

## SOME SANITARY ASPECTS OF BREAD MAKING.

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It is necessary, if one would understand the sanitary aspects of bread making, to fully comprehend the present theory held by scientists of germs and the part played by them in disease. The theory of disease germs is merely the name given to the knowledge had of those germs by medical men, a knowledge which is the result of innumerable experiments. Being this, the old term of a "theory" has become a misnomer. A germ of a disease is a plant, so small that I do not know how to express intelligibly to the general reader its lack of size. When this germ is introduced into the blood or tissues of the body, its action appears to be analogous to that which takes place when yeast is added to dough. It attacks certain elements of the blood or tissues, and destroys them, at the same time producing new substances.

But the germs of the greater part of the germ diseases, that is, of the infectious and contagious diseases, will develop or increase in number without being in the body of a human being,

found their way into the blood and that the call for our services which followed, has rounded off this sequence of events.

I have already pointed out that the germs of disease are to be found in the air and dust. The longer any substance to be eaten is exposed to the air, the greater the chance that germs will be deposited on it. Bread raised with yeast is worked down or kneaded twice before being baked and this process may take anywhere from four to ten hours. It has, then, the chance of collecting disease germs during this process of raising and it has two periods of working down or kneading during each of which it may gather the dirt containing the germs from the baker's hands. As no bread save that raised with yeast, goes through this long process of raising and kneading so no bread save that raised with yeast has so good a chance of gathering germs.

What is meant by "raising" bread is worth a few words. The introduction of the yeast into the moist dough and the addition of heat when the pan is placed near the fire produces an enormous growth of the yeast fungi—the yeast "germ," in other words. These fungi effect a destructive fermentation

It is well to sound a note of warning in this direction or the change from the objectionable yeast to an impure baking powder will be a case of jumping from the frying pan into the fire.

The best baking powder made is, as shown by analysis, the "Royal." It contains absolutely nothing but cream of tartar and soda, refined to a chemical purity, which when combined under the influence of heat and moisture produce carbonic acid gas, and having done this, disappear. Its leavening strength has been found superior to other baking powders, and as far as I know, it is the only powder which will raise large bread perfectly. It uses the long period during which the yeast made dough must stand in order that the starch may ferment and there is also no kneading necessary.

The two materials used in the Royal, cream of tartar and soda, are perfectly harmless even when eaten. But they are combined in exact compensating weights, so that when chemical action begins between them they practically disappear, the substance of both having been taken up to form the carbonic acid gas. More than this, the proper method of using the powder insures the most thorough mixing with the flour. The proper quantity being taken, it is mixed with the flour and stirred around in it. The mixture is then sifted several times and this insures that in every part of the flour there shall be a few particles of the powder. The salt and milk or water being added, the dough is made up as quickly as possible and moulded into the loaves.

These are placed in the oven and baked. But the very moment the warmth and moisture attack the mixture of cream of tartar and soda, these two ingredients chemically combine and carbonic acid or leavening gas is evolved. The consequence may be seen at a glance, the bread is raised during the time it is baking in the oven, and this is the most perfect of all conceivable methods of raising it.

Here, then, there is no chance for germs of disease to get into the dough and thence into the stomach, more than that the bread is necessarily as sweet as possible, having been no time during which it could sour. This involves the fact that the bread so made will keep longer, as it is less likely to be contaminated by the germs that affect the souring process.

It will be strange if the crowds of visitors to the world's fair do not greatly increase the number of contagious disease, which we will have to treat. Under these circumstances it is not folly of follies to open a single channel through which these germs may reach us? Is it not the part of wisdom to watch with the greatest care all that we eat and drink, and to see that none but the safest and best methods are employed in the preparation of our food? To me it seems as though there could be but one answer to questions like these.

I have shown the danger of using the yeast raised bread, and with this it is, in its effects on the dough, purely mechanical. The dough, which was before a close-grained mass, is now full of little holes, and when cooked in this condition is what we ordinarily call light. This porous quality of bread enables the stomach to rapidly and easily digest it, for the gastric juices quickly soak into and attack it from all sides. The fermentation of the dough, however, uses up a portion of the nutrient elements of the loaf.

