

Selections.

A MODE OF IMPROVING BREAD.

BY PROF. LIENIG.

[Translated for the New York Tribune.]

It is known that the vegetable gluten of the various kinds of grain undergoes a change when moist; in a fresh condition it is soft, elastic, and insoluble in water, but in contact with water it loses these properties. If kept a few days under water its volumes are gradually increased until it dissolves, forming a thick mucilaginous fluid, which will no longer form a dough with starch. The ability of flour to form dough is essentially lessened by the property of vegetable gluten to hold water, and to place it in the state, for example, in which it is contained in animal tissues, in meat and in coagulated white of egg, in which the absorbed water does not moisten dry bodies. The gluten of grain, in flour not recently ground, undergoes a change similar to that which it suffers when in a wet state, for the flour absorbs moisture from the air—being, in a very high degree, a water absorbing substance; gradually the property of the flour of forming dough is lessened, and the quality of the bread made therefrom injured. It is only by artificial drying and keeping from the air that this deterioration is prevented. In rye flour this change occurs as soon, perhaps sooner, than in wheat flour.

About 21 years ago the Belgian bakers commenced the use of a remedy, by means of which bread equal to that made from the freshest, best flour, was manufactured from flour, which, by itself, would give only damp, heavy bread. The remedy consisted of an addition of alum, or of sulphate of copper, to the flour.

This effect of both these substances in the preparation of bread rests upon the fact that when warm, they form a chemical combination with the gluten, (previously made soluble in water, and changed thereby), which restores to it all its lost properties, it is again insoluble, and capable of holding water.

The relations of vegetable gluten to caseine, with which it has so many properties in common, induced me to make some experiments, whose object was to replace both of the substances (sulphate of copper and alum) so deleterious to health and to the nutritious properties of bread, by some subject having the same effect, (as regards the gluten,) but devoid of injurious qualities.

This substance is pure cold-saturated lime-water. If the lime water be mixed with the flour intended for dough, and then the yeast or leaven added thereto, fermentation progresses in the same manner as in the absence of lime water. If at proper time more flour be added to the "risen," or fermented dough, and the whole formed into loaves, and baked as usual, a sweet, beautiful, fine-grained, elastic bread is obtained, of exquisite taste, which is preferred by all who have eaten it any length of time, to any other.

The proportion of flour to lime water is 19.5; that is, for 100 lbs. flour, take 26 to 27 lbs or pints of lime-water. This quantity of lime-water does not suffice for mixing the bread, and of course common water must be added, as much as is requisite.*

As the sour taste of bread is lost, much more salt may be used to give it a palatable quality.

As to the amount of lime in the bread, 1 lb. of lime is sufficient for 600 lbs. of lime water. In bread prepared as above, there is nearly the same amount of lime as is found in an equal weight of leguminous seeds—(peas and beans.)

It may yet be established as a physiological truth, by investigation and experiment, that the flour of the cereal grains is wanting in the property of complete nutrition, and from what we know thereof, the cause would seem to lie in its deficiency in the lime necessary for the formation of the bones. The cereal grains contain phosphoric acid in abundance, but they contain far less lime than the leguminous seeds. This fact may explain many of the phenomena of diseases observed among children in the country, or in prisons, if the food consists principally of bread; and in this connection the use of lime water by physicians merits attention.

The amount of bread produced from a given quantity of flour, is probably increased in consequence of an increased water compound. From 19 lb. of flour,

* As many persons may not be familiar with the process of preparing lime water, a recipe for the same is added:

Take four quarts of lime and one gallon of distilled water. First, pour a little of the water upon the lime, to slake it; then add the remainder of the water and stir well together; cover the vessel immediately, and set it aside for three hours. Keep the solution, together with the undissolved lime, in stoppered glass bottles, and pour off the clear liquid when it is wanted for use. Water free from salina or other obvious impurity may be employed in this process without disqualifying.

without lime water, seldom more than 24½ lb. of bread were obtained in my house; the same quantity of flour baked with 5 lb. of lime-water, gave 26 lb. 6 oz. to 26 lb. 10 oz. of good, well baked bread. Now, since, according to Ilceon's determinations, the same quantity of flour gives only 23 lb. 1 3-5 oz., the increase of weight, in consequence of the use of lime-water, appears to me indubitable.

