hybrids, although attempts were persistently repeated throughout the summer. However, a few seeds were obtained from individuals having respectively *lata, gigas,* and intermediate number of chromosomes and the plants derived from these will form the chief subject of study for the coming year.

To summarize briefly:

The first generation offspring of *O. lata* ♀ × *O. gigas* ♂ fall into three main groups with respect to external characters and number of chromosomes; namely, *lata, gigas*-like and intermediate. Considering external characters only, the latter two should be further divided and subdivided.

Numbers of chromosomes are closely associated with external characters in the first and last, and probably also in the second group.

Pollen grains of two parental forms differ in number of lobes and these are inherited.

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MUCOR CULTURES

IN the study of the Mucoraceae for several years, some interesting facts concerning the development or rather the non-development of zygospores were observed. The experiments were made with the common *Mucor stolonifer* Ehrenberg. The media used were bread, pumpkin, orange, cornmeal, decoction of horse manure with gelatine, Pasteur's solution with gelatine, Hamaker culture medium.[1] The cultures were made with sterilized and unsterilized media. The spores for inoculation were taken from plants grown in the laboratory, from specimens collected for the herbarium, and from specimens sent to us by friends. In one thousand cultures not one zygospore was discovered.

In addition to the cultures, five hundred specimens of this species found growing spontaneously in different places were also examined but not one zygospore was observed.

Besides these experiments, many cultures were made and many specimens examined, a record of the exact number of which, however, was not kept. It is a conservative estimate to say that five hundred observations of this kind were made. This makes a grand total of two thousand observations without a single zygospore.

Experiments were also made to determine the development of this Mucor under anaerobic conditions. The media used for these experiments were orange, bread and Hamaker culture medium. All were sterilized. In giving the results of these experiments below, the word cornmeal will be used for the Hamaker medium. Cornmeal is the principal constituent of the medium. The material for inoculation was kindly furnished by Dr. Niewland, of Notre Dame University.

Small wide-mouthed bottles were used for the cultures. The medium was placed in the bottles and the bottles then closed with cotton and all sterilized. After inoculation, the bottles were placed into Novi jars and the jars filled with gas. The jars with the bottles were then set aside for observation. The following results were obtained.

In Hydrogen.—On orange, mycelium developed but few sporangiophores, no zygospores; on bread, no development; on cornmeal, no development.

In Nitrogen.—On orange, mycelium and few sporangiophores, no zygospores; on bread, about the same result; on cornmeal, about the same result.

In Carbon Dioxide.—On orange, mycelium well developed but few sporangiophores; on bread, mycelium profusely developed, many sporangiophores, no sporangia, no zygospores; on cornmeal, no development.

It seems that the absence of oxygen is not a necessary condition for the growth of zygospores.

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[1] Hamaker, SCIENCE, XXIII., 710, 1906.

THE BOTANICAL SOCIETY OF AMERICA

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