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## BREAD-MAKING.



QUESTIONS which relate to the stomach must have an audience when they crave one. In peace and war, prosperity and adversity, the subject of bread-making is of vital importance to individuals and communities. The Polytechnic Association—according to their proceedings

which are published in another column—have been indulging in a discussion on bread and its adulterations; but so far as it relates to that which is manufactured in our cities for public sale, no new information seems to have been elicited. This is rather strange, as there is so much of it made and sold, not only for daily general use, but for the supply of thousands of our seamen during their voyages. There is a lurking suspicion in the minds of many persons that our bakers do adulterate their bread. Now, if this is so, it ought to be known; and if the members of the Polytechnic Association had brought out any facts, *pro* or *con*, on this point, they would have been of inestimable value. No greater crime, we believe, can be committed against the people than injuriously adulterating “the staff of life.” It has been stated, authoritatively, that the bakers in London adulterate their bread with alum, for the purpose of giving dark, inferior flour a white appearance, and some believe that this is done to a greater or less extent in New York. On several occasions we have endeavored to find out, if this were the case, but thus far we have not been able to obtain a single fact in proof of it; we therefore conclude that no such practice prevails among our bakers.

There are several kinds of bread, but these may be divided into three classes—namely, fermented, raised and unfermented bread. There are no less than three species of the leavened bread, however. The first is that which is made from fully fermented dough; the second is obtained from partially fermented dough, called “half-sponge;” and the third that made from dough which is over-fermented, and allowed to pass slightly into the acetous or sour stage, from which it is brought back to sweetness by fresh flour. The two latter kinds of fermented bread were once made on a large scale in this city, but they soon fell into public disrepute. No kind of fermented bread seems to stand the test of public favor like that made by the old fully fermented process; hence it is believed that it is better adapted for the human palate and for digestion than any other.

Raised bread is that which is made by a gas set free from a salt, such as the carbonate of soda or potash, which swells the dough in baking, and renders the mass light and porous. By the fermenting action, the flour in the dough undergoes a chemical change, and parts with some of its carbon; by the effervescing or raising process, the flour only undergoes a mechanical change—its bulk is simply increased. Every housewife knows how to make effervescent bread by the use of saleratus and cream-of-tartar. The gas which raises the bread by this method is generated by the same substances and by the same means as effervescence is produced in what we call “soda powders.” It is a lazy way of making bread, and as it leaves the tartrate of soda and potash in the food, it should not be practiced by any wife or mother who desires to maintain the health of her family. The manufacture of yeast powders is carried on extensively in our country. Such compositions embrace a neutral salt, like saleratus, and some acid in a solid form, such as

tartaric. As a substitute for the former solid acids which had been employed for such purposes, Professor Horsford, of Cambridge, Mass., secured a patent on the 22d of April, 1856, for solid phosphoric acid manufactured from calcined bones, by the use of sulphuric acid; and it is considered a good improvement.

Unleavened bread consists of flour simply mixed with clean water, then kneaded into a dough and baked in an oven. It is manufactured in all our seaports on a very large scale in the form of “sea-biscuit.” More improvements have been made in the machinery for manufacturing this kind of bread than in any other bread machinery. In the oldest ship bread-baking establishment in this city—Wilson’s, No. 73 Fulton-street—improved machinery has lately been applied, by which the flour is mixed, kneaded, and cut into biscuit, ready for the oven, at one continuous operation. Machinery which occupies but a few feet of space will prepare a hundred barrels of flour per day for the ovens.

It has been a most difficult thing to mix dough properly by machinery, because different kinds of flour take more or less water to bring the dough to a proper consistency. The machinery must be adjustable to feed both the water and the flour into the mixer. We have heard practical bakers assert that this never could be done; but what is it that the genius of man cannot now accomplish by the aid of machinery? The thing is now done, and the machinery operates perfectly. We believe that there is still a very wide field open for improvements in the manufacture of leavened bread, both chemically and mechanically. An attempt is now being made to manufacture *raised* bread for public sale, by charging the dough in one vessel with carbonic acid gas generated in a separate one, so as to leave no offensive salt in the bread; how it will succeed has yet to be determined.

## THE PATENT OFFICE REPORT FOR 1859.

In another column will be found the able report of the Commissioner of Patents, showing the operation of his office for the past year. It exhibits the most gratifying evidence of the continued and increasing progress of the country in this important department, and fully vindicates the claims of the Patent Office to the attention and favor of Congress. We earnestly commend it to the consideration of our readers, not only on account of the important statements, but also of the valuable recommendations which it will be found to embrace.

The receipts of the Office have exceeded the expenditures by more than \$35,000. The number of patents issued has been greater by more than twenty per cent than they were in 1858, when they were more than twenty-five per cent greater than for any previous year. In 1853 they amounted to only 958. Since then there has been a constant and rapid increase, until, for the past year, they amount to the immense number of 4,538, yielding a revenue of \$245,942 15.

