. Russell,

I must compliment you on the format and content of the British Phycological Society Newsletter. The May 1985 issue (Number 19) contained many articles that were of great interest to me, and I would like to correspond with some of the people involved in the activities that were described. However, I was frustrated by the discovery that in most cases no address was provided or no specific contact was mentioned. I urge you, therefore, to provide the name and full address of a contact at the end of each article in future issues of the Newsletter, to facilitate correspondence.

Sincerely yours,

Cornelius I. Weber, Chief, Biological Methods Branch, U.S. Environmental Protection Agency, Office of Research & Development, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268, U.S.A. (Addresses now supplied : Editor.)

News and Announcements

THE THIRD INTERNATIONAL PHYCOLOGICAL CONGRESS

(Monash University, Melbourne, Australia
14-20 August 1988)

The Australasian Society for Phycology and Aquatic Botany (ASPAB) has warmly welcomed the choice of Melbourne for the next Congress and has offered help and support to the organizers. The Vice-Chancellor and the Faculty of Science at Monash have already made generous grants towards running the Congress.

Pre and Post Congress excursions are being planned to include visits to the Great Barrier Reef, Tasmania, Western Australia in springtime and New Zealand.

We look forward to seeing you in Australia in 1988!

Co-conveners: Margaret Clayton, Bill Woelkerling
Enquiries: Secretariat 3rd I.P.C., Department of Botany, Monash University, Clayton 3168, Victoria, Australia
First Circular: November 1986

DINOFLAGELLATE BLOOMS

Professor Vittoria Gerosa is preparing a book on Lake Tovel in Italy which formerly reddened as a result of the growth of *Glenodinium sanguineum*. He is anxious to contact anybody who may have colour photographs of similar phenomena. His address is: Istituto Technico Statale per Geometri, Trento 38100, Via del Mille 57, Italy (contributed by P.J. Casselton).

GERALD W. PRESCOTT AWARD FOR 1985

The 1985 Gerald W. Prescott Award was announced at the recent 36th annual AIBS meetings held at the University of Florida, Gainesville. The Prescott Award is sponsored by the Phycological Society of America and is offered biennially in recognition of the outstanding scholarly book or monograph devoted to algae published in English during the preceding two-year period. The recipient of this year's Award was H.B.S. Womersley of the University of Adelaide, who was honored for his 1984 publication of "The Marine Benthic Flora of Southern Australia. Part I."

Larry R. Hoffmann, Chairman, Gerald W. Prescott Award Committee.

(All members will join me in congratulating Professor Womersley : Editor.)

RETIREMENTS

Two of the Society's most distinguished founder members, Professor Tony Fogg (Bangor) and Professor Frank Round (Bristol) have recently retired. We wish both gentlemen happy, active and creative retirements. Members will look forward to seeing both at the Bristol meeting (Editor).

Editorial address

G. Russell, Department of Botany, The University, Liverpool L69 3BX, England.

N.B. COPY FOR INCLUSION IN NEXT ISSUE MUST REACH THE EDITOR BY APRIL 1st 1986

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