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CANADIAN MILLER

GRAIN TRADE REVIEW

NEW SERIES "MECHANICAL AND MILLING NEWS"

Old Series, Vol. XI, No. 12
New Series, Vol. III, No. 12

TORONTO, ONT., DECEMBER, 1893

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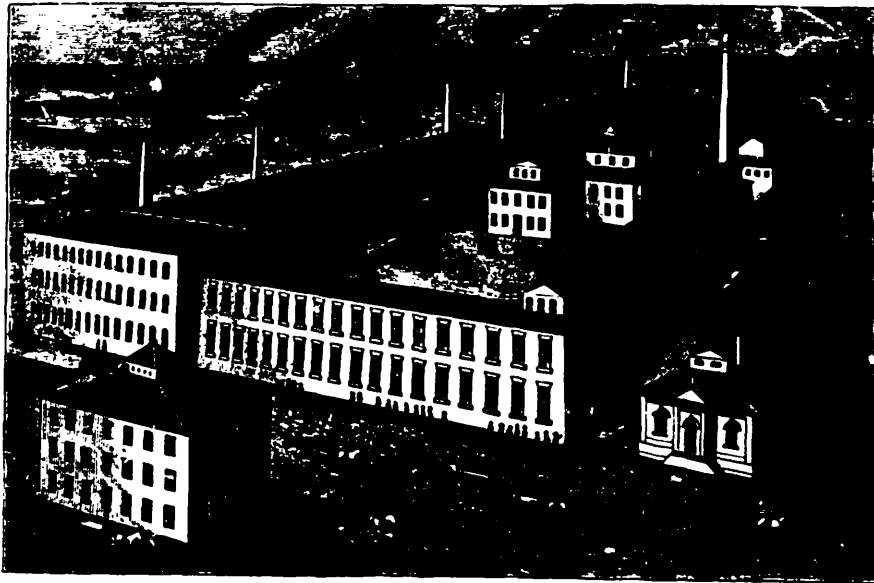
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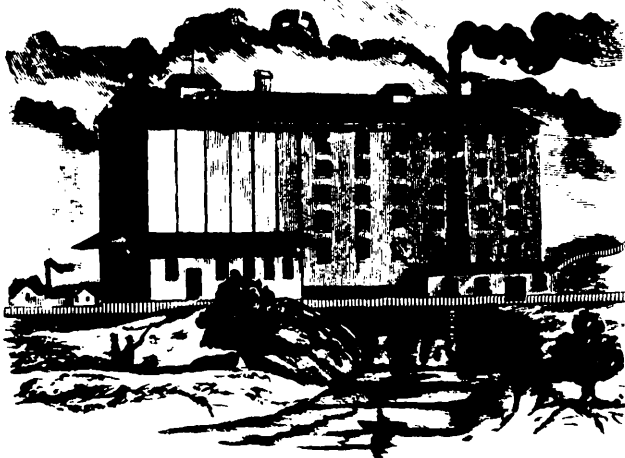


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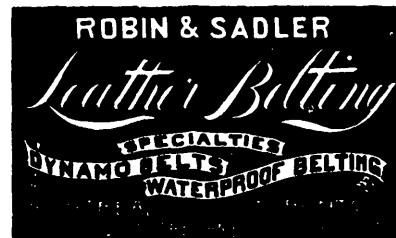


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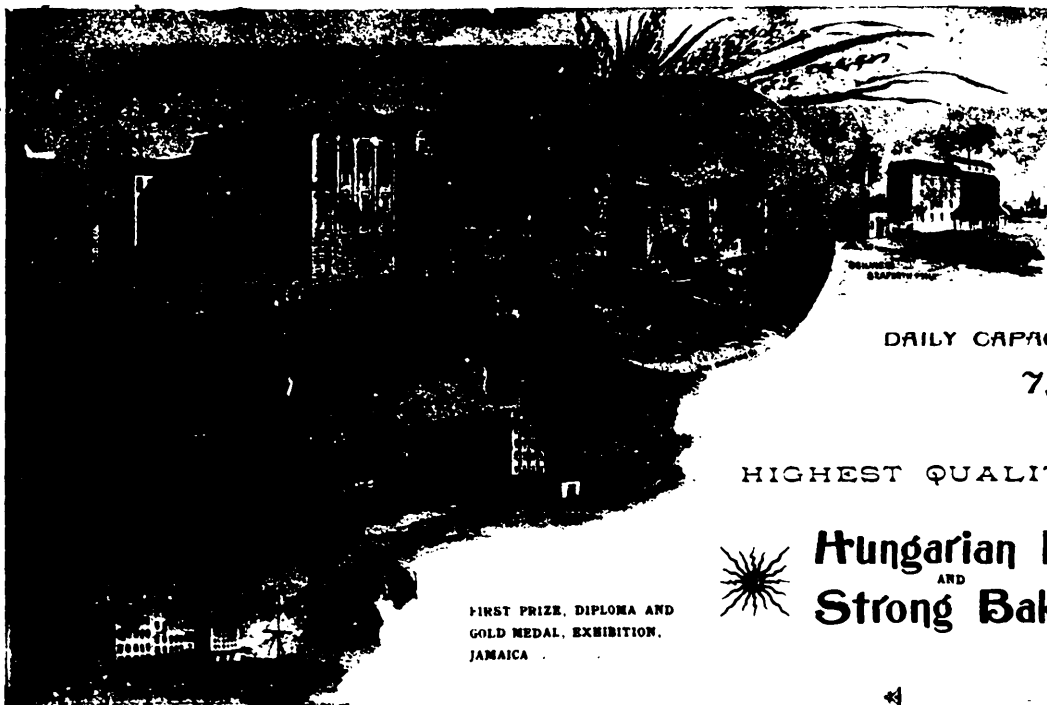
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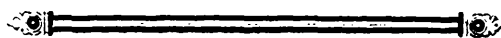
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NEW SERIES, VOL. III.

TORONTO, ONT., DECEMBER, 1893

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PEN PICTURE OF YE MILLER.

A YEAR ago in the special Christmas issue of the CANADIAN MILLER we devoted a page to the subject of the "Miller in Literature." Mr. M. G. Watkins in a late number of the Gentleman's Magazine writes an interesting paper on "Mills and Millers" in which he paints the following picture of ye miller. From the literary point of view, though the miller of to-day is another man to the miller of yesterday, we have no doubt our readers will appreciate the picture. Here it is:—

"The miller himself, both in real life and literature, possesses a two-fold character. He is either a rogue, like Chaucer's miller, Simkin,

A thief he was forsooth of corn and meel,
And that a she and unsant for to stele.

or a good natured, easy-going man, such as Tennyson has portrayed:

His double chin, his poorly set,
And who that new him could forget
The busy wrinkles round his eyes?
The slow, wise smile that, round about
His dusty forehead, curls,
Seemed half with and half without,
And full of dealings with the world

Among tradesmen of a philosophical character, such as coldlers and fishing-rod makers, millers hold a high place. They are always democratic in their views, as being wont to grind all that comes into dust, and to see all their neighbors compelled to resort to them for the staff of life. Their pigs, too, are always fat, and thereby hang dark tales. The gossip of the country side is well-known to them, and fitly enough their tongue "clappeth as a mill." Doubtless there is some alloy in their cup of prosperous happiness. Virgil alludes to the wheel, which is not unknown in modern flour at times. Sometimes, again, the water mill is blocked by ice, and not a breath of air blows to turn the windmill's sails. Millers' wives, too, are often shrews, why is not very apparent, and they live in daily fear of their children being drowned in the dam or killed by the rushing sails. Foreign exportations also conuse the corn market, so that a miller's life is not uniformly to be coveted. A peck of troubles invariably accrues from the numbers who wish to fish in the milldam and pit. Naturally he likes to catch his own eels, nor he has no objection to allow a few to throw the fly on his water. But strangers will trespass, tread down his meadow and break down his hedges, and then his temper is apt to be short.

