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## Some Experiments for the Purpose of Determining the Active Principles of Bread Making

Minnie Howe

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SOME EXPERIMENTS FOR THE PURPOSE OF DETERMINING THE  
ACTIVE PRINCIPLES OF BREAD MAKING.

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MINNIE HOWE.

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(ABSTRACT.)

This paper described a series of experiments made by the author at the Iowa State University during the winter and spring of 1891, together with their results.

The problem was to separate the bacterium, *Bacillus subtilis*, and the yeast plant, *Saccharomyces cerevisiae*, found together in ordinary soft yeast, to obtain pure cultures of each, and to determine the part each played in bread making.

It was found that bread made of sterilized flour and raised with the pure *Bacillus* culture was light, but not as spongy as ordinary bread, sweet, close-grained, rather dark colored, smelling and tasting much like "salt-risen" bread.

Bread raised with the pure yeast culture under exactly the same conditions as the first was somewhat light, sweet, not so fine grained nor as light as either ordinary bread or that made with bacteria. It had a peculiar, insipid odor unlike either of the other kinds, and was tasteless, as if made out of sawdust.

The results of these experiments seem to show that neither the yeast plant nor the *Bacillus* alone will make as good bread as both together; that either without the other will produce alcoholic fermentation and cause the bread to rise; that the *Bacillus* is rather more efficient alone than the yeast. No one set of experiments, however, can be regarded as conclusive.

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ABORIGINAL ROCK-MORTARS.

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BY H. L. BRUNER.

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A few notes by the writer, under the above title, were published in the *American Anthropologist* for October, 1891.

These "mortars", excavated in rock *in situ*, are located on the east slope of the Franklin Mountains, about eleven miles north of El Paso, Texas, and near the mouth of the "House Canon."

In the canon, about three-fourths of a mile above the excavations, is a spring of excellent water. To the eastward is a gradual slope toward the mesa, which is perhaps three hundred feet lower. Within a few steps of the excavations is a trail leading northward to another spring, and thence westward over the range.