PURDUE MEETINGS

The 1961 meeting of the Phycological Society of America will again be held in conjunction with the American Institute of Biological Sciences at Purdue University, Indiana. Although the Society is not directly affiliated with the AIBS, the annual meetings are usually in conjunction with this group.

REGISTRATION: Pre-registration of $5 ($3 for graduate students) before 1 August 1961 is requested for all those planning to attend. Enrolled is a mermographed form that may be used for this purpose. Any cancellations before 26 August will be refunded. Pre-registrants receiving University Housing will be able to report directly to their assigned housing upon arrival, thus by-passing the usual registration line to be located in the East Foyer of the Memorial Center.

HOUSING: University Housing is primarily double rooms at $3.75/person/night ($3.75 if single occupancy). Residence halls may be occupied from 9 a.m. Saturday 26 August to 1 p.m. Thursday 31 August. Also available is "hotel type" accommodation at the Union Club of Purdue Memorial Union. These facilities have private baths and are air-conditioned. Rates, in general, are: Single $3.50/person/night; double $7-7.50 per night. Other accommodations are available at hotels and motels and should be made directly, not through the AIBS Housing Committee. A list is appended on page 5. Camping and trailer facilities are not available in the local community. Further information regarding housing may be secured from: AIBS Registration, room 110, Memorial Center, Purdue University, West Lafayette, Indiana.

TRANSPORTATION: State highway 12 connects with U.S. highway 40 at Indianapolis to the south and with the Indiana toll road (turnpike) to the north. The New York Central, the Wabash, and the Monon Railroads stop at Lafayette where taxis are available. West Lafayette is served by Lake Central Airlines which make connections at Indianapolis and Chicago. Bus service is operated by Greyhound and Continental Trailways.

MEMO AND REMINISCENCES: Those assigned to housing in the Men's Residence Halls, H-1, H-2, H-3 are expected to eat in these halls. All others with University Housing will eat at the Purdue Memorial Union cafeteria which are open to all. Also available in the Union are the Sweet Shop and Snack Bar. Beer only is available in West Lafayette at least one place near campus (The Chocolate Shop). Other beverages may be obtained in Lafayette. Indiana state laws require that no liquor be available on Sundays.

GENERAL PROGRAM — 1961 MEETING

Sunday, 27 August 9:00—Field Trips
Monday, 28 August 12:00—Luncheon
Tuesday, 29 August 9:00—Symposium—Modern Species Concepts
Wednesday, 30 August 9:00—Contributed Papers
12:00—Contributed Papers
1:30—Annual Business Meetings

(Detailed program on page 4)
SPECIAL ACTIVITIES AT PURDUE MEETINGS

POKST: The party under the able leadership of Mr. and Mrs. W. A. Dally is scheduled for Sunday, 27 August. The participants set to assemble at the Purdue Memorial Union Building at 7:30 a.m. Box lunches will be available at a cost of $1.60 each and must be ordered early. (Those desiring lunches should immediately send a check to cover the cost to Mr. Dally, Box 151, Butler University, Indianapolis, Indiana.) Personal care will be used for transportation and those having cars available should park them in the Union Building Parking Lot. The total mileage is about 115 miles. The trip includes a stop at 7:30 a.m. at Lake G_CRE, which is the southeastern natural glacial lake in Indiana. The Dallys are planning to supply the necessary collecting equipment as well as hot w_r, coffee, iced water, gardenia, and cups. Available at the Lake will be swimming (free), rental boats, sailboats, candy, ice cream, sandwiches, and picnic facilities. Upon return from the foray (about 4:30 p.m.) laboratory space and microscopes will be available in room 417, Lilly Life Science Building. Those interested in the foray who have not signed up should write Mr. Dally as soon as possible.

LUNCHON: A pot party of a Social Luncheon or Brunch is being revived this year with the scheduling of a Luncheon for Monday, 28 August at 12:00 noon in 230 Purdue Union Building. The luncheon will be buffet style and will cost $1.75 per person. Tickets will be available at the registration desk. It is hoped that all members of the Society and those interested in pinning will plan to attend. (Application blanks for new members will be available that day.)

ANNUAL MEETING: The annual meeting of the Society is Wednesday, 30 August in 217 Home Economics Building at 3:45 p.m. This will follow the last session of contributed papers. At this time the new officers will be announced and the affairs of the Society discussed. All members of the Society are urged to attend; and again, prospective members may join at this time.

