

THE PHYCOLOGICAL SOCIETY OF AMERICA

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ANNUAL MEETING — CORVALLIS

The 17th Annual Meeting of the PHYCOLOGICAL SOCIETY OF AMERICA will be in conjunction with the AIBS at Oregon State University, Corvallis, 26 August - 31 August, located in the Willamette Valley, south of Portland.

Originally designated the Land Grant Institution of Oregon, it first held classes in 1868, granting the first degree in 1870. Advanced degrees were awarded 5 years later and by 1935, the PhD was conferred. Known as Oregon State College for many years, in 1961 it was officially designated as Oregon State University. The present enrollment is approximately 9,000 students with a faculty of 1,100.

Phycological research began in 1932 under the tutelage of Dr. Ethel I. Sanborn. Although her botanical interests were diverse, in 1944 she and Max S. Doty (then a Master's candidate) published, "The Marine Algae of the Coos Bay - Cape Arago Region of Oregon." In 1947, Dr. Harry K. Phinney joined the staff as plant morphologist and phycologist, and is presently an Associate Professor of Botany. Jack L. McLachlan, plant physiologist at the Atlantic Regional Research Laboratory of the National Research Council of Canada (Halifax) received his PhD under Dr. Phinney's supervision. In 1962, 3 students (2 PhD candidates) will complete the requirements for advanced degrees based on theses in Phycology.

Present phycological research centers around the study of the metabolism of algal communities in flowing fresh-water (potamology). Extensive facilities are available for such study in cooperation with the Departments of Fish and Game Management, Sanitary Engineering, Entomology, the U.S. Public Health Service unit on the campus, as well as the Department of Botany. The facilities consist of the artificial stream at the Pacific Cooperative Water Pollution Laboratory at Oak Creek, and the Berry Creek Controlled Flow Stream. Both will be in operation during the meetings and those interested are invited to visit.

The local representative for the Phycological Society is Dr. Phinney. So far he has scheduled a field trip to the Oregon Coast for Sunday, 26 August, and a luncheon the next day, 27 August. Further details concerning the meetings will appear in the July issue of the NEWS BULLETIN. Pre-registration applications will appear in the June issue of the AIBS Bulletin.

ALGAE AND SCIENCE FAIRS

Several projects incorporating research on the algae were exhibited at the National Science Fair held 2-5 May at the World's Fair in Seattle, Washington. British Columbia was represented by WENDY GIBBS (grade 12) of Vancouver who has been studying the cyto-morphology of *Codium fragile* using ultra-violet light and fluorescent stains (see NEWS BULLETIN, 14 (2): 13, July, 1961). The effect of radiation on mitosis of *Chlamydomonas reinhardtii* was demonstrated by grade 11 student MICHAEL HARALSON of Abilene, Texas. The exhibition by AVA B. LEAVELL, grade 12 student in Tyler, Texas, showed the effect of an electromagnetic and permanent field on *Euglena*. ELIZABETH SMITH, a grade 10 student from Indianapolis, Indiana, displayed "Antibiotics from Algae" showing how she collected the algae and extracted the antibiotics on homemade chromatographic equipment. JOSEPH TOULOSE, grade 11 of Santa Fe, New Mexico, established a working closed ecological environment between a mouse and algae. A similar project was displayed by ANNE TOLAR, grade 10 student in Latta, South Carolina. Miss Tolar's exhibit titled, "*Chlorella*—The Key to Life" showed that *Chlorella* provides food and oxygen while growing on human wastes.

The PHYCOLOGICAL NEWS BULLETIN is the official publication of the Phycological Society of America and is published in Vancouver, B.C., Canada. Letters, news items, other contributions and communications concerning editorial matters should be addressed to J. R. Stein, Editor. Changes of address should be sent promptly to the Secretary-Treasurer, Dr. Walter R. Herndon. Subscription orders from libraries and other institutions, and membership requests should also be sent to Dr. Herndon. Past volumes of the NEWS BULLETIN are available from the Editor at \$2 each. Claims for missing issues should be made to the Editor.

