wheat of medium hardness, with small crease and of good average size. On its passage through the cleaner it had certainly parted with its fuzz, its crease-dirt and, unfortunately, it seemed to me, too much of its coating and the adjacent floury particles. Some of the berries were quite perfectly hulled. Others were split. Others were broken across. Others were ground off so that the germ was plainly visible on the beveled ends. Some had lost a considerable portion of flour. Only a small percentage of the berries seemed to have received anything approaching "proper treatment." The exhibitor of the specimens of manipulated grain claimed that he was willing to guarantee that the machine would enable a miller to turn out 80 per cent. of high-grade flour.

I am not criticising the new machine at all. I merely state my impressions. Probably the grain specimens shown had been "punished" more severely in the trial machine than it would be in the finished and perfected one. Evidently the stone used had too much "bite," or the brush was too rigid, or its speed was too great to secure the best results, or the pressure of the brush upon the grain was too great. Either of these causes would explain the appearance of the grain.

Neglect of the bolting-cloth means the loss of all the finest work done before the bolting-cloth is reached. When the flour becomes specky, hasten to determine the cause. Generally the location is easily made in a torn, clogged, worn-out, overloaded cloth. Decide to do two things at least in the case of your bolting: 1. Secure the best cloth at the beginning. 2. Keep it in good condition so long as you use it. Good cloth means half the battle won in the beginning, but good care means the other and probably more important half.

Millers, why will you continue to buy and pay wheat prices for stuff that is not wheat? A few days ago I visited a mill of large capacity, and while about the establishment I was shown a heap of dirt of various kinds that had been removed from a large quantity of wheat that had just been cleaned. The pile contained many bushels and had cost the purchaser many dollars. The question suggested itself. Is it right for the miller to pay the farmer money for bits of straw, wood, twine, wire, nails, leaves, bark, wood and other foreign matter in the wheat? Besides paying 40, 50 and 60 cents a bushel for the dirt and rubbish, the miller must waste his motive-power and wear out his machinery in separating it from the wheat. Thus his loss is double. Did any miller grinding 300 or more or less barrels a day ever compute what he loses in a year from the dirt he buys in his wheat? Is there any sound reason why the farmer who sells wheat should receive pay for whatever gravel, iron, wood and other substances he may leave in the grain? If any one should not pay for this mixed-in dirt, it is the miller. I think the miller has the right to insist on paying for wheat and for wheat only. Dirt at grain prices is an expensive luxury in these hustling days.—*Milling World.*

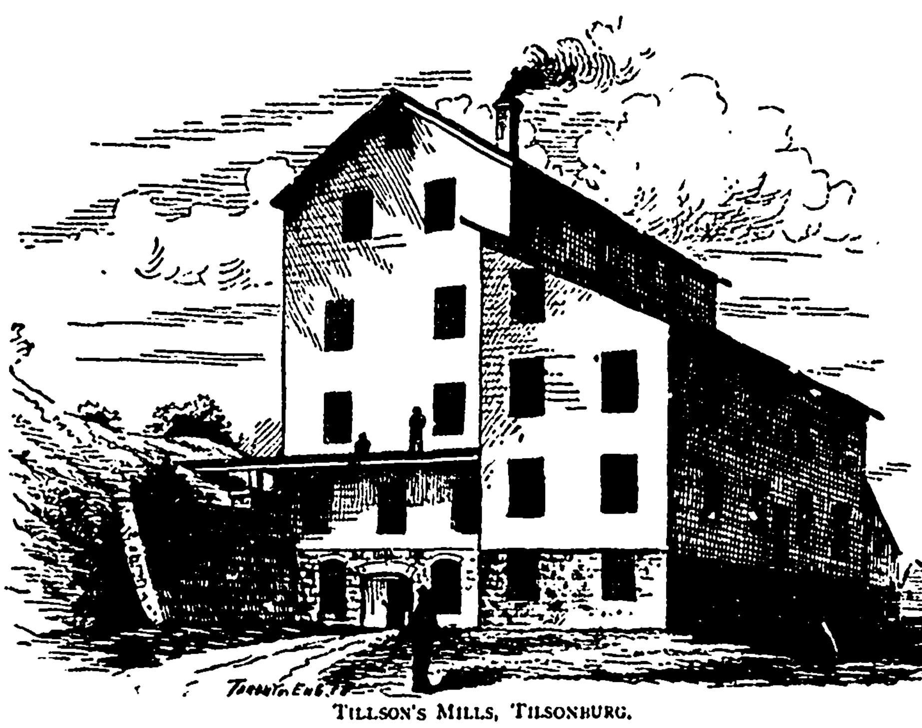
Water power is worth $60 per horse-power per annum in Paterson, N. J., while steam power costs $75. A lessee in that city, whose lease called for a certain number of horse-power which had not been furnished, recently sued to recover $1900, its value at the rate of steam power, but the court held that, as water power was to have been furnished, only the cost of water power could be allowed, which was $1,500. The lessee had not supplied the power from any other source. Had he been obliged to do so he could have claimed whatever it fairly cost him, whether more or less than steam power.—Boston *Journal of Commerce.*