Unluckily, he fares ill in proverbial literature. "An honest miller hath a golden thumb." The Scotch, with their pawky humor, are never tired of ginding at him—"It's gude to be merry and wise," quo' the miller, when he mouted twice" (i.e. twice took his customary payment); and again, "The miller mouters best w' his ain hand;" while "to drown the miller"—a heinous sin in Scotland—implies putting too much water into a glass of spirits. "Every miller draws water to his own mill," points to his selfishness. The miller's wife partakes in her husband's failings. "Du," says another proverb, "as the miller's wife of Newlands did: she took what she had and she never wanted." She probably gossips a good deal, for "mealy-mou'd maidens stand long at the mill." Even the miller's dog is sharper than most of his kin, "the miller's dog licks his lips ere the pock be opened." It is worth remembering that "the lower millstone grinds as well as the upper." "To be trusted with a house full of unlored millstones," implies considerable distrust. Proverbial lore is much struck with the noise of a mill. "To be born in a mill" is a synonym for being deaf; while "in vain doth the mill clack if the miller his hearing lack." It is not quite apparent to one who does not belong to the trade what can be the meaning of "The horse next the mill carries all the grit."

THE LIMITATION OF ENGINE SPEED.

THE practical limitation to high rotative speed in stationary reciprocating steam engines, says a writer in Cassier's Magazine, is not found in the danger of heating or of excessive wear. The cause of both these, it is now well understood, is to be looked for in defects of design or construction, commonly of both, as they generally go together, and where these do not exist to a degree which is of practical moment, a bar to the proper employment of higher rotative speed appears long before a tendency to heat or wear is to be observed. Correct designs are now generally followed, in both the fixed and the moving

parts of steam engines, and a high degree of truth is readily attained in their construction, so that it has come to be a simple matter to make engines which can be run at a very high speed quite free from either of these difficulties.

Contrary to the general belief, no objection to very rapid rotation is afforded by the development of centrifugal force in the fly-wheel or hand-wheel. The wheel of high-speed engines have generally solid rims, and no case of their bursting has, I believe, ever been known. Disasters from this cause have been confined to engines not designed to be run at high speed, and have sometimes occurred when the speed was only slightly accelerated above the normal rate. In these cases the wheels have been built in segments, with surprising disregard of necessary strength in the flanges and bolts by which the segments were held together.

Again, an objection to very high speed is not found in a tendency to knock on the centers. In a properly designed and constructed engine, in which the valves are correctly set, and which is run by steam, high speed tends to silent running. Noise from bad design or bad work, from insufficient lead given to the valves, and from water in the cylinder, is excluded from consideration. It is admitted, with pride, that the bad consequence of these defects are aggravated by high speed. This revelation of them has wrought an entire change in engine construction, not yet completed, and even makers of slower speed engines have largely profited by it. But it is obvious that there is no excuse for their existence. The only legitimate cause of knock on the centers is loose boxes, and knock from this cause is softened as the speed is increased, and at extremely high speed will disappear entirely, owing to the force of the steam at these points being absorbed in overcoming the inertia of the reciprocating parts.

Vibration is not an objection to very high speed, because it is an easy matter to so design and construct an engine and balance the running parts that it shall be free from vibration at any speed whatever. Again, very high speed is not objectionable, per se. If an engine runs in silence, completely free from vibration, without any tendency to warm, and without wear of any running part, its very speed renders it an object of special admiration, even to those to whom such speed is new. Whenever extremely high speed in a steam engine has caused any other feeling in the beholder than that of admiration, it has always been the case that it has been attended with something annoying, a noise, or a jar, or some uncomfortable action which ought not to have existed.

All this being true, there still remain two considerations of a controlling nature, which require that the rotative speed of engines shall be kept within moderate limits. The first of these is, that engines ought not to be run as fast as they can be. It must, on reflection, be obvious to every one that an engine should be capable of running, and that, too, with entire satisfaction, so far as its motion is concerned, a great deal faster than it is run. This is the solid ground of security and confidence. It means peace and comfort, and helps to make men sleep well o' nights. It means long life to both engine and builder.

The second objection to the employment of extremely high speed is a very serious one indeed. It is the large amount of waste room in the port, which is required for proper steam distribution. It is in the important respect of economy of steam, the high-speed engine has thus far proved a failure. Large gain was looked for from high speed, because the loss by condensation on a given surface would be divided into a greater weight of steam, but this expectation has not been realized. Far from it. The performance of this class of engines shows, instead, a positive, and in some cases a large loss in economy. For this unsatisfactory result we have to lay the blame chiefly on the excessive amount of waste room. It has already been pointed out by Mr. Harris Talbot that the ordinary method of expressing the amount of waste room, in the percentage added by it to the total piston displacement, is a misleading one. It should be expressed as the percentage which it adds to the length of steam admission, and then every one would see what a serious thing it is. For example, if the steam is cut off at one-fifth of the stroke, eight per cent. added by the waste room to the total piston displacement means forty per cent. added to the volume of steam admitted. Under these circumstances it is obviously the duty, and for the interest, of builders of high-speed engines to adopt every expedient for reducing the amount of waste room

that can be done consistently with proper admission and discharge of the steam. For this, the first requisite are modern piston speed and longer stroke.

Engines of four, five and six foot stroke may properly be run at from 700 to 800 feet of piston travel per minute, but for ordinary sizes I would recommend and urge that 600 feet per minute be taken as the limit of piston travel, under all circumstances. This will give from 300 revolutions per minute with twelve inches stroke to 100 revolutions per minute with six inches stroke, with which purchasers ought to be satisfied.

I would ask builders, in their own interest, to resist the temptation to get the utmost out of a given engine, and to set their faces like a flint against the demand for short stroke engines, which shall occupy but little room, and from which the required power can be got by speeding up beyond the limit here proposed.

PRESENT METHODS OF CLEANING WHEAT.

"WHY has not some mechanical genius," says a writer in the Roller Miller, "armed with the javelin of perseverance, marched forth to do battle and win laurels in this particular line as well as in others? The reward would surely be liberal enough to warrant the outlay, judging from the prices paid for some mechanical monstrosities that have been brought forth in the last decade or two. One of these, I well remember, was a stone decorticator that sold at from \$600 to \$100, according to size, and was of no earthly use whatever, except to abrade and weaken the bran, thereby causing the miller a continual ache after the red dog which was so often found nesting in his flour. This same dog, or some cur akin to him, is still to be found in mills where harsh scouring is in vogue.