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LETTER TO THE EDITOR

"Since the dues have gone up, the Society must henceforth regard itself as a more august organization than hitherto. I should therefore like to suggest that new members be asked to sign an oath forswearing:

- "a. the use of 'bacterized', 'fungized', 'algized' and other epithets of that ilk, when usually the word 'contaminated' is meant. Otherwise we shall soon have the language infested with such words as 'taraxacized' (applied to lawns), 'lactobacillized' (applied to milk), etc.
 - "b. the use of the Fahrenheit scale, hundredweight per acre, pounds per square inch, and foot candles, in place of units in the customarily accepted decimal system.
 - "c. the use of 'algology' (the study of aches and pains) in place of 'phycology' (the noble art of studying algae). Happily our colleagues the mycologists buried 'fungology' some years ago.
- signed/ Ralph A. Lewin"

NATO ADVANCED STUDY INSTITUTE — "ALGAE AND MAN" — will be held 22 July through 13 August at the Potamological Institute of the University of Louisville, Kentucky. Participation is open to anyone currently teaching or doing research in Phycology. The attendance is limited to 60, with preference given to those staying the 3 weeks. Stipends will be awarded only to the Faculty and applicants from other countries. The registration fee of \$50 includes transportation on field trips; those not attending the trips or not present the entire period pay \$10.

The Institute will consider the algae from 2 points of view. The first involves such classic fields of study as taxonomy, cytology-genetics, physiology-biochemistry, ecology: the other view considers the impact of algae on human activities, including medicinal uses, effect of water supplies, as a food source, in space exploration. Further information may be secured from Dr. Daniel F. Jackson, of the Potamological Institute. Deadline for applications is 1 June.

MEETINGS OF INTEREST TO PHYCOLOGISTS

- 22 JULY-11 AUGUST—NATO Advanced Study Institute, "Algae and Man", Potamological Institute, University of Louisville, 3005 Upper River Road, Louisville, Kentucky (Dr. Daniel F. Jackson).
- 13-16 AUGUST—3rd Symposium on Biological Problems in Water Pollution, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio (C. H. Tarzwell, Chief, Aquatic Biology).
- 20-25 AUGUST—15th International Congress of Limnology, University of Wisconsin, Madison (Dr. J. C. Wright, Birge Hall, University of Wisconsin).
- 19-24 AUGUST—8th International Congress for Microbiology, Montreal, Canada (Secretariat, 3574 University St., Montreal).
- 26-31 AUGUST—17th Annual Meeting PHYCOLOGICAL SOCIETY OF AMERICA, Oregon State University, Corvallis (with the AIBS, 2000 P St., NW., Washington 25, D.C.).
- 1-12 OCTOBER—Plankton Identification and Control, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio.
- 15-26 OCTOBER—Bio-Oxidation of Industrial Wastes, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio.
- 26-31 DECEMBER — 129th Meeting AAAS, Philadelphia, Pennsylvania.

A SAMPLING OF SOIL ALGAL COMMUNITIES NEAR MOUNTAIN LAKE BIOLOGICAL STATION, VIRGINIA¹

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Department of Biology
University of Rochester, Rochester 3, New York

This investigation was the first directed at the soil algal community of this area with the exception of Smith (1944), who reported *Chlorococcum humicola* (Naeg.) Rab. and *Stichococcus subtilis* (Kütz.) Klerk. from the Muskingum loam in the vicinity of the Station, and Strickland (1940) who included some soil species in his study of Virginia Oscillatoriaceae. The moist soil plate method of developing samples has previously been used in Oklahoma (Willson and Forest, 1957) and in Tennessee (Forest, in publication). Information sought was an approximation of the species composition of the communities at various sites, as a basis for more intensive future studies.

Ten small samples of soil, none of which showed visible algae, were taken from each site over an area of approximately 50 yards square. The samples were consolidated, and 20 grams of the consolidated sample placed in petri dishes, wetted to saturation with sterile distilled water, and placed under continuous fluorescent lighting at about 200 candle power with temperature at $20 \pm 3^\circ\text{C}$. After 2 weeks the lighting was reduced to 8 hours a day, and the growth of the algae was slower than previously observed by the investigator, 3 to 4 weeks being required for adequate development.