There is no economy in using damaged or musty oats for oatmeal. Anyone who will taste grain of musty oats will find says the *Millstone*, that it has a decidedly bitter taste. Drying does not improve this grain, but rather seems to make it worse. White oats are preferred to the dark variety. In the former the hull is supposed to be lighter in weight and when small particles get into the meal the color is not so objectionable as when it is dark. The best oats will only yield about half its weight in meal, while the poorer varieties differ materially as to the yield; but it is easily seen that the difference of a few cents a bushel between the best oats and the poorer kinds makes little difference in the cost of the oatmeal, but makes every difference in the value of the output.

THE SUPPLY OF NATURAL GAS.

As natural gas has been recently discovered in many parts of Canada, and some are looking forward to its use for lighting and manufacturing purposes, the following extract from a paper read by Mr. E. B. Phillip before the Ohio Gas Light Association will doubtless prove both interesting and instructive:

The only durable supply of natural gas obtained in the Northwestern gas territory is found in the Trenton limestone. It is true that gas in considerable quantities is found in the shales above the Trenton; but this is not



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of continuance, being generally accumulated in pockets, which soon give out. The difference between a good gas well, or gusher, and a small well is due to the porosity or density of the Trenton limestone. I have here three samples of Trenton rock. This one, as you will observe, is very porous, of a spongy character, similar very much to a piece of pumice stone. This specimen came from the Karg well at Findlay, the capacity of which is 12,600,000 cubic feet per 24 hours. The other specimen is also porous, but not so much as the piece from the Karg. This sample came from the Heck well, near Findlay, the capacity of which is between 5,000,000 and 6,000,000 cubic feet. The third specimen here shown is from a well in the eastern Findlay territory, which scarcely shows any sign of porosity, and, in fact, is very dense and close. The capacity of this well is about 500,000 cubic feet per day. These specimens show very accurately the comparative difference in the porosity and density of Trenton rock, on account of which the difference in the flow or production of the wells exactly to the same degree is attributed. The two lead-

