seek a foothold, or we may re-enact the solemn farce that was witnessed in Paris last Autumn, when the French Government withheld from the public the information and the warning that were required to save the 8,000 lives which were sacrificed to the epidemic in 91 days.—Well did the chief medical officer of registration in England say, in a note to me at that time "They (the Parisians) do not see, as we do, that an accurate knowledge of facts, far from terrifying reassures and braces up the nerves of our people." Let the inhabitants of New York know what exists, what is needed, what are sources of danger, and what are the best means of sanitary protection, and there will be no pestilence. This statement is due to ourselves when ignorant men and theorists may brand us as alarmists, or may exclaim we fight against Providence. That the cholera poison is in this city we know, and that it has thus far struck down its victims in accordance with the principle that removable causes have localized it or excited it into fatal activity we have seen proof in 12 cases that have occurred. Could we read a more important lesson?

Machinery and Manufactures.

New Process for Indigo Dyeing.

Before it can be used for dyeing, indigo must be rendered soluble in alkaline and caustic solutions by being treated by a reducing body; by this reaction indigo loses its color, but after being fixed on stuff and exposed to the air, it absorbs fresh oxygen and returns to its original color. This process, theoretically so simple, is practically complicated by serious difficulties, and requires, on the part of the dyer, much practice and great dexterity. Thus, for instance, with indigo reduced by fermentation with vegetable matters, in a caustic solution, the various acids produced during the fermentation combine with the alkali, the liquid soon ceases to be caustic, and loses the property of dissolving the reduced indigo. To remedy this a fresh quantity of alkali (soda potash, or lime) must be added from time to time; but should an insufficient quantity be added, a portion of the reduced indigo remains undissolved, and soon decomposes under the fermenting matter. If, on the contrary, an excess of alkali be added, a certain quantity of white indigo is lost by its combining with potash, and forming an insoluble product.

According to M. Leuchs, of Nuremberg, all these objections are obviated by effecting the change from blue to white indigo by pectine. Pectine exists in considerable quantities in turnips of different species, in pumpkins, melons, etc., it may be extracted from these fruits, or they may even be directly used to reduce indigo. The most simple process consists in heating 45 or 50 kilogrammes of the caustic lye to 75° C., adding half a kilogramme of well pulverized indigo, then suspending in the vat a kind of basket of iron wire, containing from 8 to 10 kilogrammes of fresh turnips, cut into small pieces. Then heat gradually to boiling point; the indigo soon loses its color, and the solution decanted into special vats and diluted with water freed from air, will be ready for dyeing purposes. Contact with air must of course be as far as possible avoided.

When the dye bath is exhausted it may serve for a fresh operation by adding indigo, a little caustic soda, and boiling it as above with a certain quantity of turnips.

On the iron wire trellis there will remain hardly five or six per cent. of the original quantity of turnips. This residue may be used in paper making.

The simplicity of this new process may easily be proved by introducing into a closed tube a small quantity of indigo mixed with a few drops of soda or caustic potash, adding a small piece of turnip, and boiling; the indigo will rapidly lose its color, and re-dissolve and return to its original color by exposure to the air.

As turnips are not everywhere cultivated, and during certain seasons are not to be procured fresh, the author has found that the active principles may be extracted by boiling the turnips with water, under a pressure of two or three atmospheres. C. Leuchs & Co., of Nuremberg, now manufacture on a considerable scale an extract of turnips, 1 kilogramme of which will dissolve cold 4 kilogrammes of indigo.—*Annalen Chem. and Pharm.*

Strength of Punched and Drilled Plates.

Experiments have recently been made by the British Admiralty on Bessemer steel of the best quality. A piece of steel 4 feet long and 12 inches broad was cut from a half-inch plate, of which the proof strength was 33 tons per square inch. This piece was reduced to 5 inches in width at the middle, was supported at the ends by square plates rivetted to it, and was carefully centered. The plate should have broken at 82½ tons, and through the narrow part. It actually broke at 95¼ tons; and then, strange to say, broke through the wide part of the plate, tearing away through the rivet-holes. Thus while the material in the middle of the plate withstood a strain of 38 tons per square inch, it actually broke through the holes at 16·38 tons per square inch, or less than one-half the strain. In a precisely similar plate, differing from the other only in the fact that the rivets connecting the end pieces were 1¼ inches from the edge instead of 2½ inches, the plate broke in a similar manner at 73 tons, which is only 15 tons per square inch of the section of steel broken. The holes in both these cases had been *punched*. In order to ascertain whether these curious results were due to the injury supposed to result from punching, an exactly similar arrangement of plates was again tried, in which the holes were, as in the first, 2½ inches from the edge, but were *drilled* instead of being punched. The plate then broke through the narrow part at 106·75 tons, or 47·53 tons per square inch of the steel broken.—*London Artizan.*

Glass Brick Mould.

A new mould for bricks is in use in Baltimore which is said to turn out most elegant specimens of pressed brick. The mould of wood is lined with plate glass, which forms a perfectly smooth surface and naturally gives excellent results. The cost of