The 7 sites selected ranged in elevation from 4000 ft. to 2000 ft., and transected three principal underlying Paleozoic rock formations. The Clinton formation at the highest altitudes is represented by the Clinch sandstone, beneath it is the Martinsburg shale, which has some highly calcareous phases, and the valley floor is mostly Stones River limestone.

Location and description of the sites:

Site #1—Biological Stations grounds. Altitude 4000 ft.; a thin, stony, sandy loam covered by a maintained short lawn with *Poa* spp. prominent but other grasses and *Trifolium repens* L. present, partly shaded by large oaks. The samples were taken from relatively bare spots, since the turf was quite dense in most places.

Site #2—Woods just south of the Biological Station parking lot. Altitude 4000 ft.; a thin, stony, sandy loam covered with leaf litter; *Quercus rubra* L. the most prominent tree, also *Q. alba* L., *Castanea*, *Prunus*, *Sassafras*, *Vaccinium*, *Dennstaedtia*, and *Gaultheria*. Shade was quite intense since very few of the thickly-grown trees were over 3 inches in diameter.

Site #3—Woods among huge sandstone boulders at north end of Mountain Lake. Altitude 4000 ft.; organic, peaty soil under *Rhododendron* spp. and large *Tsuga canadensis* (L.) Carr.; shade intense.

Site #4—Pasture in use, 2.1 miles below Mt. Lake Hotel on state highway 700, at abandoned house. Altitude 3600 ft.; moderate southwest slope with shaley limestone soil (over Martinsburg shale); mixed grasses, some *Trifolium repens* L., a few *Verbascum* and *Cirsium*.

Site #5—Unused, somewhat eroded pasture 3.7 miles below Mt. Lake Hotel on state highway 700, at George Farley mailbox. Altitude 3200 ft.; steep western slope of shaley limestone; *Andropogon* and other grasses, *Trifolium pratense* var. *sativum* (Mill.) Schreb., *Monarda*, *Daucus*, *Fragaria*, *Echium*, and a few *Juniperus*.

Site #6—Barnyard, used very little, 5.3 miles below Mt. Lake Hotel at Christian Church. Altitude 2200 ft.; moderate eastern slope; well-developed soil on limestone; fairly close turf of mixed grasses with some *Andropogon* and *Setaria*, also *Daucus*, and *Centaurea*.

Site #7—Occasionally used pasture beside state highway 460 at entrance to Farrier's farm, east of Newport, Va. Altitude 2000 ft.; west facing slope and draw on limestone soil; mixed grasses including *Pbleum* and *Setaria*, many herbs including *Artemisia*, *Cirsium*, *Asclepias* and some *Rumex*.

¹Gratitude is due to Dr. L. C. Bird and Phipps and Bird, Inc. for sponsoring, and to the Association of Southeastern Biologists for awarding the fellowship under which this work was chiefly completed. Drs. Francis Drouet and Charles Reimer were most accommodating in their identifications of blue-green algae and diatoms, respectively.

The distribution of algal species among the 7 sites near Mountain Lake, Virginia, is as follows:

(n—new report for Giles County)

BLUE-GREEN ALGAE

- n *Glaucocystis nostochinearum* (Itz.) Rab. 6
 n *Microcoleus paludosus* var. *acuminatus*
 Gardn. 1 4 5 6 7
Lyngbya aestuarii (Mert.) Lieb. 5 6
 n *Oscillatoria amphibia* Agardh 1 5 7
Oscillatoria limosa Kütz. 4 6 7
 n *Nostoc ellipsosporum* (Desmaz.) Rab.
 5 6 7
Nostoc muscorum Kütz. 1 7
 n *Plectonema purpureum* Gom. 1 5 6 7
Schizothrix freisii (Agardh) Gom. 1 5
Scytonema Hofmannii Agardh 5 6