MARINE RESEARCH PROGRAMS

University of Miami Marine Laboratory: The Heart Institute, National Institutes of Health, sponsors postdoctoral fellowships in Experimental Marine Biology at Virginia Key, Florida. It is the only biological station in the continental U.S. where tropical marine biology may be studied (latitude 27°N). For further information: Dr. G. E. Lane, Director NIH Program, Marine Laboratory, Box 1, Rickenbacker Causeway, Miami 41, Florida.

Virginia Fisheries Laboratory: The National Science Foundation is sponsoring two research participation programs. The one for undergraduate biology majors supplies research experience. The other for college biology teachers is designed to provide research experience for those from colleges (and junior colleges) with limited facilities. The laboratory is affiliated with The College of William and Mary, located 15 miles away in Williamsburg. For further information: Robert S. Bailey, Director NSF Program, Virginia Fisheries Laboratory, Gloucester Point, Virginia.
11:00 SIEVERS, Harold E., Jr., North Texas State College, Denton. Vitality, species of algae and protozoa in the atmosphere.

11:10 MALONEY, T. E., E. J. DOMOWICH, Jr., and E. J. ROMBERG, R. A. Total San-
itary Engineering Center, Columbus, Ohio. Determination of numbers and size of algae cells by an electronic parti-
cular counter.


WEDNESDAY AFTERNOON, AUGUST 30

Contributed Papers. Joint Meeting with the Physiological Section of the Beaux-

2:40 NISHIYA, H. Wayne, University of Alba-
moa, Tucuman. Cultural studies of two freshwater algae.

2:50 LINJH, Harry, W. University of Texas, Austin. Observations of Thalassia in culture.

3:10 NISHIYA, H. Wayne and H. C. Bruce, Uni-
versity of Alabama, Tuscaloosa, and University of Texas, Austin. Observa-
tions on two Ulva-like algae in culture.

4:45 DAVID, Joseph, Southern Illinois Uni-
versity, East St. Louis. The influence of bioluminescent emission on conchuation of Pedicellicus.

5:00 ESTER, R. W. and D. M. MACAAR, New York Corporation, Browning Corpora-
tion, Houstan, California. Growth of orange flagellate chlophythothroides with nutrient.

5:15 MARIS, Mary Ann, George P. Fru-
gurian and Gerald A. Rossman, Uni-

5:30 DAYTON, Floyd E., Berkeley University, West, Texas. Architectural activity of Oulostichia fenestrata lory.

5:45 Annual Business Meeting.

HOTELS AND MOTELS
Pioneer Area
Cedar Crest Hotel, Room 52, North Central motel, Room 52, South
Combs Mens House, 1158 Silvercreek Drive
Dorn Motel, Room 52, North
Judge Motel, Room 52, North
Green Acres Motel, Room 52, North
Howard Johnson's Motor Lodge, Room 52
Morriss Motel, Room 52, North
Morris Jensen Hotel, Room 52, North
Van Orman-Bowyer Hotel, 272 North 4th St.
Windset Motel, Room 52, North.

RAILROAD TRANSPORTATION
The Missouri Pacific Line offers transportation information and assistance to passengers of the Society from Missouri, Arkansas, Louisiana and Texas planning to attend the Purdue meetings. Information regarding the service and travel arrangements may be secured by writing to D. H. Eaton, District Passenger Agent, 405 Merchants Bank Building, Indianapolis 4, Indiana, or by connecting the local passenger agent.

FOSSIL ALGAE SYMPOSIUM
The Paleontological Society of Japan is planning a Symposium of Micropaleo-
botany at Kanazawa University, Japan, on September 12, 1961. Special reference will be made to the calcareous algae and the diatoms. Dr. K. Komishi, lecturer of Geology and Paleontology at Kanazawa University, is organizing the section on the calcareous algae. He will also be one of the speakers on the Paleontic Dus-
chesnian, Terebratuline, and Chonetaceae. Further information may be secured from Dr. Komishi, Geological Institute, Faculty of Science.

FOURTH INTERNATIONAL SEAWATER SYMPOSIUM
Biarritz, France, will be the location for the 4th International Seawater Symposium. The meetings are open to all those interested in Biology, Chemistry and Seaweed Utilization. Registration should have been completed by 11 June 1961. The papers will be presented in French, English or German and are limited to 10 minutes. The papers presented will be published in book form at a later time. A field trip to San Sebastian, Spain, is planned for these interested. For further information: Monsieur Louis Barriquère, Directeur du Centre d'Etudes et de Recherches Scientifiques, B.P. 28, Biarritz (B.P.), France.