THE HISTORY OF THE ATTEMPT TO LAY THE WIRE FOR THE Electric Telegraph, between Cape Breton and New-foundland, is, we believe, already known to most of our readers; but the following details which have been furnished us by a friend, will, we doubt not, be read with interest, as giving a connected account of the incidents connected with the failure:—

THE EXCURSION TO NEWFOUNDLAND.

Correspondence of the Republican.

Steamer James Adger,
Aug. 9th, 1855.

After two days' basking in the sun in a state of most luxurious idleness, it requires more of an effort to rouse one's faculties to the pitch of letter-writing than I fear you will be able to appreciate. "But to begin at the beginning," as the Irish say:—We left New York Tuesday morning at 10 o'clock, amid the cheering of a crowd of well-wishers. In ten minutes the busy world was forgotten, and it seemed as if we had been transported to fairy land, the deep blue of the sky and water contrasting beautifully with the rich masses of green on either shore. But soon all interest in the beauties of nature was superseded by that unconquerable desire to know "who is who," and the result of my investigation was extremely satisfactory. To give strength and respectability to our party we have Peter Cooper, and I might add wife, but the ladies having as yet devoted all their energies to sea-sickness, I have not been able to judge of them in either of the above-mentioned respects,—therefore I will confine myself to the gentlemen. Mr. Cooper and Mr. Cyrus Field are charming hosts, doing all in their power for our comfort and happiness, and providing in every way for our bodily wants,—while our spiritual necessities are ministered to by no less than five of the clergy. Professor Morse and Professor Shepherd do the scientific, while the press is admirably represented by Rev. Henry M. Field, Bayard Taylor, who, unlike most celebrities, fully realizes one's expectations, and the gentlemanly and accomplished Mr. O'Brien of the Times, who, if you don't already know allow me to introduce through "Duke Humphrey's Dinner" in the August number of Harper.

Though this is only the third day out we have seen a wreck, and spoken a vessel; while yesterday two or three amiable whales spouted an hour or more for our amusement, and now that we are approaching Nova Scotia innumerable little French fishing boats are darting about, producing quite a picturesque appearance with their red sails. The captain promises us that we shall be in Halifax this afternoon or evening, and if the wind had not been dead ahead ever since we left New York we should have been there ere this.

One of our amusements on board is a little telegraph, by which messages are sent from one end of the ship to the other, and we have made one or two unsuccessful attempts to open communications between the deck and larder, going up and down the companion way being a severe trial to those leaning towards a certain malady now somewhat prevalent on board. I have seen a piece of the wire to be used for the submarine telegraph, which I shall be obliged to describe in a very unartistic manner, but I am not sure it will be the less intelligible for that. It is composed of three wires, which are encased in gutta percha, and bound together by a strong iron wire which is lacquered over, rendering it as a whole impervious to water; it resembles a bundle of lead pencils tied up in black paper. A single wire, with its coating of gutta percha is just the size of a common lead pencil. When you hold this simple thing in your hand, it is hard to realize what wonders it is destined to perform.

After leaving Halifax we are to proceed directly to Port-au-Basque, where the vessel from England containing the wire is awaiting us, and from which place I hope I shall be able to write you a more interesting letter.

THE EXCURSION OF THE TELEGRAPH PARTY TO NEWFOUNDLAND.

Correspondence of the Republican.

St. John's, Newfoundland,
August 14.

