

**The National Hotel Sickness.**

"A great many versions of the origin of the sickness which of late has affected the guests at the National Hotel, in Washington, have been given, but none that we know of which accord with the opinions of those who have been upon the spot and taken the pains to inquire into the facts. The rat-poisoning is something which occurred two or three years ago, and the story has probably been re-hashed now because the stench or odor about some parts of the house seems to resemble that then observed.

The proprietors of the house, like the few boarders who adhere to it through evil as well as through good report, are utterly ignorant of the cause of the disease, while they are not, and cannot be blind to the fact of its existence. Like others, they can only conjecture, while they hope it may speedily pass away. Their continued ignorance of the cause does not speak well, however, for their energy. They have satisfied themselves with proving that it does not come either from the food or the water, and there they stop, having in despair closed the house.

The fact that the poison is in the air is proven not less by the investigations into food and water, than by the unpleasant odor which pervades the lower stories, and the existence of water-closets in various parts of these stories, while there is neither odor nor water-closets in the upper stories, points to them and the sewerage pipes as the probable causes of the difficulty.

Learning wisdom by experience, President Buchanan, on his late visit to Washington, previous to his inauguration, took up his lodgings, privately, at the residence of Mr. Corcoran, the banker, while at the same time he retained his rooms at the National, occupying them only during the day, and venturing to eat nothing save a cracker by way of lunch. Visitors at the National can be "spotted" in many parts of the country, simply by the disease, which, if it did not attack them while in Washington, followed them to their homes.

In character the disorder closely resembles the lighter forms of cholera."—[N. Y. Sun.

"Since the publication of the resolutions requiring an investigation and report by the Mayor and Board of Health into the causes of the disease which has been prevailing at the National Hotel, it has been suggested that a cause of the sickness, and perhaps a principal one, is to be found in the tapping of the sewer at the corner of Sixth street and Pennsylvania avenue. The noxious gases, instead of escaping into the streets, as heretofore, have found vent in the hotel, manifesting themselves at least by the odor which has at times pervaded the house."—[National Intel.

[It has never yet been definitely determined what gases do or do not produce disease of any particular kind, and this seems to be a very favorable opportunity for chemists and medical men to investigate the question. The National is the crack hotel of the capital of our country; and is untenable from some unknown cause. We are surprised at the apathy of the savans, who should delight in an opportunity to investigate it. Such a chance does not occur often.

**Smooth Surface on Castings.**

A correspondent inquires how to face his moulds to procure smooth heavy castings. It is easy to produce smooth castings when the pattern is thin, and the mass of metal consequently small, so that the heat is very rapidly reduced; but with large castings where the heat is intense and long continued, his facing, we presume, is consumed, and the surface of the metal left rough.

Moulding sand should be very nicely proportioned, to procure just sufficient cohesion and yet be sufficiently porous to allow the escape of air. Any facing also which is made air tight is liable to generate blow holes and other faults in the casting, however much it may conduce toward a smooth surface. We would like to receive and publish descriptions of the methods found most available in overcoming the difficulties, and particularly the means of producing the exceedingly smooth and fine images termed Berlin castings. We feel certain that there is much valuable information afloat on this subject which has never been published.

We would here remark on the expediency, whenever practicable, of printing the facing—that is, when the pattern has been carefully removed, and the facing applied, put the pattern back into its place, and strike it with sufficient force on all parts, to smooth and solidify the added material. There are many patterns where this method is impracticable; but wherever it can be employed, it will be found to add materially to the smoothness of the product.

**Church Clocks.**

It has been contended by some that our church clocks generally are very deficient in regard to accuracy, and the illuminated clock on the City Hall, in this city, has been sneered at habitually as one on which no reliance at all could be placed. A correspondent, however, who is in a position to be much better posted on the subject, assures us that the time of our City Hall clock is always correct, that the regulator has not been altered for over two years, and that it is nine months since a hand upon its face has been touched. Considering the jar consequent upon ringing the enormous fire-bell on the same structure we consider the clock keeps wonderfully accurate time. We have a clock in our office from the same manufactory—John Sherry's, of Sag Harbor, N. Y.,—of which we might say equally good things, but modesty forbids; and we should not have even alluded to the City Hall clock, had not our attention been called to it by a reliable correspondent.