*7/26/61*
Cyanium caldarium — a Cryptobacterium? 
Ralph A. Lewin

The common hot-spring algae Cyanium caldarium Geider is a bluish-green, Clorrella-like organism which at various times has been misidentified to the Cyanophyta (e.g. as Platium caldarium, Copeland, 1934; Geider, 1934-1940), to the Chlorophyta (e.g. Hirs, 1910; Allen, 1919) or to the Rhodophyta (e.g. Geider, 1918, Hirs, 1918). The purpose of the present note is to prove that, in the light of recent evidence, more consideration might be given to its allocation among the Cryptophyceae, as suggested by Fogg (1954); see also Goodwin (1960).

The presence of a clearly defined couch, a plastid and a cellulose wall, and the absence of diaminopimelic acid, are characters which exclude it from the Cyanophyta. In the structure of the wall, the mode of reproduction by endospores, and the presence of starch-like material as a storage product, Cyanium exhibits affinities with such an alga as Chlorella. However, its inclusion among the Chlorophyta would seem to be precluded by the nature of its plastid pigments, notably the absence of chlorophyll b and the presence of a phycocyanin of the C-type (Allen, 1959). Furthermore, unlike the most heterotrophic green alge, Cyanium does not synthesize chlorophyll in darkness (Allen, 1919).

Though Hirs (1918) and Geider (1918), perhaps reluctantly, agreed to consider Cyanium as a Rhodophyta, its biochemical characters are barely sufficiently to outweigh anatomical and cytological features which differentiate it from such unicellular red algae as Porphyridium.

The only remaining algae which are known to contain phycobilid pigments are the Cryptophyceae. In the few which have been examined, a phycocyanin and/or a phycoerythrin have been reported, both with unusual spectral characteristics (Allen et al., 1959; Hirs and Fork, 1959; O’Keach and Krajcar, 1959). In these algae chlorophyll b is absent (Hirs, 1918; Allen, 1919), its place being taken by chlorophyll c (Hirs and Fork, 1959); the carbohydrate reserves contain starch-like starch. In the rare genus Tetragonochloris (Cryptoccales) we find cellulose walls and a mode of cell division essentially similar to those of Cyanium. Though Tetragonochloris has a pyrenoid, which is not present in Cyanium, this difference does not constitute a serious barrier to their association in the Cryptophyceae. Incidentally, such appear to show a marked preference for acidic waters.

Tetragonochloris verrucata, originally described from moorland pools in Czehchoslovakia by Puscher (1914) has recently been reported in Maryland by R. H. Thompson (Smith, 1958). It would be of great interest if this alga could be rediscovered and isolated in culture, in order to establish its the presence and the nature of phycobilid pigments; whether it possesses chlorophyll c, as do Cryptomonas, Henniloloma and Rhodomonas (Hirs and Fork, 1959), but not Cyanium (Allen, 1919); and whether the prominent carotenoid is alpa carotene, as in those cryptomonads so far examined (Hirs and Fork, 1959) or beta-carotene, as in Cyanium (Allen et al., 1940) and most other algae.

A NOTE ON PHYCOLOGICAL ACTIVITIES IN ARGENTINA

MICHAEL NIESHUL
University of Washington, Seattle

Recent increased phycological activity in Argentina was evident at the Quintas Jornadas Argentinas de Botánica, November 27 - December 4, 1960, where eight papers dealing with algae were read. The center of this activity is the Department of Botany of the University of Buenos Aires, where as early as 1958 a culture collection of unialgal *Cyanophyta* was begun by D. R. de Halperin. This collection was extended to other groups in 1960 by E. N. Locate de Dix, and at present unialgal stocks of *Cyanophyta*, *Chlorophyta*, *Chrysophyta*, and * Euglenophyta* are being maintained.

Marine algae are also receiving attention; the Patagonian Marine Biological Station (Figure 1), under the sponsorship of the Instituto Nacional de Tecnologia Industrial, having recently completed its first summer courses. In 1962, courses will again be offered, and will provide a rare opportunity for phycologists to become familiar with the diverse and luxuriant flora of southern South America. The first publication of the Biological Station will be a catalog of Argentine Rhodophyta by Sva. Carmen Pujol. Several other workers are presently studying various aspects of Argentine phycology; an algal herbarium is being built up and exchange material is available.

