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Allen Tucker.

Progress Report - Summer 1947

COMPARISON OF THE PHYTOPLANKTON IN LAKES MUNRO, VINCENT, DOUGLAS, AND LANCASTER

Introduction

During the past few years much limnological work has been done on the lakes in the vicinity of the University of Michigan Biological Station, but in a good many cases, studies of the phytoplankton of these lakes have been only incidental. As has been found by previous investigators, many of these bodies of water have great differences in their chemical and physical make-up. Four lakes in particular have attracted attention. These lakes, namely, Munro, Vincent, Lancaster and Douglas are situated relatively close to one another, the first three and part of the fourth being found in an area of less than four square miles, however in spite of their proximity to each other, their chemical and physical conditions are markedly different. It is therefore of interest to the writer to attempt a comparison, qualitatively and quantitatively, of the phytoplankton of these four lakes.

Procedure

The summer of 1947 was devoted almost entirely to qualitative studies of the phytoplankton of the four lakes with the purpose of becoming sufficiently acquainted with the organisms to be able to analyse them quantitatively at a later date. During the months of July and August, at least six trips were made to the lakes, at

which time qualitative plankton samples were taken from various places in each. The samples were studied in the laboratory and the phytoplankton identified to genus.

Observations

Phytoplankton observed in Douglas Lake samples

Myxophyceae

Microcystis
Anabaena
Lyngbia
Aphanocapsa
Chroococcus
Gloeotrichia
Gomphosphaeria
Coelosphaerium
Oscillatoria
Nostoc

Bacillariaceae

Fragilaria
Tabellaria
Synedra
Stephanodiscus
Melosira
Asterionella
Pinnularia
Amphora

Dinophyceae

Ceratium
Glenodinium

Chlorophyceae

Pediastrum
Staurastrum
Gloeocystis
Dictyosphaerium

Chrysophyceae

Dinobryon
Botryococcus
Mallamonas

Phytoplankton observed in Munro Lake samples

Myxophyceae

Microcystis
Merismopedia
Gomphosphaeria
Chroococcus
Coelosphaerium
Aphanothece
Aphanocapsa
Lyngbia
Oscillatoria
Gloeotrichia

Chrysophyceae

Botryococcus
Mallamonas
Dinobryon

Bacillariaceae

Melosira
Tabellaria
Asterionella
Fragilaria
Synedra
Navicula
Amphora

Dinophyceae

Ceratium
Glenodinium

Chlorophyceae

Oedogonium
Pediastrum
Coelastrum
Dictyosphaerium
Kirchneriella
Oocystis
Scenedesmus
Mougeotia
Zygnema
Closterium
Cosmarium
Micrasterias
Staurastrum
Pleurotaenium

Phytoplankton observed in Lake Vincent samples

Myxophyceae

Aphanocapsa
Aphanothece
Chroococcus
Coelosphaerium
Microcystis
Oscillatoria
Lyngbia

Chrysophyceae

Botryococcus

Bacillariaceae

Melosira
Tabellaria
Asterionella
Navicula
Synedra
Pinnularia

Dinophyceae

Ceratium
Peridinium

Chlorophyceae

Ulothrix
Bulbochaete
Pediastrum
Coelastrum
Dictyosphaerium
Ankistrodesmus
Kirchneriella
Selenastrum
Scenedesmus
Mougeotia
Netrium
Micrasterias
Penium
Staurastrum
Arthrodesmus
Closterium
Cosmarium
Euastrum

Phytoplankton observed in Lancaster Lake samples

Myxophyceae

Anabaena
Coelosphaerium
Microcystis
Lyngbia

Dinophyceae

Ceratium

Bacillariaceae

Fragilaria
Tabellaria
Asterionella
Melosira

Chlorophyceae

Staurastrum
Pediastrum
Closterium

Chrysophyceae

Dinobryon
Synura

Plans for future research

During the winter term 1947-48, the plankton samples from these lakes will be studied more carefully and an attempt will be made to identify the algae to species. Plans are also being made to culture some algae in the laboratory and to conduct experiments on the phosphorus metabolism of some phytoplankters. Next summer quantitative plankton samples will be taken from the four lakes so that their phytoplankton productivity can actually be compared. Chemical and physical analyses will also be made at the various lakes at the time of plankton sampling.

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Program for second semester of session 1947-48.

(1). Continue reading literature on phosphorus metabolism of phytoplankton and methods of phosphorus analyses.

(2) Continue getting practice in technique of phosphorus determination.

(3) Beginning March 27, take course in general Entomology at Michigan State during the spring quarter.

(4) Beginning March 27, sign up for two hours of research under Dr. Prescott at Michigan State Collge for the spring quarter. The problem will probably be on the ecology of the algae of Lake Lansing. This will give me an opportunity to study the phytoplankton of Lake Lansing and at the same time make such chemical and physical analalyses of the lake as would be practical to make at the present time.

(5) Prepare a tentative program for work at the Biological Station this coming summer.

(6) Gather necessary equipment for work at the biological station this summer.