EUGLENAS

- n *Euglena* sp. resembling *E. mutabilis*
 Schm. 6
 n *Euglenopsis* sp. (new?) 7

Even in this limited study, some obvious differences are present in the series of sites. The Rhododendron-Hemlock soil (#3) was absolutely sterile, and the soil of the oak thicket (#2) was almost so, showing 3 diatoms. The open lawn which had the same soil type as the thicket had a more varied community. The sites at the lowest altitudes (#5, 6, 7) were plainly the richest from the viewpoint of species composition, but further studies will be necessary to evaluate them more accurately both as to composition and as to association with ecological conditions. It was surprising to find some of the algae as soil inhabitants. The *Euastrum* (#6) may be a meaningless instance, but there are 2 other reports of desmids from soil (Willson, 1958; Durrell, 1959). The finding of *Oscillatoria limosa* (#4, 5, 6) shows that it is not restricted to aquatic habitats. The presence of a group of uncertain species points towards the need for continued systematic studies in this area. Seventeen of the 26 identifications were not present in the checklist of 400 species previously published for the area (Forest, 1954).

DURRELL, L. W. 1959. Algae in Colorado soils. *Amer. Midl. Nat.*, 61: 322-328.

FOREST, H. S. 1954. A checklist of algae in the vicinity of Mountain Lake Biological Station, Virginia. *Castanea* 19: 88-104.

———. Analysis of the soil algal community. *Jour. Amer. Micros. Soc.* (in press).

SMITH, F. B. 1944. The occurrence and distribution of algae in soil. *Proc. Florida Acad. Sci.* 7: 44-49.

STRICKLAND, J. C. JR. 1940. The Oscillatoriaceae of Virginia. *Amer. Jour. Bot.* 27: 628-633.

WILLSON, D. L. 1958. A survey of the soil algae of two vegetational types in central Oklahoma. Doctoral Dissertation. University of Oklahoma.

——— and FOREST, H. S. 1957. An exploratory study on soil algae. *Ecology* 38: 309-313.

BOOKS OF INTEREST

CHAPMAN, V. J. 1962. *The Algae*. Macmillan and Co., Ltd., London.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH. 1961. *Proceedings of the Symposium on Algology* (available through Academic Press, New York).

KAVALER, LUCY. 1961. *The Wonders of Algae*. John Day Co., New York. (age 10-12 years)

VENKATARAMAN, G. S. 1962. *Vaucheriaceae*. Indian Council of Agricultural Research, New Delhi.

WOLKEN, J. J. 1961. *Euglena*, An Experimental Organism for Biochemical and Biophysical Studies. Institute of Microbiology, Rutgers, The State University, New Jersey.

RESEARCH REQUEST: Loan of specimens of *Cephaleuros*, *Phycopeltis*, and *Stomatocbron* should be sent to Rufus H. Thompson, Department of Botany, University of Kansas, Lawrence. Dr. Thompson is presently finishing a comprehensive treatment of these genera.

Increase the membership, recruit new members today!

CURRENT RESEARCH REPORTS

Information is primarily from the Bio-Sciences Information Exchange of the Smithsonian Institution, Washington 25, D.C. No report will be published without the specific permission of the Principal Investigator (the first-named person). Inquiries concerning any of the reports should be made directly to those involved. Workers not ordinarily supplying an abstract to the Bio-Sciences Information Exchange are invited to send such research reports directly to the Editor.

TAXONOMY AND LIFE CYCLES OF
THE ZOOXANTHELLAE AND DINOFLAGELLATES

Hugo D. Freudenthal

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Although the literature indicates that several different organisms may have been described as zooxanthellae, the taxonomy of these organisms is still not resolved. *Symbiodinium* gen. nov. (family: Blastodiniaceae) has been proposed by this author for the algal cells of *Cassiopeia* sp. (*J. Protozool.* 9: 45, 1962); it now remains to be seen if the symbionts (parasites?) of other reef invertebrates belong to the same group. Zooxanthella from various invertebrate hosts will be isolated in axenic culture using the methods developed by McLaughlin, *et al.* (*Ann. New York Acad. Sci.* 77: 55-72, 1959), and the life cycle of these organisms will be studied *in vitro*. The motile stages will be compared with organisms which may have been previously described as free-living dinoflagellates. Dinoflagellates will be collected from local waters and from tropical waters and maintained in axenic culture to see if cystic stages develop. This, plus the use of high resolution polarized phase, may support preliminary observations which will result in a much needed clarification of the taxonomy of these organisms.