Commercial interest in marine dorsal resources is presently focused on the use of *Macrocytis* as supplementary fodder for sheep; experiments in Puerto Deseado being conducted by the Argentine Instituto Nacional de Tecnologia Agropecuaria. The rich growth of this plant along the southern Argentine coast contrasts with the sparse vegetation of the wind-swept Patagonian Desert.

This recent increase in Argentine phycological activity is due in large measure to the dynamic enthusiasm of Dr. O. Kathman of the University of Buenos Aires. As Director of the Station at Puerto Deseado, he organized the summer class and has stimulated a number of students to continue work in phycology. (Editor's note: For further information regarding the facilities of the Marine Station at Puerto Deseado, see Science 133: 370, 10 February 1961.)

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*Fig. 1. Marine Biological Station, Puerto Deseado, Argentina.*
ABSTRACTS OF PHYSIOLOGICAL PAPERS
RECENTLY PRESENTED

NORTH CAROLINA ACADEMY OF SCIENCES, RALEIGH — MAY, 1963

A Study of Population Growth in Carteria sp. Cultures
As Influenced by Nitzschia closterium
James R. Wheatley, Jr.,
East Carolina College, Greenville, North Carolina

Two species of minute algae, Carteria sp. and Nitzschia closterium, were cultured under sterile conditions in seawater culture medium; the cultures were kept under constant light and temperature control. Population growth of the unialgal cultures was compared with the growth rates and population levels of mixed cultures containing both species. Carteria sp. cultures had a growth lag period of 2-3 days after inoculation into fresh medium. The length of this lag time was not affected by the number of cells inoculated into the medium. Nitzschia closterium populations had no lag time, but seemed to begin cell division almost immediately after inoculation. Mixed cultures (binalgal) containing both species reached a higher rate of population growth and after 14 days had a population level 21.1% higher than similar unialgal control cultures.

The effect of Nitzschia-conditioned-medium upon Carteria population growth was studied by culturing Carteria in medium which had supported a Nitzschia closterium population for 9 days before being separated by centrifuging. Carteria cultured in this medium reached higher population levels than did similar inoculations in standard seawater culture medium.

Influences of Gibberellic Acid on Several Species or Algae
Won K. Kim and Victor A. Gredich
University of North Carolina, Chapel Hill

Gibberellic acid (GA) promoted the growth of Anabaena more at 25 ppm than 10 ppm, while 1, 10 and 100 ppm had no significant effect. In Chlorella pyrenoidosa, 1, 10 and 20 ppm promoted growth in increasing order, but 50 ppm had no effect while 1 ppm increased the number of cells but not optical density or dry weight. The filament length of Oedogonium convection was increased by 1, 10, and 20 ppm in order, while 50 and 500 ppm had no effect. Only 10 ppm was used on Vaucheria reticulata, and it increased filament length. GA and IAA had an additive effect on the growth of both Chlorella and Oedogonium, promoting both cell division and cell elongation in the latter. GA and kinetin also had an additive effect on Chlorella growth. This combination was not used on Oedogonium. In Chlorella GA partially overcame the growth inhibition induced by MH (malonic hydrates), 2,4-D or 5-fluorouracil. GA interacted similarly with 2,4-D in Oedogonium, and it also overcame MH inhibition of cell division, but not MH inhibition of cell elongation. The GA and 5-fluorouracil combination was not used on Oedogonium.

GA at 10 ppm had no influence on respiration of Chlorella, but it did cause an increase in the amino acid content of Chlorella and Oedogonium and the DNA content of Oedogonium. The slight increase in the DNA content of Chlorella and the amino acid content of Anabaena were not significant. The evidence suggests that GA may promote growth by increasing DNA and amino acids and possibly proteins, rather than by increasing respiration.

No differences, unless otherwise noted, were highly significant statistically as indicated by standard deviations and F values.
THE MECHANISM OF UPTAKE OF RADIOACTIVE ZINC BY ULYA LACUCA
John G. Orthnerich
University of North Carolina, Chapel Hill
and
Marine Biological Laboratory, Woods Hole, Mass.

The effects of metabolism, pH, carrier ions, and temperature upon the uptake and accumulation of Zinc by Ulyca lacuca from sea water in light and dark were investigated. The pattern of uptake in relation to light and temperature in unbuffered sea water was what would be expected assuming zinc absorption to be a biological accumulation process proportional to rate of photosynthesis as has been previously reported. However, uptake rate and the level of accumulation were found to be strongly pH dependent and to be affected by the concentration of zinc in the medium. Freshly killed Ulyca absorbed more tracer than live material. These findings suggest that the physical processes of absorption and ion exchange are primarily responsible for Zinc uptake. The relationship between photosynthesis and zinc absorption is a secondary effect related to surface/volume ratio and pH.