I did not write, as I promised, from Port-au-Basque, as the place can be described in four words: rocks, men, women and children. Finding the Sarah Bryant, (the vessel containing the telegraph coil) had not

arrived, and the harbor being so small that our steamer could not enter, after stopping for a couple of hours, we proceeded on our way, and reached this place about 7 o'clock on Tuesday. Passing through a very narrow passage with high bluffs on either side, you enter one of the prettiest harbors in the world, completely shut in by high hills, covered with houses to the water's edge, with the cathedral towering above all on one side, and on the other curious looking fishermen's huts, surrounded by "fish flakes," the artistic name for a kind of platform, upon which the cod-fish, which are the chief means of wealth here, are cured. You can imagine better than I can describe, the delicious odors which are wafted on every breeze from this quarter of the town. The Cathedral is a large, fine building, containing many fine basso-reliefs in bronze, a marble statue of the Saviour, with life size figures of the apostles. Everything thus far is in excellent taste, and as the pews are confined to the sides of the building, there is an effect of vastness produced, which one does not often experience on this side the Atlantic. Near the Cathedral is the bishop's house and the nunnery.

The bishop gave us a reception yesterday, conducted us through his fine house and grounds, and then resigned us to the care of the lady abbess, who did the honors of her establishment in a manner which reflected great credit upon her good care and management. We saw in the sewing room some very fine specimens of embroidery. A head of Christ, which was framed under glass, was so exquisitely shaded that one would much sooner have ascribed it to the brush of one of the old masters than to the delicate fingers of one of the young sisters. The hospitality and attention of the St. John's people are unbounded. All the ladies and gentlemen have called upon us, placed their horses and carriages at our disposal, and take every means in their power to show their kindly feeling towards their Yankee visitors.—They are very anxious for more direct means of communication with the States, and have manifested from the first great zeal in the submarine telegraph, forming thus quite a contrast to their Nova Scotia neighbors, who are what we call "slow."

Wednesday we gave a dinner on board to the officials and dignitaries of the town. Governor Darling was unable to attend, being confined to his room by gout, but we had the bishop, attorney-general, the governor's secretary, aide-de-camp, and about thirty other gentlemen. We sat down to dinner at six, and the next four hours flew rapidly by between the toasts and the graceful replies to them. There were 11 regular toasts given: 1, 'The Queen,' after which the band played, God save the Queen; 2, 'The President of the United States,' who I noticed was more warmly cheered by the Newfoundlanders than by his own subjects; but our hearts all beat in unison at the sound of 'The Star Spangled Banner'; 3, 'The Governor of Newfoundland'; 4, 'England and America'—may the cable which soon shall link together their opposite shores be a perpetual alliance of peace and friendly intercourse, and of reciprocal good will. This was responded to by Rev. Dr. Spring, of New York. 7, 'The Electric Telegraph'—

"The steel called Lightning (say the Fates),
Was tamed in the United States,
'Twas Franklin's hand that caught the horse,
'Twas harnessed by Professor Morse."

To which the learned Professor himself replied so gracefully and appropriately that I shall make no apology for giving you the greater part of his speech; it is as follows:

"I thank you ladies and gentlemen, most cordially for the flattering mention you have made of me in connection with the electric telegraph, for it expresses the kindness, the goodwill, the generosity of your own hearts. But, ladies and gentlemen, I place myself as one only amongst the instrumentalities in this great enterprise of binding the nations together in the bands of electric intercourse. It is thus only that I find relief from what I may truly style the oppression of praise. It would be hypocrisy in me to affect callousness or indifference to the good opinions of my fellow men. I have not so superficial a self-knowledge as not to be aware that there is something within this bosom ever ready to kindle at the least spark of praise, a pride that would give utterance to the arrogant boast, 'Is not this great Babylon that I have built, by the might of my power, and for the honor of my majesty?' Who is it that commands the lightnings to go and they go? Who gave the telegraph to the world? An incident in the early history of the telegraph is directly pertinent to the answer to these questions. At two sessions of the Congress of the United States, my petition for the pecuniary aid of the government to construct the experimental line of Telegraph from Wash-