EXPLORATION FOR A CELLULAR FATTY ACID TRANSPORT SYSTEM

Donald L. Wise

Department of Biology, The College of Wooster, Wooster, Ohio

Work to date indicates minimum pH values at which acetate, propionate, butyrate, and valerate are used for growth by *Polytomella caeca* (leucophytoflagellate). Higher pH levels will be tested by aseptically adding filter-sterilized NH₄Cl to autoclaved medium to avoid removing NH₃ at higher alkalinity when complete medium is autoclaved. The maximum concentrations of fatty acid used in the pH range analysed has been determined for acetate, propionate, and butyrate. The maximum concentration of these acids in an extended alkaline range plus the same criteria for valerate and succinate will be assayed to find if an optimum pH exists for the utilization of each acid.

Pilot studies will be performed to see if the iso-compounds of the fatty acids inhibit availability of their straight isomers by the Thunberg method.

Present data indicate preferential use of longer fatty acids in media with higher pH; each acid has a minimum pH at which it is used; and each acid may have an optimum pH for availability. If the pH of the medium exerts this influence, then the hypothesis for superficial enzymatic fatty acid transport is strengthened. Iso-acids as specific inhibitors might be valuable in analysing this system.

CELL DEVELOPMENT IN *Cosmarium turpinii* BREB.

Robert W. Korn

Botany Department, University of Rhode Island, Kingston

The mechanism(s) controlling form will be studied from: 1) types of shape mutants produced; 2) behavior of multiple mutant stocks; 3) nuclear competition; and 4) the nature of unstable mutant lines.

PLEASE, Pay Dues Promptly

VIABLE SPECIES OF ALGAE AND PROTOZOA IN THE ATMOSPHERE

Harold E. Schlichting, Jr.

Department of Biology, North Texas State University, Denton

Prior to 1870 Pasteur, Pouchet, Darwin, and Maddox had all observed that numerous microorganisms existed in the air. However, it was not until the 1930's that algae in the atmosphere were studied by F. C. Meir, C. A. Lindberg, and M. A. Van Overeem.

An attempt was made in this study to discover under what specific environmental conditions algae and protozoa may be dispersed by air currents. From September, 1959 through May, 1960, in Port Sanilac, Michigan, 15,524 ft.³ of air were sampled by means of modified impingers and membrane filter samplers. The exposed sterile soil-water extract or membrane filter was then cultured in soil-water medium and examined microscopically over a three-month period. *Chlorocella vulgaris*, *C. ellipsoidea*, *C. sp.*, *Chlorococcum sp.*, *Navicula sp.*, *Peranema sp.* and one unclassified zooflagellate as well as bacteria, moss, fern, and fungal spores were collected from the atmosphere under known environmental conditions.

FURTHER STUDIES ON THE DESMIDS OF ALASKA

Hannah T. Croasdale

Department of Zoology, Dartmouth College, Hanover, New Hampshire

It is proposed to continue studies on the desmids of Alaska, based on extensive collections made by the investigator in 1951 and by other scientists now collecting in various parts of the state. Identifications will be made from these collections and published with illustrations and brief descriptions of each taxon, together with some basic ecological features of each locality (north latitude, altitude, acidity of the water and type of habitat). This will continue a series already well started by the investigator and will lead up to a Desmid Flora of Alaska, which it is hoped will serve as a basis for further studies on problems of ecology, distribution, etc. Collections from other regions in the far north of America will be studied for comparison.