PACIFIC SECTION, A. A. E. AND BOTANICAL SOCIETY OF AMERICA, DAVIS, CALIFORNIA — JUNE, 1961

SEXUAL REPRODUCTION IN SOME BROWN ALGAE
R. Kathleen Calo
University of British Columbia, Vancouver

In conjunction with a comparative study of gametophyte development and sexual reproduction in some of the brown marine algae of the Pacific Coast, a project is being conducted to record the living processes of gametophytic growth, meiosis of reproductive structures, fertilization, and sporophytic growth using a phase contrast microscope and 14mm cine camera. A preliminary film is presented at this meeting which will include some of the general acts of sexual reproduction in the Laminariaeae. The work continues to obtain a more complete comparative record of sexual reproduction in the living organisms.

INTERMEDIATE MARINE VEGETATION OF EL SALVADOR
J. Yale Dunevan
Benedetta Foundation, Solvang, California

No abstract is presented here as the full paper has been published in the July, 1961, issue of "Pacific Naturalist" available from the Benedetta Foundation (RFD No. 1, Box 228, Solvang).

MAIN CULTURE OF THE RED ALGA, PORPHYRA CRUENTUM
G. G. Galambos
University of California, Berkeley

A study was made of the effect of various nutrient sources, temperature, detritus period, and light intensity on the growth and overall efficiency of a continuous culture of Porphyra cruentum. Results obtained showed that the temperature range for optimum growth was between 13 and 17°C. Detritus period had little, if any, effect on conversion efficiency within the range 4 to 10 days. The minimum detention period at which the culture could sustain itself was 5 days. Light saturation was reached when the absorption rate of the culture exceeded 30 Cal/ liter/min. (In a high temperature strain of Chlorella pyrenoidosa, saturation is reached when the absorption rate exceeds 30 Cal/ liter/min.)
The Growth and Nutrition of the Filamentous Green Algae, Oedogonium
Leonard Machlis
University of California, Berkeley
Oedogonium carduii and Oedogonium geniculatum, as well as several other species of Oedogonium, have been isolated into pure culture and can be grown in tubes through which gas mixtures are passed to provide mechanical mixing and supplementary CO₂. The two species named above are unable to use cobalt, require vitamin B₃, and, in addition, a second unknown growth factor. This factor can be obtained by autoclaving certain soils, although it can not be extracted by simple shaking of soil with water at room temperature. A partial purification has been obtained by fractionation on a 'Sorbadex'.

Evidence for the Hormonal Integration of Sexual Reproduction in a Heterothallic, Nonamphora Species of Oedogonium
Erfa Riehman-Knecht and Leonard Machlis
University of California, Berkeley
Evidence will be presented showing that: (a) the oogonial mother cell secretes a substance which induces the androspore to thicken; (b) the attachment of the androspores and their development into dwarf males triggers the formation of the oogonial mother cell into the oogonial cell and the oogonium and the development of a massive nutritive sheath around the oogonium; (c) the dwarf males grow in strictly specified directions presumably in response to some directive influence; (d) the gel around the oogonium serves to trap the sperm and (e) the sperm migrate to the pore leading into the oogonium probably in response to a chemotactic agent.

Maxine Nanopoulos from a British Columbia Fjord
Robert F. Stood and John R. Stein
University of British Columbia
The qualitative aspects of the nanoplankton in the Indian Arm, British Columbia, have been heretofore unknown, although the relative quantitative significance of this difficult group of unicellular organisms is apparent from recent primary production studies using the carbon-fraction method. This qualitative study of samples collected in the Spring of 1960 in Indian Arm has added a number of new records of distribution for the area, and has led to the discovery of several new species and genera. The study is being continued to determine quantitatively the seasonal and three-dimensional distribution of these and other nanoplankton in the fjord in relation to the physical-chemical aspects of the environment.