If it be possible, therefore, to produce a light porous loaf without this destruction and without the "kneading" process, which fills the dough with germs and filth, and without the long

provided always you give them the proper conditions. These conditions are to be found in dough which is being raised with yeast. They are warmth, moisture and the organic matter of the flour on which the germs, after certain changes, feed.

It is necessary to remember at this point that yeast is germ growth, and when introduced into a mixture of glucose or starch, in the presence of warmth and moisture sets up a fermentation. If the mixture be a starchy dough the yeast first changes a portion of the starch into glucose and then decomposes the glucose by changing it into two new substances, viz., carbonic acid gas and alcohol.

Now the gluten, which is also a constituent of dough and moist starch, affords, with the latter, an excellent nidus for the development of germs of disease as well as for the yeast germs.

The germs of cholera, as of typhoid fever, would, if introduced into dough, find very favorable conditions for their growth.

I do not wish to "pose" as an alarmist, nor am I willing to say there is very much chance of the germs of typhus and of cholera reaching the stomachs of the people who eat bread which has been raised with yeast.

But while I am not afraid that cholera and typhus will be greatly spread by yeast-raised bread, I have not the slightest cause to doubt that other diseases have been and will be carried in the bread.

I have met journeymen bakers, suffering from cutaneous diseases, working the dough in the bread trough with naked hands and arms. I suppose I need scarcely say this was put a stop to in very short order. I have no reason to suppose bakers are less liable to cutaneous diseases than are other men, and I know, as every housewife knows, yeast-raised bread must be worked a long time. This is an exceedingly objectionable thing from the standpoint of physician, and for the reasons that the germs of disease which are in the air and dust and on stairways and straps in street cars, are most often collected on the hands. So well do physicians know this that there is no ablation practical equal to that which they undergo before they perform any kind of surgical operation. Any person who has ever kneaded dough understands the way in which the dough cleans the hands. In other words, this means that any germs which may have found a lodging place on the hands of the baker before he makes up his batch of bread are sure to find their way into the dough, and once there, to find all the conditions necessary for subdivision and growth. This is equivalent to saying that we must rely on heat to kill these germs, because it is almost certain that they will be there. Now, underdone or doughy bread is a form which every man and woman has seen.

It is a belief as old as the hills that underdone bread is unhealthful. This reputation has been earned for it by the experience of countless generations, and no careful mother will wish her children to eat bread that has not been thoroughly cooked. The reason given for this recognized unhealthfulness has been that the uncooked yeast dough is very difficult to digest, and this reason has value. No one but a physician would be apt to think of disease germs which have not been killed during the process of baking as a cause of the sickness following the use of uncooked yeast bread. Yet this result from this cause is more than probable. I have not the slightest doubt that we can trace back some of the cases of illness which we meet in our practice we would find that germs collected by the baker have found their way into the yeast bread, that the heat has not been sufficient to destroy them, that the uncooked yeast bread has been eaten and with it the colonies of germs, that they have

made at home with Royal baking powder may be sure they have absolutely stopped one channel through which disease may reach them.

NOTE.—Housekeepers desiring information in regard to the preparation of the bread which Dr. Edson for sanitary reasons so strongly urges for general use, should write to the Royal Baking Powder Company, New York.

He Had Seen the Scarecrow.

One Somerville young man, who has just been spending a fortnight in the country, lost all chance of making a favorable impression on the farmer's pretty daughter the very first day he came. Her father came by the front of the house where the young man was trying to make himself agreeable, and the girl introduced him, saying:

"This is my father, Mr. Smythe."

"Oh, yes," responded the young man, turning toward the old man, and slowly holding out his hand, "I saw you standing over in the cornfield a little while ago, when I came up the road."—Somerville Journal

Mr. Chimpanzee.—"That ostrich eats enough for two birds. What do you suppose makes him so greedy, Mrs. C?"

Mrs. Chimpanzee.—"I heard the keeper say he swallowed a pair of strong eyeglasses yesterday and they magnify his appetite."—Vogue.

"Do you go to school, Tommy?"

"Yes'm," "Does your teacher like you Tommy?" "You bet she does. Every evening most she hates to have me leave and keeps me in."—Arkansas Traveler.

"I met Jack Stageloon last evening. He tells me he is going out with a company next season which will produce 'Fireman Fred'." "Indeed; what does he play?" "The hose."—Brooklyn Eagle.