CHEMOSTAT CULTURING OF MARINE PHYTOPLANKTON

W. Rowland Taylor and Thomas J. Murphy

Department of Oceanography, The Johns Hopkins University, Baltimore, Maryland

Investigations are being carried out to determine the quantitative requirements of inorganic nutrients by marine phytoplankton organisms. *Dunaliella eucblora* and *Isochrysis galbana* are being cultured in a continuous growth device in which one constituent of the medium is provided in limiting concentrations. In such an apparatus the rate of growth of the culture is a function of the concentration of the limiting factor and can be determined by measuring the rate at which fresh medium is pumped into the growth chamber. Among the limiting factors being investigated are nitrate, phosphate and trace metals such as iron and zinc.

THE EFFECT OF SMALL ORGANISMS ON THE PROPAGATION OF ULTRASONIC WAVES

Robert Meister

School of Engineering, Catholic University of America, Washington, D.C.

The project is to study the concentration and frequency dependence of attenuation and velocity in aqueous suspensions of specific species of plankton. In particular, a study will be made of the effects of diatoms suspended in water, as well as other algae. Since earlier measurements have shown that the green alga, *Scenedesmus* causes an excess attenuation of sound which is believed to be viscoelastic in origin, it will be possible to determine whether the sound attenuation caused by other microscopic plants can be described by the same mechanism.

ALGAE SINCE DETONI: A catalog entitled "New taxa of benthic green, brown and red algae published since DeToni 1889, 1895, 1924, respectively, as compiled from the Dawson algal library" is available at cost. It contains nearly 4000 indexed names and about 6000 bibliographic entries. The cost is \$2 postpaid, and orders sent directly to: Beaudette Foundation for Biological Research, 1597 Calzada Road, Santa Ynez, California.

EXPLORATORY STUDIES ON THE GENETICS OF BLUE-GREEN ALGAE

C. Shields Gowans

Department of Botany, University of Missouri, Columbia, Missouri

Because of their taxonomic position between the bacteria and the higher algae, the blue-greens may form a unifying link between genetically primitive organisms (bacteria and phage) and higher organisms. They are, further, the last large group of organisms in which no mode of genetic exchange has been demonstrated. The demonstration of the presence or absence of some type of genetic exchange in the blue-green algae will be attempted, using recent developments in culture techniques and selective genetic techniques.

STATIGRAPHIC DISTRIBUTION OF DIATOM FLORAS IN THE TYPE MONTEREY FORMATION AND IN THE "SISQUOC" FORMATION OF THE SANTA MARIA DISTRICT, CALIFORNIA

W. W. Worndadt II and G. D. Hanna

California Academy of Sciences, San Francisco 18

The upper member of the typical Monterey formation near Del Monte and Monterey, California, bears a distinctive diatom flora of at least 2800 species. Most of these diatoms are bottom-dwelling forms, some of which are sessile. This flora from the upper Monterey formation is of Delmontian (late Miocene) age.

In the "Sisquoc" formation along Harris Grade near Lompoc, Santa Maria District, California, 3 diatom floras may be distinguished. All 3 (of these floras in the "Sisquoc" formation) are younger than the Delmontian flora of the typical Monterey, but only about 150 species occur in these three floras as a whole. Pelagic forms are most numerous in the older and middle of these "Sisquoc" floras whereas bottom-dwellers, both free and attached, increase upward through the Harris Grade sequence and are the most numerous in the youngest floras.

All 4 of these distinctive diatom floras have been found over an extensive area in the California Coast Ranges. They occur from Monterey in the north to Bakersfield in South-central California, and to Santa Barbara in the southwest part of the state.

INVESTIGATION OF TEXAS SOIL ALGAE

Harold C. Bold

Department of Botany, University of Texas, Austin

Exploratory studies of the soil algae flora of Texas are continuing. Intensive studies of the flora of such diverse regions as the northern and western "gyp" soils, undisturbed prairie, coastal sands, eastern pine belt, Carrizo sands, etc., have been undertaken or are projected. Organisms new to science which are isolated are being described and cumulative, monographic summaries of such soil algal genera as *Chlorococcum*, *Spongiocloris*, *Neochloris*, *Bracteococcus*, *Botrydiopsis*, *Spongiococcum*, *Chlorosarcinopsis* and others are in preparation. These are being based on both morphological and physiological attributes. Type cultures of newly described taxa have been deposited in the Culture Collection of Algae, Indiana University.