Persistence of a Diurnal Rhythm in Photosynthesis in Encysted Acrabulalia
Beatrice M. Sweeney and Francis T. Hay
University of California, La Jolla
The unicellular algae Acrabulalia was found to show a diurnal rhythm in photosynthesis. This rhythm was observed to continue for at least three cycles in constant light and temperature, and hence can be considered endogenous. Plants from which the nucleus had been removed by severing the band chroma showed no modification in the photosynthetic rhythm over a number of cycles. The nucleus is, therefore, not essential for the maintenance of rhythmicity in Acrabulalia. Conversely, a mechanism for maintaining time-lumping must exist in the cytoplasm.
SODIUM AND POTASSIUM METABOLISM IN THE MARINE RED ALGA PORPHYRA CRISPATA
Richard W. Eppley

Porphyra cells accumulate potassium and exclude sodium, the latter against an electrochemical gradient, much as do animal cells. Ulva cells, and the cytoplasm of Nitella. Presence of potassium, or sodium, in the surrounding sea water is required for active sodium extrusion.

During a transient stimulation of respiration, on adding potassium or sodium to low potassium cells, sodium is extruded while potassium or sodium is accumulated. Time course and inhibitor studies suggest the following: 1) Oxidative phosphorylation is usually rate limiting for respiration; 2) Potassium stimulates respiration by allowing a transient increase in phosphate acceptors, allowing an increase in the rate of oxidative phosphorylation, and thus respiration; 3) Potassium acts in this way by allowing osmotic work — a net extrusion of sodium ions, resulting in an increased supply of phosphate acceptors. If the above are correct its extrusion probably occurs by a K- or Na-linked pump mechanism driven by high energy phosphate, as suggested for erythrocytes.

Porphyra cells are capable of maintaining high potassium and low sodium levels of a broad range of salinities. Survival during sudden osmotic stress is facilitated by the lack of vacuoles (no plasmolysis occurs) and by differential stickiness and swelling of the protoplasts and polysaccharide cell wall and mucilaginous materials. The survival value of such flexible polysaccharides as wall materials in cells of intertidal algae will be discussed. Cell death during stress is attributable to removal of calcium, since external calcium is necessary for maintenance of cell ion composition. Concentration of sea water does not appear to be very detrimental to survival.

"This work was supported by a grant from the National Science Foundation to the University of Southern California (C-56394). Presented at a symposium, "Organisms in Relation to Function in the Plant Cell.""

MARCUS FUNGUS FROM BRITISH COLUMBIA
Gilbert C. Hughes

University of British Columbia

Studies of the marine wood-inhabiting Ascomycetes and Fungi Imperfecti from various habitats in British Columbia have revealed 26 species in 11 genera. Coriolus cornatus var. Wilson, Undinella inflata Wilson, and Metarhizium astreoides Crabb & Crabb are reported as new records for the Pacific Coast of North America and the northward range of several previously reported species is extended. The presence of Ascomycetes on the stipes of Laminaria saccharina and Porphyra hydrophila Ruprecht is reported and discussed.

"Naturally" Research Council of Canada, Department of Fisheries, British Columbia.

REQUEST FOR RESEARCH MATERIAL

CHLOROPHYCEAN FLAGELLATES
Living collections or cultures of Paraphormion veritae (Stokes) de Sandeleer and any other Chlorophycean flagellates which have the structure referred to as the "mouthband" ("Mundkranz," "bundelike buccal") in the literature. These collections or cultures should be sent air mail to:
Dr. Gordon F. Ladd
Department of Botany, The University,

Pouage will be refunded, if so required.
HIGH SCHOOL STUDENT STUDIES ALGAE

In the fall of 1979, the Vancouver, British Columbia, School Board in- 
augurated the Joe Berg Science Seminars for high school students outstanding in 
science and mathematics. One of the participants is studying some of the cyto-
morphology of the marine green, Codium fragile using ultra-violet light and 
fluorescent stains. The work is considered sufficiently advanced to be of the 
caliber of that required for a Master's Degree.

During the school year, 11th grade Wendy Cohn (who started the project a year ago at the age of 16) works in the Genetics Laboratory at the University of 
British Columbia one weekday afternoon and on Saturday. She plans to study 
every stage in the life-cycle of C. fragile comparing cell structures seen in 
white light, ultra-violet light due to primary fluorescence, and in ultra-violet light 
due to secondary fluorescence after staining with fluorescein. Wendy has 
found the best fluorescence are Acriderine Orange, Auramine, Acidifiers, Calco-
fluor White, and Calcinene Red. The project is directed by Dr. KATHERINE S. 
COTLE, Assistant Professor of Botany and Biology at the University.

