

Respiration of Profundal Bottom

Animals

Summer 1942

UBS

Robert C. Hendrix

Respiration of Profundal Bottom Animals

Summer 1942

This summer's work has consisted of making a series of collections of the larvae of *Chironomus* spp. from the profundal regions of the Douglas Lake bottom. Chemical and physical data were taken of the water directly above the bottom mud at the time of collection.

The samples of animals have been stored in 30% KOH, and are to be analysed for glycogen, fat, and total nitrogen. A separate sample of each collection has been made for each of these assays.

If, as has been stated by Harnisch, Teinmann, von Brand, and others, animals under anaerobic conditions are able to produce oxygen metabolically by a conversion of glycogen to fat, the animals should show, as the season progresses, a decrease in the amount of glycogen and an increase in the amount of fat. Nitrogen will be determined on the possibility that its values will give some additional information on the subject. It is a standard determination for metabolic experiments.

The data sheets show the weights of the samples collected and the chemical conditions at the time of collection. There are eighteen collections, most of which consist of three samples. The index numbers show: a.) the collection number; b.) the sample letter; i.e., the initial letter, indicating the analysis to be made on the sample: "G" for glycogen, "F" for fat, and "N" for nitrogen; and c.) the place of collection. All these samples were collected from South Fishtail Depression (SF).

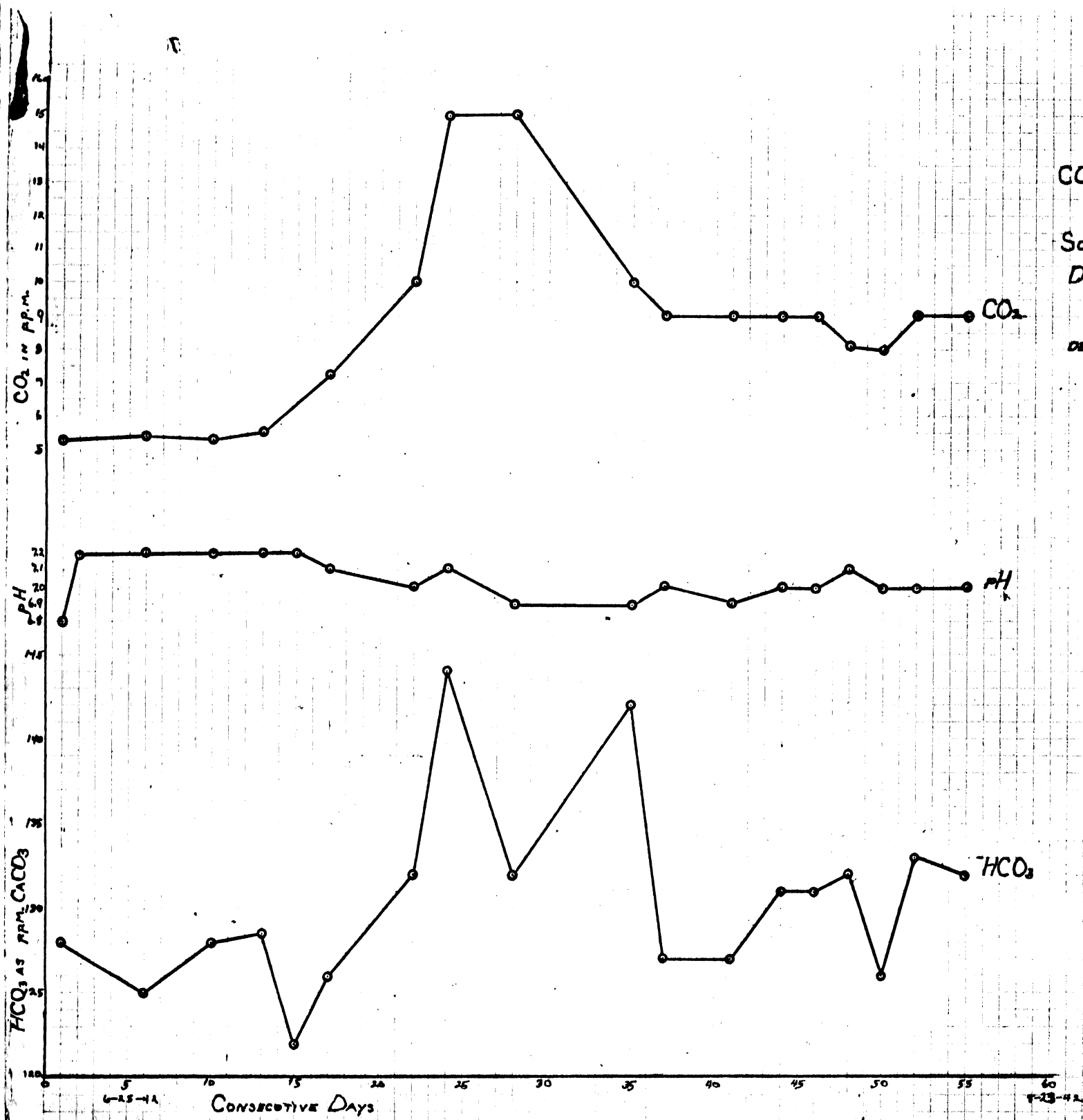
Graphs of the chemical and physical factors have been plotted, and are included.

This material is intended to serve as a "feeler". If the subsequent analysis shows that the glycogen - fat conversion is a significant factor in the anaerobic respiration of *Chironomus*, the entire work will be repeated with more refined collection methods.

It should be pointed out that these collections were not all made at exactly the same spot. This accounts for the variation in the chemical data, and probably will introduce a considerable error.

Suggestions:-

- Make the collections all from the same spot in the depression.
- Make more accurate weighings of the samples.



CO₂, pH, AND HCO₃⁻ IN BOTTOM
 WATER
 SOUTH FISHTAIL BAY DEPRESSION
 DOUGLAS LAKE, MICHIGAN
 SUMMER 1942
 DEPTH: 20 TO 23 M
 ROBERT C. NEWBORN

DISSOLVED O₂ IN BOTTOM WATER
SOUTH FISHTAIL BAY DEPRESSION
DOUGLAS LANE SUMMER 1942

DEPTH: 20 TO 25 M
ROBERT C. HENDRIX