"I think that the reason why there has not been as much advancement in the grain cleaning line as in other lines is due largely to the fact that there are only a few manufacturers of cleaning machinery in the country (if my memory serves me right, only three or four of any importance), while in nearly all other lines are dozens of manufacturers striving to push their machines to the front, and continually on the alert for ideas that are new and novel. And it goes without saying, that fine mechanical minds must be behind them, for improvements do not often come by chance, though some are stumbled on.

"There has been no very radical change in the system of wheat cleaning for the past 25 years or more. But what the future may have in store for us is hard to tell, although I have noticed by late files of the Patent-Office Gazette that some novelties in this line have recently been patented. Notable among these are a couple of continuous-air current, self-contained machines, which look as if they might work. Of course, self-contained machines are not of much recent date as to cause much movement; but their application to grain scouring is quite a novel idea. What a great boon it would be if a thoroughly practical machine of this kind could be gotten up. But can it be done? Ah, there's the rub! In the language of the immortal William, I would say, "If it were done when 'tis done, then 't were well it were done quickly." For, even if they should do no better work than the machines now in use, their cleanliness would insure their adoption.

"Almost every other branch of the milling business has undergone a wonderful change in the last few years. Buhns, which were once the very poetry of motion, and considered almost as stepping-stones to advanced civilization, are things of the past, and are now often used as stepping-stones to many a mill's lack door. The hexagonal reel has lost its prestige and been relegated to the dark some garret of the old mill, while in its places are novelties innumerable. Air currents have been called into requisition to aid in the purification of flour, with marked success, and the wheery old dust house, once a necessary adjunct to nearly every mill, and which for years has blown forth its blighting blast, polluting the neighborhood with its filth, has about breathed its last, and will soon be forgotten. Again I ask, why have we not had some new ideas advanced in grain cleaners?"

We have a notion that the man is about right who said "Lack is ever waiting for something to turn up; labor turns things up for itself."

THE THREE-SKINNED THEORY OF WHEAT.

IN the October MILLER we reprinted from the London, Eng., Miller, a dissertation by one "Jackstick," giving from the writer's point of view a description of the structure and physiology of a grain of wheat. Prof. W. A. Thoms, in a later Miller, criticises "Jackstick" position somewhat severely. He views with considerable scepticism the three-skinned theory of wheat bran, as promulgated by "Jackstick." He says "I can not agree with this theory, which it is claimed photo-micrographs demonstrate. The demonstration I rely on is dissection, under low micro objectives and medium high eye-pieces, of the tissues of the ovule or floret (not berry, before and after fertilization. Before fertilization I make out five distinct tissues ... after fertilization only four tissues. 1. The colorless epidermis, consisting of three distinct separable tissues. 2. The green-colored tissue, consisting of elongated cells filled with green chlorophyll corpuscles, which I call the algoid tissue, and regard all the rest of the colorless tissues of the plant as fungoid and parasitic on the alga. 3. The color tissue proper of the mature grain, more or less red, or without color, or a faint yellow, dividing varieties of wheat into red, white and amber. Below this tissue there is another, colorless, the testa, but both may rank one. 4. The cerealine tissue which "Jackstick" might have credited to M. Mege Mouries as the authority for the description of it. 5. The tissue is inside of the cerealine tissue. At the time of fertilization the fifth tissue breaks down wholly or in part, and the free nuclei of the broken-down cells develop into the sacs of the endosperm. This view was held by the late Prof. Burn, and described in a milling contemporary. It is correct, I have proved it. The same is true as to the information of the pollen of wheat. The inner tissue of the anthers break down and the nuclei form into pollen grains.

"The statement that 'the development of the wheat berry after fertilization consists in the formation of starch, then gluten, and lastly cerealine,' is erroneous. Proteids are first formed, to enable the free nuclei of the fifth broken-down tissue to develop into the large sacs of the endosperm. As these sacs grow, new nuclei arise within reach of them. These nuclei are seen to contain minute round bodies—these are amyloplasts and at this stage consist of pure protoplasm. The amyloplasts grow until they burst the nucleus or parent cell, and are free in the large endosperm sac. Here they grow fast and, acquiring a cellulose skin, convert their protoplasm into starch. The gluten, in the form of a single large ameboid body, is forming at the same time. The cerealine is formed simultaneously with the endosperm, and the cerealine cells increase by sub-division with the increase of the endosperm. This increase of cerealine cells and cerealine continues until the bran tissues are ripe and stiff, which is before the sugar and nitrogenous amides have ceased to be deposited in the endosperm, to be re-formed there into starch and gluten-proteids. Hence there is less cerealine in proportion to endosperm in dead-ripe grain than in grain cut before it is ripe. "Jackstick" states the direct contrary. "The farmer, he tells us," chooses the time for cutting his wheat so as to have the most gluten and the least amount of cerealine as possible." Does the reader know a farmer who so reasons? I do not. "Jackstick's" farmer's "reasons for this is that, after the gluten has become developed, the stage for producing the 'destructive element' sets in, and the wheat is cut before it is ripe in order that the 'destructive elements'—cerealine—may not increase too fast." All of which I regard as mere imagination, as is his description of the endosperm of wheat. It "consists," he says, "of gluten walls, between which is packed starch; the gluten is arranged in a fine network which extends to the center of the berry." The gluten walls and networks he refers to are the cellulose walls of the endosperm sacs. The protoplasm of each sac, on which starch is lying, is the gluten, but it is not in the form of network, unless the cut and moist section, examined under a microscope, has been moved about and the gluten pulled and twisted into filaments. The photo-micrographs which illustrate "Jackstick's" article show a network of cellulose walls, not gluten.

"PATENT" FLOUR DESCRIBED.

WRITING on "patent flour" in the Mechanical News, Mr. R. James Abernethy says: Outside the circles of the industry but very few people understand what is meant by "patent" flour, although all, or nearly all, are familiar with the name and also the flour. Many suppose that the flour was originally patented, and hence the name. That is not true, as no patent has ever been taken out on that kind of flour or on any other kind, so far as is known to the writer. Attempts have been made to patent processes of making flour, but none have proved entirely successful.

The so-called patent flour is made of what is known as the "middlings," a necessary product in the reduction of wheat to flour. Formerly the middlings were very objectionable to millers, because of the impurities contained in them, and all efforts were directed against their production or to reduce it to a minimum, because the flour made therefrom was of an inferior grade compared with the flour of the first grinding. Such was substantially the status of the flour-making industry in that respect, some twenty odd years ago, when the purifier, a machine for separating the impurities from the middlings, was introduced and, like all other machines, patented. So novel was it at that time to have a really new and patented device in a flour mill that the middlings flour was hereafter misnamed patent flour, because the stock was dressed on patented machinery. Such in a very small nut-shell is the history of patent flour.

It is not so much in the chronology of patent flour that interest now centers as in its effects upon the industry. As stated, middlings making is to an extent the necessary result of flour making, as by no known process can flour be made without producing a greater or less middlings, depending on the character of the wheat, whether it be hard or soft, soft wheat making the least, and hard wheat the greatest quantity. The invention of the purifier would have been of inestimable and lasting value to the flour-making industries, had a logical, conservative and legitimate course been followed by the flour-makers by running their mills for the original purpose of making flour, as had always been done, and used the purifier for dressing the necessary middlings product only, or at least not more than a reasonable average product; but they did not. On the contrary, so elated were all at the marvelous change in the middlings flour and the commercial importance that it immediately assumed, that a desire seized the hearts of all largely and, of course, illegitimately to increase the quantity. The result was that flour-making as a primal factor was abandoned, and middlings making took its place.