The Berg Science Seminars are aimed at encouraging bright students to 
embark on careers in science and mathematics. The participants attend weekly 
seminars and listen to current topics presented by experts in all the various 
science fields. The research project is usually under the sponsorship of one of 
the seminar lecturers. All of the lecturers are employed as "dollar-a-year-men", 
receiving a check through the Vancouver School Board from the Joe Berg Founds-
tion.

PHYCOLOGIA

The first issue of the quarterly journal of the International Physiological 
Society, PHYCOLOGIA, has been issued as of 29 March 1961. It is published in 
Denmark by Annelinbyggumstemt, who publish Botaniska Tidskriften, Ullkon, 
and Journal du Conseil. The acting editor, Paul C. Silva, University of California, 
has done an excellent job with the journal which has an attractive 2-tone blue 
cover. This first issue contains a brief discussion of the various national physiologi-
cal societies and 3 research articles. The date of acceptance for these reports 
varies from 19 September 1960 to 18 February 1961 and it is hoped that such 
quick publication can be maintained in further issues.

The primary purpose of PHYCOLOGIA as stated by the editor is, " . . . to 
serve as a clearinghouse for physiological information." It will contain review 
articles and brief reports of original research. It will also contain newsworthily 
items such as announcements of meetings and excursions, requests for research 
and teaching materials, and reports of activities in laboratories and institutions. 
At present, the cost of paper over 8 printed pages will be borne in part by the 
author. Contributions may be written in English, French, German, Russian, or 
Spanish.

The next issue will contain the first part of the 1959 physiological literature. 
This bibliography will also be available as reprints at the cost of approximately 
$2.60 each. The reprints will be printed on only one side of the paper, in 
order to facilitate filing the entry to an index card. Anyone interested in buying 
the reprint of the physiological bibliography should consult the acting editor, 
Dr. Silva, Department of Botany, University of California, Berkeley 4.

The British Section of the International Physiological Society will hold 
the South International Seaweed Symposium at Brixton, France, during 
September 18 to 21, 1961.
GRANT AND FELLOWSHIP DEADLINES

1 September 1961—Graduate Laboratory Development Program—This requires 95% participation by the University with funds from a non-Federal source. The grant is to aid in modernizing, renovating, or expanding graduate-level basic research laboratories. Only departments with current programs are eligible. Write: Office of Institutional Program.

1 September 1961—Postdoctoral Fellowship—For this a Ph.D., or equivalent, is required. Write: Fellowship Office, National Academy of Sciences—National Research Council.

15 September 1961—Basic Research Proposals, Life Sciences—No application form necessary. Write: Biological and Medical Sciences Division.

1 October 1961—Senior Postdoctoral Fellowships—For those who are at least 5 years beyond the doctoral degree. Write: Fellowships Section, Division of Scientific Personnel and Education.

1 October 1961—Science Faculty Fellowships—For college teachers with only nominal post-baccalaureate training as well as those who have had scant opportunity for "refresher training." Write: Fellowships Section, Division of Scientific Personnel and Education.

1 November 1961—Cooperative Graduate Fellowships—For graduate work, however, application is made directly to the institution where study is proposed. Inquiries to Fellowships Section, Division of Scientific Personnel and Education.

1 December 1961—Summer Fellowships for Graduate Teaching Assistants—For continuation of academic studies by graduate teaching assistants. Application is made directly to the institution involved. For information write Fellowships Section, Division of Scientific Personnel and Education.

1 December 1961—Postdoctoral Fellowships—For this a Ph.D., or equivalent, is required. Write: Fellowship Office, National Academy of Sciences—National Research Council.

19 December 1961—NATO Postdoctoral Fellowships—The NSF is administering this program for Americans (NRC for Canadians). In most instances the recipient is expected to study in a member country; however, consideration will be given for those planning study elsewhere. Write: Fellowships Section, Division of Scientific Personnel and Education.

1 January 1962—Summer Fellowships for Secondary School Teachers—For further study at advanced levels. Write: Secondary School Fellowships, American Association for the Advancement of Science, 1515 Massachusetts Avenue N.W., Washington 1, D.C.

1 November 1961—Research Grant Request—Specific application form available.

SECRETARY-TREASURER'S NOTE
Mr. W. A. Daily, our Secretary-Treasurer since 1918 comments that he has enjoyed the short notes included with the dues notices. It has been impossible to acknowledge most of these but they are appreciated. It might be added that oftentimes these serve as sources of news of members for the Bulletin.
NEWS AND NOTES

W. H. Atwood, University of Michigan, is continuing his research on the Nudibranch of New England Cardiiceps Alcyoninus and allies. He will be workingextend this summer, Maine, and will moreover the risk of any physiologically in the area. His full address is accessible through the Department of Zoology at the University of Michigan.

