plants than I had expected. The leaves of grape were fairly cleaned, but the fruit was not, and the effect on the leaves of plum, prune and oak was slight: the dust was on them in quantity. This rain, furthermore, came unusually early.

The climatic conditions here being so different from those elsewhere, I feel compelled to expect the results which I have indicated, unless the operation of the cement manufactory is so modified as to check the discharge of dust in quantity.

George J. Peirce
Stanford University, Cal.,
October 1, 1909

THE ALGÆ OF THE ITHACA MARSHES

Investigations on the fauna and flora of the marshes of the upper Cayuga Lake Basin during the past summer were continued at the Biological Field Station of Cornell University. Various studies were in progress. The writer undertook the study of the algæ. His investigations were made in connection with the work of Dr. J. G. Needham, and were directed toward the solution of the problem of the algal food supply of herbivorous aquatic animals that are used as food by fishes. No local data being available, a preliminary study of the algæ of the marshes was undertaken. With little variety of conditions, a great number of species was not to be expected; however, nearly all the genera of the commoner fresh-water algæ were represented, and perhaps a more thorough search would supply the missing ones. Over seventy genera were found, but the species were not all carefully worked out, owing to the unsatisfactory state of their literature. Material for future work on them has been preserved and will be worked over later.

The genus *Chætophora* is especially abundant in this region, and is represented by four species, three of which, *C. elegans, C. incrassata* and *C. pisiformis,* are very common. The dominance of this genus, and the fact that it is used extensively as food by aquatic animals that have importance as food for fishes, lead us to expect that it will be of some economic value and a special study of its habitat and capabilities of increase will be made in the future. The study of the optimum conditions for the development of several species of *Spirogyra, Mougeotia* and *Chætophora* was undertaken in order to facilitate the cultivation of these algæ, should they prove of economic importance. The results from these experiments, and from observations carried on in nature, lead us to believe that such forms might with proper facilities be raised on a large scale with good results; perhaps in such quantities as Dr. Needham's previous studies of artificially reared may-flies indicate may be demanded.

A beginning was also made in the study of the periodicity of the marsh algæ. It is hoped that facilities may be provided in the future for carrying on observations continuously for several years, as this seems to be the only way in which exact information concerning the ecology of the algæ can be obtained.

An interesting Phycomycete, parasitic on *Volvox globator,* was discovered during August, and this fungus will be described after further work has been done on its life history.

H. A. Anderson

THE MOLECULAR CONSTITUTION OF SOLIDS[1]

According to the author, it is supposed and generally so stated, owing to complex movements and forces supposed to be present in solid bodies, there must be special difficulties to which it is due that the molecular thermodynamics and kinetics of solids can not be fully accounted for on the same basis as those of the gaseous bodies.

The present paper is calculated to show that the supposed difficulties are largely imaginary and that there are a notable number of solid and liquid substances, for which, according to the calculations and tables presented by the author, no essential difference exists regarding the mode and kinetic energy of the motion of their molecules as compared with those of gaseous bodies.

[1] Abstract of paper presented at the regular meeting of the Chicago Academy of Sciences, July 27, 1909.