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A NEW YORK OFFICE BUILDING.

We have carefully noted the work on the new building for the Mutual Life Insurance Company now in course of erection, on the site of the old Post Office, under the charge of Mr. Charles W. Clinton, architect. It will be a fine representative building, embodying all the modern improvements that have been developed in this country up to the present time, and it is because of these characteristics that we have compiled the following description.

The building fronts on Nassau, Cedar, and Liberty Streets, the entrance front, on Nassau Street, being 186 feet in length, and the fronts on Cedar and Liberty Streets being 111 feet and 115 feet, respectively. It will be eight stories in height, exclusive of the basement. It is to be regretted that so fine a building should be handicapped by its location, the streets upon which it fronts being so narrow that it is impossible to obtain a good view of the whole. To overcome this defect of sight the propriety of setting it back from the line on Nassau Street is so obvious that it must have occurred to the company, who, on the other hand, might with some reason not have felt satisfied in sacrificing the valuable renting space for what their patrons would perhaps judge to be purely aesthetic reasons.

The work so far is of the most solid and enduring character. The foundations have been designed with great care to insure equal pressures under every part of the superstructure. The piers are properly proportioned to sustain the weights, in their sectional areas and heights, according to the several materials of which they are built. The basement and first stories are of granite, the piers being built solidly of that material, not simply faced with it and backed up with brick, as is usually done. This mode prevents the evils resulting from unequal compression. The other stories, up to the eighth, are of a beautiful limestone from Indiana.

The interior construction is mainly of iron, consisting of rolled beams supported on plate girders which rest on cast and Phoenix wrought iron columns. A distinctive feature in the construction of the building lies in the fact that a separate iron girder spans the window heads of each story, which does not show on the exterior, however. These girders transfer the weight of the story above to the main pier, thus relieving the mullions of the weight and avoiding all danger of cracking the stone lintels.

The building is entirely fireproof, the spaces between the beams being spanned with fire brick, and the bottoms of the beams being protected with the same material, which is an unusual precaution. Most particular attention has been given to ventilation, and the heating will be complete, although by direct radiating coils, yet from the manner of introducing fresh air the best effects will be obtained. Steam will be furnished by the Steam Heating Company, although boilers will also be provided. Provision will be made for both gas and electric lighting, as well as for all the latest appliances, such as telephones, electric call bells, etc. An artesian well will assist in supplying the building with water.

Although the work has now reached only the sixth story, still enough is seen to show what its character will be. The style is an adaptation of the Italian Renaissance. The facade is divided into three features, the central part recessed and flanked by pavilions on Cedar and Liberty Streets. The stories are grouped so that they form three grand divisions, separated by horizontal belt or cornice courses. The basement and first story comprise the first division, the second and third stories the second, and the fourth, fifth, sixth, and seventh will form the upper division, and are to be inclosed in an arcade, the pilasters of which will be ornamented with flutings and richly carved capitals, the arches spanning the spaces between, strongly marked and elaborately enriched. The main cornice will surmount this feature. It is bold in design and contains all the complete enrichments, such as modillions, dentals, etc., according to the best examples found in Italian palaces.

As all the stories of the portico are in place, although not yet completed, a fair interpretation of the architect's idea may be seen. It is the most highly wrought feature of the facade, and is both striking and imposing. It is two stories in height, the first story being formed by large square granite piers with alternate polished courses in "rustica," flanked by massive granite columns. The capitals of both columns and piers are elegant in design and beautifully executed in white marble. The second story of the portico is similar in its distribution of parts, but with an arch springing from the entablature of the small columns, is more highly elaborated and carved in detail. The ceiling is vaulted and paneled, and the piers are covered with Renaissance carving. The capitals of the piers have heads typical of Europe, Asia, Africa, and America carved upon them, modeled and executed in a masterly style. This work was done by Mr. Samuel Kitson, from Rome.

These two stories taken together form a composition organic in its development, while the whole is fully sufficient to dominate the other large features of the work and accentuate and mark it as the main entrance of the building. The transmission from the plain severity of the pavilions to the concentrated enrichment of this portico is not violent, as the intermediate features, the arched windows on either side, carry the enrichment through, leading gradually up to the central feature. There will be an ornamental bronze gate at the portico entrance.