K. M. Selmanowicz, Duke University, is spending the summer doing research at the Duke University Marine Laboratory, Beaufort, North Carolina. Harriette C. Boldt will be a visitor at the Laboratory of Stephen F. Austin State College at Nacogdoches, Texas, for high school teachers.

William Case, New Jersey, has been honor graduate of the 1960 class at the University of Wisconsin. They will be the 1960-1961 American Philosophical Society for the study of the University of Wisconsin.

Robert W. Castenholz, University of Oregon, will be on leave of absence at the Institute of Marine Science sponsored by NSF at Cape May, Octobers

J. Towne Conn, University of Idaho, and Edward D. Heberle, Duke University, are continuing the study, begun in 1949, of Azotobacter. This bio-geological study is sponsored by NSF, the University and the NSF. Last year's studies of the living root plant communities show that the risk of nitrogen fixation is more important than any other group in the root nodules at Azotobacter.

William P. Cook, Indiana University, is the recipient of the NSF Cooperative Graduate Fellowship for 1964-66.

Timothy DeMars, University of Delaware, will begin his postdoctoral work in the Biology Department, University of Alabma, Tuscaloosa, in September. He is replacing Walter Herndon.

Walter Herndon and Graham O'Keefe, University of Alabama, recently received a grant from the National Institutes of Arthritis and Metabolic Diseases for continuation of the study of the replacement of cartilage by connective tissue in living organisms. As Professor of Herndon will become Professor and Head of the Department of Biology, University of Tasmania, Tasmania.

Llewellyn Hillen, formerly at Victoria College, British Columbia, became Mrs. Paul Alcorn in early June. The Calderbank’s are back at the university.

Louis R. Hoefnagel, University of Texas, will receive his Ph.D. in August and will spend 1961-62 on an NSF Postdoctoral Fellowship in the laboratory of Professor Ernest Manter, Mos, England.

Raymond B. Hatton, Plant College of the University of Michigan, has recently received a University of Michigan faculty research grant for the study of “Effect of Growth Temperature on Forty Acid Compositions of a Thermoacidophilous Alga.” This work is in cooperation with chemist H. H. Bercov, also at Plant College.

Max H. Hummellmann, University of North Carolina, will be on the teaching faculty at the Third Annual Conference sponsored by NSF at the University of North Carolina. He will discuss recent developments in phytoplankton, the giant kelp, and certain kelp teachers of general biology and biology.

Eura Horvath, University of Wisconsin, will join the faculty at the University of California, Berkeley, Washington, in September.

Colby C. Houghton, University of British Columbia, will join the teaching staff at Brown University College, Providence, in September. This year he has been an NSC Postdoctoral Fellow with the Department of Biology and the Institute of Ornithology at the University of British Columbia.

S. H. Hotz, Hopkins Laboratories, New York, presented a paper at the 11th annual meeting of the Society for General Microbiology in London in April. In August he plans to travel for the International Congress of Protozoology in Prague, Czechoslovakia.

Robert Knox, Kansas University, was awarded the Doctor of Science degree last year from the University of Tokyo for his study of the “Protein Carbohydrates” in the work of the University of Okayama, Okayama, and is spending an 18-month term collecting and studying the Rakan Islands collecting tropical and sub-tropical algae.

Frank S. Knepper, Valparaiso University, is conducting the National Institutes of Health on a grant for the study of the influence of amino acids on the metabolism of the brain.

George F. Pappas, University of California, Berkeley, will be the Lecturer in Physiology at the University of California College teaching of Botany at Washington State College, Pullman.
BRITISH PSYCHOLOGICAL SOCIETY

The next meeting will be held at Wymondham College, Norwich, England, 9-16 September 1961. This will be the annual Field Meeting and will be primarily concerned with the freshwater algae. The current officers of the Society are:

President: Professor G. G. Ford
Vice-President: Dr. R. W. Buiton, Mr. R. Ross
Hon. Secretary: Mr. F. T. Poyntz (Marine Station, Millport, Isle of Cumbrae, Scotland, U.K.)
Hon. Treasurer: Dr. M. T. Martin
Hon. Editor (British Psychological Bulletin): Dr. E. Conway