While grinding with stones, middlings making could not be pushed to the desired limits, especially with soft wheat, nor yet with hard wheat, although the hard-wheat spring-wheat millers had much the best of it. Before this important change was made, spring-wheat flour regularly took its position in the rear on the line of commercial values, whereas immediately after it took the lead, to the great astonishment and consternation of winter-wheat millers. The buhrs, not coming up to the requirements of middlings making, were supplanted by tolls, and thus the struggle to increase the middlings output was renewed with increased energy and determination; and to such an extent has the matter been pushed that the quantity of middlings flour made in mills, the products of which follow the channels of commerce and seek a market in the great marts of trade, is now about two-thirds of the whole, against less than one-third in former years.

The result of this illegitimate practice is that the remaining one-third has been so deteriorated in quality as to have no commercial standing and is a constant source of loss to the makers. The relative value of the one-third of lower grade flour is less now than was the relative value of the one-third or less of middlings flour a quarter of a century ago, and, therefore, the condition of the flour-making trade is much worse now than then. It is in reality a "condition and not a theory" that confronts the flour-makers to-day. One or two courses must be pursued. They must either discover a means

for purifying and bringing the one-third of low quality up to about the standard of high grade, or reverse methods and go back to the first principle of flour-making, regardless of middlings making. One or the other is inevitable, and the sooner the gravity of the situation is realized, the better will it be for the trade.

BOILER EXPLOSIONS.

By E. W. LOCKWOOD, IN "TRADESMAN"

THE fundamental cause of explosion in steam boilers when traced to its origin is most generally found to be the result of foul and dirty boilers. By reason of mud, sediment and scale, the engineer is unable to properly secure the results desired, he must consequently force things, and as a result the shell of the boiler is overheated, expansion causes scale to give way, and the water striking the overheated plates creates a reaction which suddenly produces a strain upon the boiler. Something must give way and an explosion is the result. All this is due to the fact that the boilers were foul and in an unfit condition to do the work required of them. I lay down as a text this one fact: keep your boilers clean and you will have overcome the primary cause of explosions.

The world is constantly securing the results of brain energy of thinking men; improvements are daily being made; there is a constant and steady advance along the whole line of mechanical construction, which in the past decade has been so great that it is almost impossible to enumerate. Those improvements and inventions which have secured the most satisfactory results have been the simplest in construction and operation, and comparatively inexpensive to the user when the risk and loss of time are fairly considered.

One of the simplest in construction and operation for use in steam boilers, and the only one which will keep steam boilers absolutely clean and furnish pure water, has passed beyond the era of experiment and is an accomplished and recognized fact, and is the only appliance in the world which does and will do complete work to this end. Such an appliance is of inestimable value to the engineer, as it enables him to have complete control of his boiler and secure from it the best results possible and that without risk or danger.

The boiler being kept clean gives to the engineer a sense of security which he can never feel when operating foul and dirty boilers, and the time is not far distant when the demand for security from loss and risking of lives of engineers will become so strong that the proprietor of any establishment, who, from a miserable parsimoniousness, shall fail to have the life of his engineer properly protected in this and all other directions, will be looked upon by all right-thinking citizens as a criminal, and I am much mistaken if he shall not be so considered under the law.

TO COVER SUCTION PIPES.

IT is a very good plan to cover the end of the suction pipes to pumps or injectors, and, in fact, it is very necessary in most cases, unless the water is very clear, as it does not take much to clog up an injector, especially a small one. But do not make the mistake of putting a flat screen over the end of the pipe, as this does not give opening enough for the water to flow through. This must be very plain when we think the wires of which the screen is made occupy a portion of the space that the pipe covers and, besides this, there is the friction of the water passing through the numerous holes through the screen, which is considerable if the water is passing at a great velocity. To be sure, at slow speed the friction may not be noticeable, but as the speed or velocity increases, it is very noticeable and must be taken account of or trouble will ensue from not having sufficient water for your pump or injector. The best form of a screen in a place of this kind, and the one recommended by injector makers, and others in similar business, consists really in a hemisphere of brass wire netting, the diameter of which is the same as the pipe which it covers. This makes a very cheap screen and one which gives a good margin for the friction of the water and for the clogging up of the holes in the screen by floating particles of dirt in the water.

VIEWS AND INTERVIEWS.

Sweeping Out a Flour Mill.

A writer in the St. Louis Miller gives some advice to milling apprentices, wherein he remarks that as those commencing to learn flour milling begin usually to sweep only, even here there is ample scope for those who possess real intelligence. Thus having remarked that the first great qualities in the make up of successful millers are observation, application, industry, continuity and economy, he goes on to observe a boy who is too trifling to do a good job in sweeping, will never make a good miller, and then particularising, the same writer observes you notice a collection of black dirt on the floor underneath gear wheels. On looking at it closely you find it to be cast iron cuttings from the above wheels, you know it is not right, you report it to the miller on watch, the trouble is corrected, and you get to see how it is done. And from that time on you rise in the estimation of the miller, he knowing that on whatever floor you may be, and whatever you may be doing, that you are on the alert to prevent trouble and help run the mill. It is the old story of whatever is worth doing at all is worth doing well. And the lesson is one no boy should forget.

Skimmed-Milk Flour.

Take the cream off an article and the residuum becomes of a skimmed-milk character. So we remark sometimes, referring to the work of another, that he has taken the cream of the job. Speaking of the lowering of the standards of spring wheat by making 75 per cent. patents, a practice common enough among millers in some of the Northwestern States, and methinks elsewhere too, a jobber has said: "Flour is like milk: there is only a certain proportion of cream in it, and the closer it is skimmed, the poorer is the cream, as well as is the milk that is left. The patents are the cream, and the bakers' extra the skimmed milk. Formerly only 40 per cent. patents was taken off, which was full cream, leaving a good strong extra, both of which became favorites in the trade, the former for home use, the latter for export. But since the custom of taking 75 per cent. patents became so general, the extras are no longer a favorite export grade, except at a very low price, as they have neither strength nor color, while the home trade are largely going off the spring patents on to straight winters or blended patents, because such a large proportion of the former are milled so fine to give color to the middlings now left in patents that they also lack strength and color, and neither make good bread nor pastry. It is extremely difficult to get good spring patents any more."

Bleeding Bread.

