

much more gas in a given time than others. Figure 4 shows the effect of different yeasts upon equal quantities of the same grade of flour mixed with the same amount of water and kept under the same conditions during fermentation.

The strength of any yeast may be much lessened by improper treatment before mixing with the flour. This is most frequently seen when home-brewed yeasts are used; and the yeast is then said to have run out or lost strength. This is usually due to the fact that it has not had a sufficient quantity of suitable food, or has been kept at too high a temperature during its growth in the yeast tub. In two samples of yeast sold for bread-making in the form of dried cakes, composed of yeast cells and corn meal, no living yeast could be found. It had most likely died from being kept too long without moisture.

The form which the yeast is in when added to the flour determines very largely the rapidity of fermentation. In dried cakes the yeast is usually in a dormant condition, often containing spores; and, as compared with compressed yeast, it contains fewer cells present in the same quantity of material. For these reasons, dried yeasts should be soaked in warm water, in which a small quantity of sugar has been dissolved, to act as food for the cells. Compressed yeast being fresh, the cells are in an active condition, and commence to grow and produce gas as soon as mixed with the dough.

**RELATIONS TO TEMPERATURE.** Different temperatures have as much effect upon the growth of the yeast plant as upon that of other plants. A temperature between 75° and 90° F. seems to be the most favorable for gas production in sponge or dough; but the ferment, or yeast brew, must not be kept at a high temperature, or the yeast will become weak,—just as plants in a hot-house, growing at ordinary temperatures, grow more rapidly and flower more abundantly when brought into a higher temperature for a portion of their life, yet gradually weaken if kept there too long. The temperature at which the yeast plant is grown should always be somewhat lower than that at which the sponge is set. Although the above figures are given as being near the limits for good fermentation, still the temperature of the flour and the water before being mixed must always be taken into account, also the time of year and the temperature of the air; as in hot weather fermentation will proceed more quickly than in cold and *vice versa*. In winter, when the flour is cold, the setting temperature may require to be as high as 95° F.; whilst in summer, the flour being warm, the temperature may require to be brought down as low as 70° F. A thermometer should always be used; and the temperatures should be correctly taken. This is just as important in bread-making as in butter-making and cheese-making.

**PURITY.** The next most important property of yeast is that it be pure, that is, free from moulds and bacteria, as it is to the presence of these organisms that most of the bad flavors and disappointing results are due. It is seldom or never that any bread-making yeasts are met with which are not contaminated to a greater or less extent. This has