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ing theories, and those which have the greatest number of advocates among experts, are that it is made or produced in the Trenton rock, or that it is made far below the Trenton. At best it is all theory and not a proved fact. It is, however, our theory that it is not made in the Trenton limestone, for the immense quantities of gas that have already been used or wasted could not actually have been made in the Trenton, as the rock area could not produce it. The Trenton rock, in our opinion, is but an enormous passage-way or pipe-line, so to speak, for the distribution or conveyance of the enormous volumes of gas which the drill has liberated by tapping this passage-way or pipe line. Presuming it is true that the gas is generated far below the Trenton, it can easily be supposed, for it is all imagination, that with the enormous pressure at which it is packed or compressed in the place of manufacture it would, on this account, find its way through the various strata until it reached the Trenton, and here becomes distributed. The shales and slates above the Trenton act almost completely as a barrier or stoppage to its rising further; and when in some cases it does reach the shales above, this fact is attributed to the presumption that it reaches these pockets or cavities through fissures or breaks. For this reason, as the shales are very close and compact, the supply found in these pockets is not lasting. Now, as far as the life of a gas well is concerned, we can only theorise. All that we are able to learn concerning this important phase of the natural gas problem is from actual experience and knowledge, and from that limited knowledge form our conclusion. We know the flow of gas wells does diminish—not to such an alarming extent, however, as to discourage the investment of many millions of dollars in the business; for the natural gas territory of this country is of such enormous area that, should the life of the first wells drilled be comparatively short, others may be drilled in other parts of the territory, and (comparatively) the same amount of gas can be obtained. This has been demonstrated to be a fact as far as our present experience teaches us, and for this reason, if the average life of the wells should be from five to ten years, as has been claimed, the supply can be kept up by further use of the drill in adjacent territory not yet depleted. These facts and experiences from which we derive our conclusions are so numerous, and the ground to be covered in the consideration of this great problem is so vast, that we can in this paper only mention, in a comparatively limited and concise way, some of the principal points or arguments in the matter.

A process has been perfected and patented for drawing upon wood by means of a fine metallic point kept red hot, so that the lines are actually burned into the surface. A powerful oxhydrogen or other flame keeps the point always at the high temperature, and yet the apparatus is so compact that it may be used with the ease and freedom of a pencil. It is so adjusted as to produce as well all shades of brown, from the lightest to that verging on black.

The following difficult fusions were effected by the Siemens electric furnace or crucible, which was patented in 1879 in Great Britain, the current employed being of from 250 to 300 amperes and obtained from five dynamo electric machines, four of which were coupled together, and one of which was employed as an exciter: (1) Six pounds of wrought iron were kept in the heat of the arc for twenty minutes and then poured into a mould. The cooled metal was found to be crystalline and no longer to possess the ability to be wrought. (2) Twenty pounds of steel were completely melted in one hour in a single charge. (3) Three-fourths of a pound of copper placed in carbon dust were melted in half an hour—only three-fourths of an ounce was found remaining in a retort. The rest had been vaporized. (4) One quarter of an hour was sufficient to reduce eight pounds of platinum to the liquid state.

To build a chimney that will draw forever and not fill up with soot, says the Boston *Journal of Commerce*, you must build it large enough, sixteen inches square; use good brick, and clay instead of lime up to the comb; plaster it inside with clay mixed with salt; for chimney tops use the very best of brick, wet them and lay them in cement mortar. The chimney should not be built tight to beams and rafters; there is where the cracks in your chimneys come, and where most of the fires originate, as the chimney sometimes gets red hot. A chimney built from cellar up is better and less dangerous than one hung on the wall. Don't get your stovepipe hole too close to the ceiling—eighteen inches from it.

Mr. H. W. Petrie, Brantford, dealer in machinery, has opened an office in Toronto at the corner of York and Front streets.

According to a contemporary a considerable amount of Cheboygan, Detroit and Grand Rapids capital is being invested in pine on the wild lands on the Georgian Bay, on Spanish and French rivers along the north shore of Lake Huron in Canada. The Canadian government holds all the lands and timber in this region, as well as in every other part of its domain. The land can be bought at an average price of $1.25 per acre, but this does not include the growing pine timber. For this the charge averages $1 per 1,000 feet stumpage. The purchaser may cut the timber or let it grow, but when cut and scaled the government inspector collects $1 per 1,000 feet board measure as "crown dues." The land may also from 35,000,000 to 100,000,000 feet of standing pine, so that the government has a proprietary of $35,000 to $105,000 in the pine of those townships in addition to the land. The government timber officials estimate the amount of timber in each township. After the purchase is made the government protects the pine from fire or theft till it is cut down.