Although the number of patents issued has more than doubled since 1855, the force in the Office has hardly been increased for the past four years. The business of the Office has only been kept from falling greatly in arrear by over-exertion on the part of the Examiners, or by passing too slightly over the cases while under consideration. There is no good reason for permitting the continuance of either of these alternatives. The Commissioner asks for authority to augment the examining corps. He has the means of defraying the increased expense, and there should be no hesitation on the part of Congress in granting that permission.

The special attention of Congress is again drawn to the fact that no provision is now made by law for compelling the attendance of witnesses, or for obliging them to give testimony when present. What would be thought of permitting such a state of things in our courts of justice? If, where only five dollars were at stake, the Legislature should refuse to the party interested all power to obtain testimony to secure his just rights, how certain and how severe would be the condemnation of every intelligent and candid mind. But cases before the Patent Office, sometimes involving hundreds of thousands of dollars, are often necessarily decided upon the mere voluntary testimony of witnesses. In some cases, it is true, any error of decision in the Office can, with much additional trouble and expense, be remedied in the courts. But in cases of extensions no such remedy exists. The decision of the Office is final. A worthy applicant for such an extension may be defeated, or an unworthy applicant

be successful, merely because witnesses, who know facts that would have prevented this injustice, refuse to appear or to give their testimony when present. And yet, with all these facts before them, and constantly called to their special attention from year to year by the annual report of the Commissioner of Patents, Congress pertinaciously refuses to apply the plain and easy remedy. We trust this condition of the law, so disgraceful and so unjust, will soon cease to furnish grounds of complaint to the large number of patentees who are as much entitled to protection and favor as any other class in the community.

In relation to another important recommendation we cannot express our concurrence in terms so unqualified. We question whether the granting of a patent to him who first files his caveat or makes his application, will be attended with all the good consequences anticipated in this report. Upon this point we may express our views more fully hereafter.

## DEFECTS OF CALF-SKIN LEATHER—BAD OILS.

A few weeks since (on page 67) we directed attention to some peculiar defects in calf-skin leather, stating that it was subject to a species of dry-rot, similar to that which affects wood, and that the cause of this was not well understood. The fact has been long known to shoemakers and saddlers, but so far as we know, it never had been published before. Our remarks have attracted considerable attention, and we will publish the substance of some letters that have been received on the subject.

Mr. J. B. Williams, of Monongahela City, Pa., says:—“The fact of calf-skin leather becoming affected with dry-rot has been long known to many persons. I think the cause of it is a want of moisture by use, and the want of air, as it is only the leather on boots which are laid aside that seem to be effected with it. We find that boots or shoes which are worn but once in two weeks will remain good for many years.”

The following is from Mr. C. L. Robinson, of Waukesha, Wis., on the above subject:—“In the SCIENTIFIC AMERICAN it is stated that the dry-rot in calf-skin boots and shoes makes its first appearance at the edge or near the sole, in the form of a black glossy sweat resembling varnish; and from thence it gradually proceeds until the whole leather becomes rotten. I have noticed that when horse harness has been hanging up for a considerable period of time, that a black gummy substance would ooze out from it, especially during hot weather, or in a warm room. A particular case of harness deterioration once came under my notice. A gentleman purchased a new set of harness which was made of good leather, and after using it for a few months he thought it would be improved by applying a good dose of oil. For this purpose he purchased a quantity of what was thought to be tanners’ oil, and applied it freely. In a few weeks after this, his harness became very hard and cracked in many places. As I was a harness-maker and knowing something about the tanning business also, he called upon me and asked my opinion as to the cause. Upon examination I found that I could twist the straps of his harness in pieces, and being curious to find out the cause, I made such inquiries as led to the discovery that it was not tanners’ oil which had been used, but resin oil. I am of opinion that it is the kind of oil or grease used by curriers which—to a certain extent at least—is the cause of early rot in leather. Having been for three years in the tanning business, I have used resin oil, and have seen it used by others for currying, and always with injurious results. Curriers employ this oil for dressing leather because it is so cheap, but no leather should be carried with it. It is poor policy, after such an expense has been involved in tanning calf-skins to make them into good leather, that all this should be nullified by the use of an injurious oil, simply because it sells for one-half the price of well-tried, good oil. Calf-skin leather may be more subject to decay than cow-skin, because the skin in the first place is not so well matured, but I do believe, that more injury is done to leather by the bad oils used by curriers than anything else. All dealers in boots and shoes should treat them lightly to some neatfoot oil, especially around the uppers, near the soles, once or twice per annum, and expose them as little as possible to dust and the atmosphere.”

We have no doubt of the correctness of Mr. Robinson’s opinions regarding the deleterious effects of resin oils upon leather. We are not acquainted with a single vegetable or fish oil that is suitable for lubricating leather