Says the London, England, Bakers' Times: A curious phenomenon known as "bleeding bread" appeared in England during the recent hot summer. In the old days this would have been regarded as a portent of evil, but we have changed all that, and the matter has been investigated, and the ghost finally laid by Dr. M. C. Cooke. The earliest scientific account of "bleeding bread" is dated 1819. A peasant of Liguara, near Padua, was terrified by the sight of blood stains scattered over some polenta which had been made and shut up in a cupboard on the previous evening. Next day similar patches appeared on the bread, meat and other articles of food placed in the same cupboard. It was regarded as a miracle, until the "blood stains" were shown to a naturalist, who recognized the presence of a microscopic plant. In 1848 Ehrenberg saw the same object and referred it to the animal kingdom under the name of *Monas prodigiosa*. In the same year Montague saw it on cooked fowls and vegetables. He regarded it as an algoid, and gave it the name of *Palmella prodigiosa*. The first record of its appearance in Great Britain was Bristol in 1853, when Mr. Berkeley, the authority to whom it was submitted, regarded it as a fungus. Under a simple lens the Bristol plant appeared "to consist of a gelatinous substratum of a pale red, bearing an upper layer of a vivid red hue, having an uneven or papillated surface." The microscope showed this stratum to consist of generally, globose cells immersed in or connected by mucilaginous or gelatinous matter. It propagated itself by spurring a jet of red particles, and by this

method the extraordinary rapidity with which a large surface became covered was explained. About 1386 an epidemic of "bleeding bread" appeared on the continent. Pieces of cooked meat presented a singular carmine-red coloration. These phenomena prevailed regularly for a period of three months and then, coincidentally with a sudden and considerable fall in the temperature, ceased and did not reappear. In spite of the frequent appearances of "bleeding bread" naturalists are not of one mind as to the precise name and class of the organism. According to some it is *Micrococcus prodigiosus*, while others regard it as *Bacillus prodigiosus*. Is it not possible that some of the bleeding relics which aroused the wonder of the Middle Ages were due to this organism?

HEATING BY EXHAUST STEAM.

THE idea is very prevalent that it is expensive to heat a mill or factory by exhaust steam, says a paper devoted to steam matters. By this we mean that many mill owners, superintendents and shop hands believe this to be true, and this belief is founded on the fact that it is often expensive in practice; but we maintain that where this is the case it is due to an improper application of the system and not because the system itself is defective. A few days ago we indicated an engine where the whole of the exhaust steam is used for heating the feed-water. Under these conditions there is but one pound back pressure above the atmosphere; and even with a heavier load this was increased but little.

At not a very great distance from where this engine is located there is another, where the exhaust from it is used for the same purpose, but in this case the back pressure amounts to nearly fifteen pounds above the atmosphere, simply because the arrangement of the pipe is defective. The idea is that the exhaust steam must have free access to the atmosphere, and where the pipes which convey it do not incline downwards from the engine, suitable drips must be provided. If this is done, it matters not whether the exhaust pipe is ten feet or 5,000 feet, so far as creating a back pressure is concerned. When some men put up pipes for steam heating, it seems to be one of their objects to save in the first cost of pipe as much as possible, without much regard to what the results will be when they come to put them to practical use. This is worse in the case of heating by exhaust steam, for a small exhaust pipe means unnecessary back pressure, and this in turn means an increased forward pressure on the piston, which means more steam used, and more steam means more fuel, which costs money. Thus we can reason from cause to effect in a way that any one can understand if they will give it a little consideration.

Suppose the steam is to be carried from the engine room to the mill where it is to be used, the distance between the two buildings being 50 feet. Now, if we are to use live steam, the pipe in this open space should not be any larger than is actually needed to convey the necessary amount of steam, in order that the passage may be made as quickly as possible, to avoid excessive condensation; but if exhaust steam is to be used, then the pipe should be as large as the size of the cylinder calls for, or else the increased back pressure will far overbalance the benefits derived from a rapid passage of the steam. In either case they should be well protected from the cold air.

Valves and elbows are an obstruction, as a matter of course, but not to such an extent as some engineers would have us believe, provided they are large enough for the duty required and the valves have a full opening; or, in other words, if the passage through the valves is equal to the capacity of the pipe. If the exhaust steam will not go through the pipes in the system with a light pressure, study out the cause of the trouble and apply a remedy in an intelligent manner.

GRAIN BY WEIGHT IN ENGLAND.

THE select committee appointed to inquire and report upon the various weights and measures for the sale of grain throughout the United Kingdom, which sat at the end of the session of 1891, and was reappointed in 1892, have completed their labors and issued their

report. The conclusions arrived at by the committee are as follows: 1. That the sale of grain by weight is a better method than by measure of capacity; that it is fairer and less likely to lead to dispute; more convenient and in practice is now very generally adopted, by the custom of using the so-called weighed measure. 2. That the present system of sale by a great variety of weighed measures is objectionable and misleading and should be discontinued. 3. That the best method is to adopt one weight for the standard of reference for sales of all cereals. 4. That the one weight to be adopted should be the hundredweight of 112 imperial pounds. 5. That this weight should be adopted throughout Great Britain as it is already by law in Ireland.

The committee therefore recommend: 1. That the sale of all cereals and the products thereof should in future be conducted in Great Britain, as in Ireland, by a reference to the hundredweight of 112 imperial pounds, and that no other weight or measure of capacity be referred to in any sale; and that legislation should be carried out in Great Britain to give effect to this recommendation. 2. They also recommend that in every case where conversion of weight measure takes place, the weights laid down in Section 8 of the Corn Return Act, 1882, namely, 60 pounds for wheat, 50 for barley and 39 for oats, as the units of conversion for wheat, barley and oats, should always be published in the returns of corn sold in the London Gazette, and a statement made to the effect that the prices quoted in the Gazette are the prices for the quarter of 8 bushels of such statutory weights. The committee recommend, however, that the weight of the bushel of oats should be raised from 39 to 40 pounds.

A RUSSIAN CROP REPORT.

SAYS a late London, England, report: What is stated to be the estimate of this year's crops in Russia by the Department of Agriculture in St. Petersburg, is given by a telegram. It is of a very surprising and depressing character as far as wheat is concerned, for it makes the yield of spring wheat in European Russia 40 per cent. above an average, and puts the total crop at 41,947,000 quarters, 10,560,000 quarters of winter wheat and 31,387,000 quarters of spring wheat. These figures are so extraordinary as to require confirmation before being accepted as final. If they be true, it will mean that, with Poland and the Caucasus added, Russia has this year produced 53,000,000 quarters of wheat. The previous heaviest crop on record was in 1888, when Russia and Poland produced 39,774,000 quarters, and the Caucasus about 7,500,000 quarters, thus giving a total of over 47,000,000 quarters. The rye crop turns out to be nearly 12 per cent. above an average, 87,820,000 quarters, against 72,950,000 quarters in 1892. The following comparison of the wheat and rye crops in European Russia (50 governments) since 1887 will be found interesting:

	Wheat Qrs.	Rye Qrs.
1893	41,947,000	87,820,000
1892	32,148,000	72,950,000
1891	21,400,000	62,740,000
1890	25,747,000	80,450,000
1889	24,614,000	63,685,000
1888	37,937,000	84,185,000
1887	34,304,000	81,750,000
Average 1893-87	30,310,000	79,530,000

The average exports from Russia in the five years from 1886 to 1890 were 11,570,000 quarters, and in 1892 the exports were only 5,864,000 quarters, owing to the prohibition. The logical deduction from the above comparison is that, unless the figures relating to the spring crop are incorrect, Russia could, if required, supply 20,000,000 quarters for export, her previous highest total being 15,400,000 quarters in 1888.

DON'T PUT IT OFF.