There are circumstances, such as the effect of wind on the hands, etc., which make it difficult to give to a church clock as much regularity as it is possible to attain in smaller constructions working wholly in the interior of a building.

St. John's Chapel, in this city, has, or had at the period of our last visit to its spire, some few years since, a very ingenious and obvious device for insuring a tolerable accuracy, or rather for obtaining a very frequent correction of its errors, by self-acting mechanism. The clock proper, strongly and roughly constructed in the usual manner, is set to run considerably too fast, so that it will be sure to gain several seconds in the course of every hour or half hour, at the termination of which period the pendulum is caught at one end of its motion and held fast. Another clock of the most exquisite adjustment possible, like the clocks in jewellers' establishments, is mounted independently inside, and so connected that it disconnects the stop at the instant the true period expires, so that the clock seen by the public is continually gaining time until the end of each hour or half hour, when it stops dead, and takes a fresh start. It is, of course, not necessary to let the coarse clock-work run much too fast, but only so much that it may be sure in its variations never once to run too slow.

**The Magic Corn Husker.**

Mr. William Lewis, of our village, has invented a machine which promises to be one of the most useful of the day. It is fitly called the "Magic Corn Husker," from the quickness and certainty with which it performs its work. There is no mistake about it, and an examination of the machine will satisfy any one that it is truly a valuable invention. It will husk wet corn as well as dry, and the only limit to its rapid performance is the ability to supply it with material. It is cheap, simple, worked by hand, and will come within the reach of every farmer. Mr. Lewis received his Letters Patent within less than one month from the time of his application. We understand that the editor of the SCIENTIFIC AMERICAN acted as the agent of Mr. Lewis, and his promptness and skill in all matters pertaining to the patent department, insures a great advantage to those applying for patents through the same agency.—*Seneca Falls Reville.*

[We are preparing an engraving of the above invention, which will shortly be published.—Eds.]

**Mud Houses.**

Has it been firmly and finally settled that mortar and small stone (concrete or Beton) cannot be made to succeed in practice, as the only material in the sides of dwellings? Instructions for its use have been extensively

circulated, and a book on the subject has been published, which met with a liberal sale; but so far as our observation goes—which we confess is extremely limited—the walls have not been sufficiently successful to warrant further attempts. The difficulty has arisen from the very frequent occurrence of rain and wet weather before the material had sufficiently hardened. Can our readers inform us whether this is really a fatal objection and, if so, how it can be obviated?

**Chinese Plants.**

Potatoes and sugar cane from China may prove great traps for agriculturists, but we will endeavor, at this season, when every one is, or soon will be, preparing to lay out their garden or farm work, to give the latest intelligence of importance which we consider entitled to credit relating thereto. The potato is, very possibly, worthless in quality, but the syrup of the cane, we know from a trial of a sample, is very respectable sweetening, and the stories told of the productiveness of both are most extraordinary. As some contradictory reports have been published with regard to the modes of cultivation, we cut the following on the potato question from the Putnam (Iowa) Banner:—

"The tubers, five in number, were ready to transplant in April. By the last of May the vines were one or two feet long; but, unfortunately, the frost on the 1st of June nipped them to the ground, and put them back three or four weeks. New vines came up, and grew tolerably well through the remainder of the season, but, no doubt, considerably stunted by the extremely dry weather.

As soon as the vines became two or three feet long, I cut them off, and divided them into as many segments as there were leaves or pairs of leaves. These were placed in boxes of earth, and watered at least once each day, until frosts came in the Fall. Each leaf treated in this way produced a little tuber, such as I planted in the Spring. In this manner I have succeeded in obtaining some four or five hundred tubers.

I dug one hill, and found two potatoes; the smaller one was near two feet long and one inch thick, and the other thirty inches in diameter. The yam looks delicious: I have not tasted it yet."

Our impression, formed from the published accounts alone, without any practical experience, is that the potato is very poor feed, and, according to the above most favorable report, quite troublesome in its cultivation.

With regard to the *Sorgho Sacre*, or Chinese Sugar Cane, the New Orleans papers, published in the midst of the only sugar section of the United States, contains facts that look favorable to its introduction. Thomas Affleck, Esq., of Mississippi, writes that he has closely studied this plant, and watched the results of the various experiments made, from its first introduction into France to this time, and thinks it possible that it may supplant the sugar cane, but thinks the sugar-growing States cannot lose, even if that be the result, as it will yield more sugar there than further north, beside attaining a vastly larger growth. The South will have an additional advantage in its supply of machinery perfectly adapted to the purpose, and its thorough knowledge of sugar-making.

