



FIG. 1. MICROSCOPICAL EXAMINATION OF ICE.

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This paper is a report of an examination of the forms found in the water derived from melting of ice used in domestic consumption. The subject is one that is interesting, because ice is an article of commerce, and is extensively consumed in this country.

Again, it is interesting as the notion prevails that water is purified by freezing, and hence can be used freely, even though it may come from ponds or lakes whose waters are impure. How far this notion is sustained by chemical examination is seen in the following extract:

"The notion that ice purifies itself by the process of freezing is not based on trustworthy scientific observation. On the contrary, it is utterly wrong in principle to take the ice for consumption, from any pond the water of which is so fouled as to be unfit for drinking purposes."

Again, how far the notion of ice purifying itself by freezing is sustained by a morphological (*morphos*, form, *logos*, account) examination may be gathered somewhat from what follows. I say "somewhat" advisedly, since the report simply relates to the specimens examined, and may be modified by subsequent examinations. So far as the results are positive, they are final as to the specimens examined, but not so to specimens not examined. Those must be judged by them-

selves. The examinations reported here are microscopical, and relate to objects not recognized by the unaided vision, which for distinction is now termed *macroscopic* (*macro*, large, and *scopein*, to view); this includes ordinary vision. Should any doubt, it is easy to test the statements by taking domestic ice sufficient to fill an ordinary ice pitcher which is clean. Melt and filter the water resulting through a bag made of fine twilled cotton; say three inches by one and one-half, and when the water is filtered down to the capacity of the bag, inverting the bag into a clean tumbler or goblet, then sipping it in the water in the goblet, and finally twisting the bag longitudinally.

The filtrate thus obtained will give to the naked eye an idea of the amount of dirt found; and if the quantity of the dirt is like that obtained in the preparations for the following observations, some surprise will be excited and evidence afforded to sustain those who are accustomed to filter drinking water into jars or bottles, and to cool it indirectly by placing said jars of water into a refrigerator. Indeed, Dr. Cuzner, the artist, will testify that ice enough to fill a goblet has, when melted, produced foreign substances in quantities incontestably evident before the microscopical examination. Still, as will be seen in ice examined at Amherst, Mass., I found hardly any sediment. Hence, all ice is not to be pronounced impure, but rather the ground is to be taken that if some ice is quite free from dirt, the great ice companies should take pains to furnish only such ice for drinking purposes.