## CLEVELAND'S SILVER MESSAGE.

Comments of the Leading Papers on the Auspicious Document.

President Cleveland's message to congress is not a long document, and may be described as a mealy-mace.—Chicago Tribune (Rep.).

This message is clear, impregnable, and indisputable in insisting on the first step. That is to stop silver purchases at once and then settle the other questions in accordance with sound and conservative principles.—Pittsburgh Dispatch (Ind. Rep.).

In the main President Cleveland's message to congress is clear, sound and praiseworthy. He tells the story of financial trouble in a simple, straightforward manner, and his recommendation for the unconditional repeal of the purchase clause of the Sherman act will meet the approval of the best people and a majority of all the people, north, east, south and west.—Pittsburgh Commercial Gazette (Rep.).

President Cleveland, in his message, well says: "The master rises above the plane of party poitics." He will find the majority of republican statesmen with him upon that. Another of his remarks, that "it is done at once," is worth more than a passing notice. The country is in no mood to listen to long-winded speeches.—Chicago Inter Ocean (Rep.).

The message is a clear statement of the case against silver purchases, nearly nonpartisan as it could be, conciliatory in spirit, and well calculated to unite the sound and conservative parties. The president very adroitly calls the Sherman law a truce, agreed to after a long contest, with neither party pledged to it as a finality.—Cleveland Leader (Rep.).

The gold monetarists may construe "money" in the concluding sentence of the message as meaning gold, but it is proper for a democratic congress to place on an expression in the message of a democratic president the construction furnished by the democratic platform upon which both congress and president were elected. It if this it will, while repealing the Sherman law, take "other legislative action," placing gold and silver money on an equality. It ought to do so. We believe it will.—Cleveland Plain Dealer (Dem.).

President Cleveland's message is brief, clear, and decided to the point. He lays the present disturbed financial condition of the country to the Sherman law, and advises its prompt repeal. Congress should act at once. The president states the facts of the situation, and shows they are clear and unimpeachably attributable to the Sherman law with great clearness and force. But his strongest presentation is of the possibilities and, in fact, certainties of the future unless that law shall be promptly repealed.

"I wonder why," his auntie said,

"This little lad always comes here when there are many other homes."

"As nice as this, and quite as near."

"He stood a moment, deep in thought,

"Then, with a love-light in his eye,

"He pointed where his mother sat,

"And said: 'She'llies here, that is why!'

With beaming face the mother heard;

"Her mother-heart was very glad.

A true, sweet answer he had given—

That thoughtful, loving little lad.

Are just as loving, true and dear;

That they would answer as he did:

"'Tis home, for mother's living here."

When We Confront the Vastness of the Night.

When we confront the Vastness of the Night,

And meet the gaze of her eternal eyes,

How trivial seem the garnered grains we

are.

The laurel wreath we flung to envious sight;

The flower of love we pluck for our delight;

The mad sweet music of the heart that cries

An instant on the listening air, then dies—

How short the day of all things dear and bright!

The everlasting mocks our transient strife,

The pageant of the universe whirs by

This little sphere with petty tumults—

Swift as a dream and fleeting as a sigh—

This brief delusion that we call our life,

Where all we can accomplish is to die—

—Louise Chandler Moulton, in Youth's Companion.

## "Gentle Rain."

Pit a pat,

Pit a pat,

On the window pane:

Baby dear

Must never fear,

For it's only gentle rain.

Pit a pat,

Pit a pat,

Don't you know the sun

In the sky,

So very high,

Now is weeping, little one?

Pit a pat,

Pit a pat,

But you know 'twill make

Flowers grow,

So high and low,

Only just for baby's sake.

Pit a pat,

Pit a pat,

It is time for bed.

"Now I lay

Me," gently say:

"Thanks for rain about my head."

—May Kidder, in Good Housekeeping

The Little Lad's Answer.

Our little lad came in one day

With dusty shoes and tired feet

His playtime had been hard and long

Out in the summer's noon tide heat.

"I'm glad I'm home," he cried, and hung

His torn slacks up hat in the hall,

He put away his bat and ball.

"I wonder why," his auntie said,

"This little lad always comes here

When there are many other homes."

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