COMPARATIVE AUTECOLOGICAL STUDY OF CHARA

Vernon W. Proctor

Department of Biology, Texas Technological College, Lubbock

Unialgal cultural requirements for 15-20 of the more common North and South American species of *Chara* are being studied. A few species of *Nitella* are maintained for comparative purposes. Clones have been established in soil and water. More emphasis is being placed upon the establishment of isolation procedures, light and temperature optima, oospore viability and dormancy requirements, and dispersal mechanisms than upon studies of mineral nutrition.

It is expected that these studies will provide a basis for future ecological and taxonomic field studies.

METABOLISM OF A PLANT SULFOLIPID

George M. Cheniae

Bio-science Group, RIAS, Baltimore 12, Maryland

A study of the metabolism of the sulfolipid, suggested to be 1-0-(β -6'-deoxyhexopyranosyl 6'-sulfonic acid)-3-0 oleoyl glycerol, will be investigated. A major part of the study will be devoted to the enzymatic formation and degradation of the 6 deoxyaldohexopyranosyl 6'-sulfonic acid moiety of the sulfolipid.

Radiochemical experiments with algal suspensions will be used in attempts to determine immediate precursors of the 6 deoxyaldohexopyranosyl 6'-sulfonic acid moiety as well as the contribution of each C^{14} labeled substrate to the other moieties of the sulfolipid. Degradation of the sulfonic acid substituted methylpentose is planned.

Cell-free extracts of a suitable alga will be used to study methylpentose synthesis with emphasis on the interconversion of nucleotide-linked hexoses to their nucleotide-linked deoxyhexoses via a glycoseen intermediate. Sulfate transfer from "active sulfate" to the postulated glycoseen intermediate will be explored as one possible mechanism of formation of the sulfonic acid derivative of the methylpentose.

FACTORS DETERMINING GROWTH IN MARINE PLANKTONIC ORGANISMS

Luigi Provasoli, M. Iwasaki, and A. D'Agostino

Haskins Laboratories, Inc., 305 East 43rd Street, New York 17, New York

The scope of the research is to determine in axenic culture the chemical and physical factors needed for the growth of various marine organisms. After having identified the nutritional requirement of several marine littoral flagellates and unicellular algae we are now trying to bring in bacteria-free culture the nannoplankton flagellates which apparently constitute a large part of the phytoplankton. The nannoplankton, for its extremely small size (2-6 μ), is considered to be the usual food of the early larvae forms of the marine invertebrates.

We are now extending our nutritional studies to the seaweeds which, because of the complexity of their unicellular thallus may offer the possibility to study also morphogenetic factors.

ALGAL MUTATION

Russel O. Bowman and J. B. Middlebrook

Vought Research Center, Life Sciences, Dallas, Texas

This project is to study the changes in *Chlorella pyrenoidosa* after treatment with ultraviolet light, particularly for developing a thermophilic rapidly-growing strain. Plants are resistant to ionizing or hard radiation, but relatively susceptible to ultra-violet radiation. One possible explanation for thermophilic algae, is the development of a mutation capable of life at higher temperatures. There is a possibility that U.V. lighting can be the agent to create thermophilic strains from standard strains.

REPRINT LIBRARY PROPOSAL: HERMAN S. FOREST, Department of Biology, University of Rochester, New York, has proposed to the Phycological Society of America and the International Phycological Society that a reprint library be established as a cooperative venture of the international and national societies. He has proposed that there be a centralized repository for the reprints which will then be indexed and made available to users on a rental basis. In order to start such a service, it will be necessary to have some expenditure for a secretary and files. Dr. Forest is anxious for comments on this proposal. Either write him directly or to the Editor.

Sorry, no space for NEWS AND NOTES.