DON'T let anything connected with the boiler in your charge run from bad to worse, with the idea that at some certain time you will have a general overhauling and repairing, because an accident may occur at any moment, involving serious loss of life and property.

AMONG stevedores cotton is regarded as the hardest to stow and railway iron as the easiest.



PUBLISHED ON THE FIFTEENTH OF EACH MONTH

BY ARTHUR G. MORTIMER

75 CANADA LIFE ASSURANCE BUILDING
TORONTO, ONTARIO

TERMS OF SUBSCRIPTION:

One Copy One Year, in advance

One Copy Six Months, in advance

Foreign Subscriptions, \$1.50 a Year

\$1.00

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ADVERTISING RATES FURNISHED ON APPLICATION

J. S. ROBERTSON, EDITOR.

THE CANADIAN MILLER AND GRAIN TRADE REVIEW caters to the Miller and all his associations, and to the Grain Dealer with all his allied interests.

The only paper of the kind in Canada, containing full and reliable information on all topics touching our patrons, and unconnected as an organ with any manufacturing company, we will always be found honestly and earnestly endeavoring to promote the interests of our subscribers.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

RECIPROCITY IN BREADSTUFFS.

By the time these lines will have been placed in type the Executive of the Dominion Millers Association will have held a meeting to consider the probable effects upon Canadian trade of the United States tariff, making breadstuffs free, "except," as the clause of the Wilson bill reads, "when imported from countries putting duties on our like products in which case the duty is 20 per cent." In a word the old question is revived: would reciprocity in breadstuffs be a good move for Canada? The answer already made by some millers is a reference to the condition of milling in the years gone by when reciprocity in trade with the United States did prevail. Milling at that time was no doubt a prosperous business. Where profits are hard to find these days the miller did know something then of doing business for profit. The farmer looks with longing eyes to the market he possessed for his products when reciprocity was the commercial policy of the country. And more than one miller has said: Give back to us these opportunities for trade that existed then and the milling industry will no longer remain in a depressed condition. As the cartoonist, Bengough, puts it, "no encumbrances and a clear track," is all that some millers are asking for.

But all millers do not survey the situation alike. There are those who view with considerable alarm the possibility of free trade in breadstuffs. When the years of a reciprocity treaty are pointed to, the reply is that conditions to-day are much changed. The United States miller buys his wheat on an average from 10 to 12 cents a bushel better than the Canadian miller. Take, for example, Detroit as a point of comparison, wheat at the interior there is always bought less than it is at an interior point in Ontario. The Dominion Millers Association at their meeting of August, 1892, fixed the amount of wheat necessary to make a barrel of flour at four bushels and forty pounds. Calculate on this basis a difference of 10 cents a bushel on wheat, and it must be admitted the Canadian miller will be seriously handicapped in competition with his neighbour across the border.

A more serious difficulty than the difference in price of wheat, is, it is contended, to be found, in the excess of freight rates in bringing the wheat to the miller's door and then shipping it out again to some point in the United States. No miller, whose product runs into figures worth naming, can secure sufficient wheat in his own locality to keep his mill running. He must buy at outside points. He will be buying Manitoba wheat. Say his mill is located in Toronto. He will bring this wheat from North Bay, probably, to Toronto. Buffalo, under reciprocity, would, perhaps, be the objective point. With freight rates against him at the best, and extension of distance caused by the necessity of first bringing the wheat to his mill and then shipping it

out again, we leave it to the Ontario miller to calculate what his flour is going to cost him by the time it is laid down in the American market and has come into competition with the product of the United States mills. Whether any like hindrances, or to nearly the same extent, will meet the Buffalo miller who may want to place his flour in Toronto, is another point for the Ontario miller to consider.

Methods of doing business have not a little to do with the success or failure of business in almost any line, and the methods vary according to conditions in different communities. The Ontario miller sells his flour for cash. With the shipment to his customer a draft is made to which is attached the bill of lading. The banker and the miller are both protected should the customer for any reason default on his shipments. The custom, so it is claimed by Canadian millers, in the United States, is to sell flour on 30 and 60 days' credit. Whether Canadian bankers would be ready to first advance the cash to buy wheat, and put up the money again when the wheat should go out as flour is possibly a matter that would call for serious consideration.

There can be no two opinions that the Canadian miller to be successful must find an export outlet for his flour. Mr. N. H. Stevens, of Chatham, was right, when, in discussing the question of "Competition in flour selling," at the last annual meeting of the Dominion Millers' Association, he said, "The remedy for the evil was to be found in an extension of our markets." It is open to discussion, however, to what extent, if at all, reciprocity with the United States would be the means of giving Canadian millers a profitable extension of these markets.

We do not pretend to have nearly exhausted the subject, either pro or con, but have placed certain points before our readers hoping that these may provoke an expression of opinion from them.

PURCHASING POWER OF WHEAT.

A low price for an article to-day, compared with what may have been obtained at some former period, does not always mean a depreciation in value. It is possible that \$1.00 to-day may be worth as much as was \$1.50 five years ago. The Commercial, of Winnipeg, reads the farmers of Manitoba a lesson in political economy along these lines. Remarking that the value of a commodity is its purchasing power, our contemporary points out that the purchasing power of a bushel of wheat is greater than it was ten or twelve years ago. Wheat at 40 to 50 cents per bushel is worth as much to the Manitoba farmer to-day as it was ten or twelve years ago at 75c to \$1.00 per bushel. "The bushel of wheat will to-day go as far in purchasing his necessities and supplying his needs, as the bushel would some years ago when the price was high, and when the industry of wheat growing was considered very profitable." This contention is illustrated as follows: "Binders sold some years ago in Manitoba as high as \$350 each. It would take about 466½ bushels of wheat, at 75c per bushel, to buy a binder in those days, and a mighty poor machine at that was secured. Now an infinitely superior machine can be purchased at about \$130 to \$140 on time, and the ready cash will buy them even lower. At 45c per bushel it will take only 311 bushels of wheat to buy the farmer a first class new binder, on credit, making a saving of about 155 bushels. In other words, 311 bushels of wheat at 45 cents per bushel, is worth as much to the Manitoba farmer to-day as 466½ bushels were some years ago. We could go on and multiply examples by the column, of this nature, but it is not necessary to do so. What is true of binders is true in a greater or lesser extent of about everything the farmer requires."

This method of argument is not new, but it is none the less economically sound, and like many trite statements it is one that calls for constant reiteration. Some months since the MILLER published an interview with a prominent miller in western Ontario who argued that farmers to-day in Ontario with wheat down to 57 and 60 cents a bushel, were making as much money as when prices were from 85 cents to \$1. This argument was applied not only to the greater purchasing power of wheat, but to a lessening of the cost of production of wheat, in con-

sequence of improved machinery, and more intelligent and efficient methods of farming.

A reply to all this may be: Why is there so much depression and hardship in the farming community to-day? Farmers, doubtless, are hard up, but is their condition worse than that of the merchant, the manufacturer, or in fact of anyone engaged in almost any of the vocations of life, agricultural, mercantile or professional. There is a general cause that is affecting commerce as a whole and preventing the wheels of finance from running as slick as we would all wish. Politicians say the fly in the ointment comes from unworkable tariff conditions, and it seems more than likely that things are wrong in this particular; for others besides the politicians are talking of tariff troubles.

