been noticed especially in our experiments with the compressed yeasts, of which all the samples examined contained an enormous number of moulds (Fig. 5) and bacteria; and while it is often possible to have a yeast contaminated and still obtain good bread, yet it is almost certain that if the yeast cells become weakened from any cause, the bacteria will increase with such rapidity that bad bread will be the result; but when the yeast is strong and vigorous, it holds many bacteria in



F16 5.-A common mculd (*Penicillum glaucum*), often found in dried yeast cakes. Magnification, 500 diameters.

check and prevents the injury which would be caused by their growth.

An investigation into the cause of ropy bread, conducted at the Wisconsin Experiment Station, proved that bread which became slimy after baking had been made so by the action upon it of a certain germ—*Bacillus mesentericus panis viscosi* (Fig 6)—which is frequently found in the earth. It probably gained access to the bread in the potatoes used in making the yeast, a point which will be referred to later on.

Sour bread, which is of frequent occurrence, is also due to the presence of micro-organisms in the dough It is disputed whether these organisms produce butyric, lactic, or acetic acid; but, for practical purposes, it is sufficient to know that germs are the cause of the souring. The germs may be in the flour, the yeast, or the cracks and corners of the kneading trough, or of other utensils which have not been properly cleansed. It is not possible to free the flour from germs; but experiments have shown that the high grades of flour are almost free from bacteria, and the number of germs increases as the quality of the flour decreases. The yeast may be kept almost entirely pure by proper management; and the utensils may be kept free from impurities by washing and scalding them just as thoroughly as dairy utensils, and with the same object, viz., to kill all germ life.