The drawings of the interior, which were shown us, indicate that the finish of this portion of the work will correspond in character with the exterior. The main entrance hall

leading to the elevators will be finished most substantially in white marble, to make it as light as possible. The elevator doorways will be trimmed with the above named material, and the openings guarded by strong and ornamental brass grill work. The finish of the main office of the company, on second and third floors, will be handsome and dignified, while being free from extravagance. The columns will be of scagliola, with Corinthian capitals; and the ceiling will be paneled in plaster. A white marble wainscot of plain design will surround the room. The offices for renting will be most attractive in finish. A noticeable feature is the ample provision for light and air, the windows being unusually large in proportion to the piers, although the grouping and the depth of joints of the piers are so arranged as to give them great solidity in appearance as well as in fact.

The engineering throughout the work has been most thorough, the architect having placed Thomas E. Brown, Jr., C.E., in charge of this work.

The impression produced so far gives promise that the work when finished will be imposing and elegant, with sufficient plainness or severity to give dignity, relieved in certain parts with enrichments, giving value to the rest; a work of which the city may well be proud.

RAISING BREAD.

The elastic gas which is the agent employed in causing dough to "rise," so that it can produce light and palatable bread, is as a rule carbonic acid. In practical fact there are two distinct methods of introducing the acid into the dough. In the first we form it within the dough, de novo; in the second we mix it in a solid form and then set it free as a gas. For the first we use fermentation; for the second we use baking powder or its equivalent.

In fermentation the yeast, from the materials which it finds in the dough, forms two new substances (neither of them having been there before)—alcohol and carbonic acid. The presence of the alcohol is of decided importance, though it is not commonly recognized. Very few persons are aware of the amount of it which is produced in bread making. Of course, in the process of baking the greater part of it is evaporated, but it is a safe estimate to reckon that very nearly a thousand gallons are lost daily from the bread baked in New York alone. Some twenty-five years ago a company was formed in London and erected works for baking bread in such a way that the alcohol should be condensed and saved. It was easily done; the alcohol was made and sold to good advantage, but after expending at least \$100,000 the company failed. Why? The alcohol was a clear profit. Yes, but they could not sell their bread! They evaporated the alcohol from it so closely that the people pronounced it unpalatable, and would not use it.

In fact, all good yeast bread contains still a very appreciable quantity of alcohol, and owes a part of its excellence to its presence. We may reckon the quantity at ten to twenty drops in an ordinary loaf of bread. Not enough, of course, to produce any physiological effect, and yet enough to affect the quality of the bread.

The carbonic acid, which is formed by the fermentation at the same time with the alcohol, not only acts mechanically as an elastic gas, but also by its refreshing and invigorating effect upon the stomach it assists digestion directly. The small quantity of yeast introduced multiplies itself rapidly, until when the process is well completed it has permeated every part of the dough, and "the whole is leavened." Wherever it goes it produces minute bubbles of gas; and each bubble at once tries to escape because of its elasticity, which is held under pressure. They struggle hither and thither, uniting together to form larger bubbles, until the whole mass has become porous and spongy; that is, the bread is "raised." The heat of baking stops the growth of the yeast, and the process is ended.

We have thus far formed our gas by fermentation, but we can do it much more quickly, on the instant, as it were, in another way. Any carbonate, acted upon by an acid, yields carbonic acid. Bicarbonate of soda is very cheap, and when decomposed affords a large bulk of gas. If therefore we can combine it with an acid which is of solid form, is cheap, and is both in itself and in its compounds harmless, we shall be able to work it into the dough, and the quickly resulting gas will "raise" the mass in a very few minutes.

The most convenient article for this purpose with which we are as yet acquainted is probably cream tartar, which is a bitartrate of potassa; at all events, this so completely satisfies the requirements, that it has come into very general use. Formerly the cream tartar and soda were mixed in the using, and this custom has not altogether passed away; but it was found convenient and profitable to blend them into one, and baking powder was the result, and no fault could be found with it, or the bread which it raised, so long as baking powder was honest. But alas for what is now sold

us! Good cream tartar bread is perfectly wholesome, but it lacks the alcohol, and can commonly be distinguished from yeast bread even by the taste, and this mode of "raising" is used chiefly for those forms which we will so unwisely persist in eating hot.

For herein comes to light the most important distinction between the two modes of raising dough. As formerly remarked, hot bread, biscuit, etc., ought never to be eaten by any one. But if we are bound at any rate to do it, there is much greater safety, and much more ease of digestion secured by the use of the cream tartar. The biscuit, etc.,