EDITORIAL NOTES.

A BY no means uncommon and well-grounded complaint of millers is voiced as follows in the *Empire* of a day or two since: "Considerable complaint is heard from the millers regarding the rates given by the railways to exporters of wheat. The millers say that they are unable to get any wheat, and have been unable to get it for some time, owing to unjust discrimination. They claim that the through rate to Liverpool discriminates against flour and in favor of wheat equal to 15c. per bbl. of flour."

A NOVEL scheme has been hit upon for virtually prolonging the lake shipping season for the Duluth flour mills by several months. A whaleback is being tied up beside each mill at the head of the lakes, and the additional capacity thus secured, amounting in all to about 300,000 barrels, will be utilized in February and March, to hold the product of the mills and avoid paying rail freight, saving some 20 cents on every barrel. It is expected that if the experiment is successful, vessels may be used every year to thus store the flour.

A LOCAL contemporary can see no escape from the present depressed prices of wheat except for farmers to devote themselves to a greater extent than they have yet done to other lines than wheat raising. This lesson is based on figures like this: "In 1892 the estimate yield of the world was 288,000,000 bushels in excess of the figures given for 1889. The increase in the case of Chili was 5,386,000; the Argentine Republic, 18,000,000; the United States, 35,000,000; Hungary, 44,000,000 and Russia 53,000,000." And yet the paradox is that thousands are starving for want of wheat bread.

A LEADING cooperage firm of Michigan has this to say about the proposed abolition of the duty on Canadian staves: "The Canadians already have an advantage of 5 and 8 cents per 100 lbs. on staves, by reason of water freights to the northwest, which fully covers the present duty. With cheaper labor, under present conditions they have a decided advantage over our Michigan factories. If the new tariff bill becomes a law, the Canadians can afford to manufacture at a price that we can not compete with. It hardly looks well to buy foreign staves for barrels to pack flour used by our own people, while the foreign market calls for jute sacks only."

THE Department of Agriculture for Manitoba in their latest crop bulletin placed the total yield of wheat at 15,615,923 bushels, an average of 15.56 bushels per acre. The wheat this year is almost free from smut. The amount of wheat already marketed is placed at 9,244,536 bushels, leaving a balance of 6,371,387 bushels still in the hands of the farmers. Of the wheat marketed 6,000,000 bushels have gone east and south as wheat, about 1,000,000 in the form of flour, leaving over 2,000,000 stored in the elevators west of Lake Superior for shipment or for grinding. Of the 6,371,387 bushels in farmers' hands nearly three million will be required for seed and bread; this will leave about three and a half million to be marketed for export. The oats yield is placed at 9,823,935 bushels, and it is estimated that every bushel will be consumed within the province or in the lumber camps to the east. Other yields are estimated as follows: Barley, 2,547,653 bushels; flax, 116,454 bushels; rye, 29,422 bushels.

THE BAKING VALUE OF FLOUR.

By Dr. K. W. KREUSER.

IN spite of the fact that for some ten years scientific research has been closely engaged in the investigation of the gluten percentage of flour, and its supposed connection with baking value, and that the results of these investigations have been made public, many heads are still possessed with the old tale that the mere quality of gluten is the sole factor in the baking value of flour. There are the researches of Professor Maerker, of Halle on the Saale, and Dr. Kreuzer, of Poppelsdorf, near Bonn. Professor Krockner's studies in different kinds of wheat have shown that there is wheat from which it is impossible to get by washing any amount of gluten at all, and that much had been previously demonstrated by Kithhausen. Then there are the experiments of Herr Chr. Sonne, as well as my own, which, I am not tired of repeating, are very far from having made as much way as they should and met with the acceptance they deserve. And yet those researches must attain much wider publicity if we are to at last reach a clear conception respecting gluten and the baking value of flour.

The word gluten is used to designate that yellowish-grey matter which remains as a residue when the starch is washed out of a wheat flour dough. Now the amount of gluten obtained from one and the same flour will vary with the greater and lesser amount of dexterity in the operator, or with the length of time that is allowed to elapse between the kneading of the dough and its washing, or with the temperature of the water used in the doughing.

As, therefore, a greater or lesser quantity of gluten will be expressed according to the process employed, it is clear that the amount of gluten left after washing out of a given quantity of flour can afford no conclusive test of the nature of that flour. As a matter of fact this was soon admitted, and a standard of the baking value of flour was sought not in the gross amount of gluten, but in other properties of that body. On a given quantity of gluten being baked in a special apparatus, the aleurometer, the rise of the gluten was taken as an index to the baking value of the flour. But even this process may lead to erroneous conclusions, because we never get in the gluten exactly the same proportion of water; now it is precisely the proportion of moisture (that is to say, a variable and in itself irrelevant item, as Professor Dr. Kreuzer expresses himself), which is the main factor in determining the degree of spring in the gluten. Gluten will absorb a greater or lesser proportion of moisture according to the length of time it is left about; an internal change will moreover simultaneously take place, as the separate particles of which the gluten consists will be changed under the influence of moisture. It is for this reason that one and the same gluten will give different results when baked at different times.

Bearing these considerations in view the proposition is irrefutable that it is altogether erroneous to draw any conclusion as to a greater or lesser baking value of a flour from the amount of gluten washed out of it, or from the increase obtained by heat in the volume of that gluten. Science and practice have demonstrated that sure and unimpeachable data can never be attained by the said methods, and it is therefore high time that the antiquated proposition about a fixed ratio between the percentage of gluten and the baking value of flour should be at length abandoned.

But of course in establishing this negative proposition we give no answer to the oft-mooted question, "What is the simplest way of determining the baking value of a flour?" By baking value (Backfähigkeit) is understood the capacity of a flour to absorb water and form dough, and then on being baked to assume a greater volume than in the dough. The greater the volume attained by the baked dough, the greater is the baking value of the flour. It therefore allows that to determine the baking value of a flour all that is necessary is to submit a sample of it to a baking test that shall be free of all extraneous conditions. First of all must be taken into account the capacity of the flour to absorb more or less water in doughing. Therefore the test should be based not on the weight but on the volume of the dough, while the increase in the volume of the prepared dough,

must be accurately gauged. It is on these principles that the farinometer invented by me (this is an apparatus for testing the baking value of flour, of which more than a thousand have made their way into all lands) has been designed, and practice has proved its efficiency.

If it be desired to test the baking value of flour, it is above all essential to determine what amount of water it will absorb in doughing. We know that every flour "works" differently (a point which many bakers do not take into sufficient consideration), and that in testing these peculiarities must be taken into account. The more water a given weight of flour will absorb in doughing, the higher will it grade in baking value. When dough is exposed to the heat of the oven, a portion of its absorbed moisture will evaporate, and as water undergoes, on conversion into steam, a large expansion, the dough will be broken up and blow out. A dough that contains a large proportion of water and is elastic is in a more favorable condition for further expansion and increase in volume than a dough that contains less moisture and that easily tears asunder. A dough which has absorbed a considerable quantity of water, is likewise in a state to evaporate largely, and the forces that work to its further expansion are much more powerful than in a dough which, having absorbed less water, has naturally less to evaporate. The capacity for holding water in its dough has its limits in every flour.