Mr. George W. Kendall of the New Orleans *Picayune*, writes a letter to that paper on the same subject from his plantation near New Braunfels, Texas. He has made partial experiments with its culture, and says that of its properties for the production of sugar, he can as yet say nothing; he only knows that it tastes like the common sugar cane, and is full of juice about the time the first heads ripen. He adds that as a green fodder it beats everything that grows; horses, sheep, and hogs are inordinately fond of it, and so full are the stalks of saccharine matter that they must be both nutritious and nourishing. Mr. Kendall says it stands a drought better than anything he has, and does not seem to require rain after it is once up.

Prof. Bacon, of Boston, said in a lecture at the Medical College, that the saccharum of the Chinese sugar cane is not cane sugar, but what is well known as grape sugar or glucose—the same kind of sweet substance that is

obtained by boiling starch in diluted sulphuric acid.

We presume most of our readers are aware that the sugars from beets, maple trees, corn stalks, and sugar cane appears to be alike, and naturally inclined to granulate in solid hard crystal, while grape sugar is more inclined to remain in a soft mass, without granulating, and is much weaker in saccharum, though rich as a food.

Grape sugar is abundant in fruit of all kinds, but does not crystallize, except imperfectly. The white sugar in raisins, however, is of this kind, as is also that portion of honey which solidifies. The chemical constitution and the practical values of the two sugars are very different. Two ounces of cane sugar, according to the text books, are equal in sweetening power to five ounces of grape sugar.

**More about the Sex of Bees.**

The theory by which the distinction between worker and drone bees is made to devolve on the size of the cell, is thus set forth in a recent article by J. P. Makar, a distinguished apiarian of Philadelphia. It will be found extremely novel, we think, to most of our readers, so far as relates to the existence and effects of spermatic fluid injected by the queen. Certain of the lower orders of creation—earth worms or angle worms for example, are supposed to combine male and female in the same individual, but this seems to make the bees analogous neither to them nor to any other species. He says the cells in which the workers are hatched are comparatively small, five of them occupy about one inch, while the drone cells are about four to the inch. In the former case, when the queen deposits an egg, her body being larger than the cell, a slight compression takes place, and as the egg passes the mouth of the spermatheca, a minute portion of the fertilizing fluid is ejected upon it, causing it to produce a worker, unless we step in and change its destination, by converting it into a queen. On the contrary, when the egg is deposited in the drone cell, which is larger than the body of the queen, no compression takes place; the spermatheca remains closed, and the egg invariably produces a drone or male, the lowest in development of the denizens of the hive. These facts prove conclusively, if we supply the queen with worker cells, her progeny will invariably be workers. On the contrary, if she has only drone combs, nothing but males will result.

**Self-Acting Regulators.**

The heat developed by a fire—by a wood fire especially—can be very readily and completely controlled by opening and closing a valve so as to vary the supply of air. There are several modes of making this movement automatic. A form of air-tight stove—quite popular in the Western States a few years since, and for aught we know still the favorite—has a strip of metal in the front of the structure which, by its varying expansion with fluctuations of the temperature, so far controls a flap valve which covers the draught orifice as to ensure quite a uniform temperature. The heat in Berdan's great bakery is controlled by similar means. A long strip of thin brass extends vertically the whole depth of the oven. A great change of dimension with heat make its movements very sensitive in giving motion to a valve, which is hung like a damper in the draught orifice. There are many situations where this, or some similar device, might be constructed very cheaply, and would probably prove of great service.

**Baling Cotton.**

The recent great fire in Mobile, in which several thousands of bales of cotton were destroyed, has caused an extensive discussion in the Southern papers on the expediency of baling cotton with wire. The principal advantage is, that wire will not burn like rope, and, bursting, scatter the cotton to the flames and the wind, causing the destruction of every other bale within its reach. Cotton bound with wire could scarcely be made to blaze, and if combustion be carried on at all it must be in a smouldering condition.

The growing of sugar has been commenced in Liberia on the coast of Africa.