From a dough prepared with more or less water, a given volume is separated and enclosed in a vessel, in which (for convenience in measuring) it can only expand in one direction. This dough is now exposed to a temperature corresponding to that of the oven and is baked.

Only one factor can be missed in this baking test on a small scale, namely, the lack of such an aid to the breaking up of the dough as yeast and such like bodies. But this is merely an apparent deficiency. Yeast in baking serves to make a spongy dough; the carbonic acid it generates produces a number of cavities in the bread which afford so many points of lodgment to the digestive juices. The yeast expands (literally throws up) the dough in ratio to the capacity of the latter to retain the carbonic acid that has been generated. It serves for the generation of gaseous matter, and to that end it decomposes a portion of the flour, but it does not bring into play any further properties of that body. Yeast, moreover, is not a constant, but, as one may say, a variable factor; it should be borne in mind that its composition varies greatly—we find in the market beside brewers' yeast samples with 60 per cent. of starch while its percentage of water rises as high as 75. Yeast preserved in a normal summer temperature will be no longer on one day what it was the day before. If we would obtain data for comparison, we must necessarily work on material not subject to vary, for if the factors are not completely alike, it follows that no uniformity will ever be attainable in the results. Finally, to get as nearly as possible to actual bakery work, we should have to use extremely small quantities; it would be requisite to weigh off and work in very fine percentage.

In view of the movement for the reform of grain deliveries, that is to say, to restrict the marketing of grain to such varieties as will yield flour of a given baking value of flour and also of grain is of wide interest. The same question arises after every harvest, for it is well known that the baking value of flour from the new crop (literally new flour) is not above all suspicion (as is the case in this year) and that for many mills the secret of success lies in the suitable mixture of different wheats. The estimation of the baking value of flour will teach us how far we must proceed in that direction.

CURING BOILER INCrustATION BY PETROLEUM.

PETROLEUM, which is one of the most useful liquids in commercial use, has appeared in a new role. It is said that it affords the best remedy yet known for boiler incrustation. The petroleum is either squirted against the inside walls of the boiler after the latter has been cleaned, or it is added to the water of the boiler when full, so that when the water is slowly run off, the petroleum acts gradually on the sedimentary deposit, rendering it so loose and brittle that it can easily be removed by tools, or even by a powerful

stream of water. So far no prejudicial action of the petroleum on the boiler plates has been noticed. It is said that the State Railways Administration in Prussia has adopted petroleum as an incrustations removing medium throughout the whole of its lines.

CORRUGATED ROLLS IN SMALL MILL.

A SMALL out-fit, including not more than three pairs of rolls, should have the break roll corrugated not coarser than 22 and 24, and in many instances 24 and 26 would prove better, says a writer in the Mechanical News. The corrugations, like all short system corrugations, should be round or extremely dull. If convenient to have them made round it will prove much the best plan, but in any case when not round have dull edges to avoid bran cutting. As will be understood, with but one pair of break rolls, the miller must grind very close, or as it is technically called, very low, in order to clean the bran; and in so doing, if the corrugations are sharp, the bran will be seriously cut and comminuted, which will have a very bad effect on the color or condition of the flour. All millers are aware that if finely powdered bran gets mingled with the flour at the start, it becomes next to impossible to ever thoroughly separate them again; the flour feels the taint to the end, and is afterward more or less affected in value when exposed for sale.

PROPOSED CUT IN MILLERS' WAGES.

IT is rumored, says the Northwestern Miller, that in certain sections the mill owners are contemplating a united movement to cut down the wages of operatives, and that in some places this has already been done. In our opinion, such action is exceedingly ill-advised and can hardly fail to lead to future complications which will result in a loss more than equaling any temporary gain which may be in sight. More than that, it will have a most mischievous and widespread effect upon the relations between capital and labor in this industry, which have hitherto been of a singularly pleasant and harmonious character, in marked contrast with the same in other lines of manufacturing. We are exceedingly sorry to see this proposition brought before the milling trade. Should it be carried out to any great extent in any one center, the competition is now so close that others may be forced to follow, and the advantage which the prime movers seek to secure by their short-sighted plan will be immediately nullified. The result will be that the consumer will be the only one that profits by it, and he is already receiving more than full value for what he pays for his barrel of flour.

TRADE NOTES.

THE new Planifier machines, which are being manufactured for Canada, at Stratford, Ont., are evidently growing in favor among the millers. A recent Minneapolis item says: "Only two bolting reels remain in the Pillsbury A. The rest have been taken out to give room for the planifiers. In six weeks, the full system of these machines will be completed. There will then be 91 in the mill."

NOVEMBER has been an especially busy month with the Waterworks Engine Works Co., Brantford. In addition to four large marine boilers, they have received orders for four complete circular saw mills, from 30 to 75 h.p. each. Four single sets of saw irons, ten chopping mills, three under runner mills, one Prescott direct acting steam feed and three Allis hand mills, with their attendant machinery; one Veneer machine, two shingle machines, one pulp wood outfit, and a number of export orders. The company have also made arrangements with the W. E. Hill Co., of Kalamazoo, to manufacture their steam mill specialties.

PERSONAL.

THE marriage of Mr. Emile Dube to Miss Isabella Lemieux, of Fraserville, Que., is announced for the 15th of January. Mr. Dube is the active member of the well-known firm of Dube & Fils, flour merchants, Fraserville, Que.

THE late W. H. Howland, ex-Mayor of the city of Toronto, who died from pneumonia, following a gripe, on 12th inst. was an active member of the firm of W. P. Howland & Co., grain merchants. He was a man of large sympathies and great capacity for work. His death is a heavy loss to the business community, he having been actively associated with various commercial enterprises. In 1874 and 1875 he was president of the Toronto Board of Trade, and had also been president of the Dominion Board of Trade. He was a director of various mercantile companies, and at the time of his death he was vice-president of the Millers' and Manufacturers' Insurance Company. He took a very active part in religious and philanthropic work, and died, it may be said, beloved both by rich and poor.

Advertise in CANADIAN MILLER. It pays.



The particular purpose of this department is to create an increased market for Canadian mill products—flour, oatmeal, cornmeal, rolled oats, pot barley, brose meal, split peas, etc., at home and abroad. The interests of the miller who grinds the grain will have a thoughtful consideration. Any matter that is likely to lead to an improvement of conditions in the local market of any of the various provinces of the Dominion will be carefully considered in this department. A close study will be made of the foreign markets with the aim of further developing the Canadian export trade. The Millers' Association covers very effectively the field of flour handlers and buyers of mill products, not only within the borders of the Canadian confederation, but in Newfoundland, the West Indies, Great Britain and other European centres. This department will be made valuable to them in discussions of the conditions of the market in this country, reliable market data, the manufacture of mill products, methods of transportation and shipping intelligence in its bearings and relationship to the milling industries. We invite correspondence from millers, shippers and buyers on any matter touching these important questions.

CUT IN FLOUR RATES.

THE story of a cut in flour rates between milling points in Ontario and Boston is told in a recent issue of the St. John Sun. "The winter rate on flour from Ontario milling towns to St. John and Halifax," says our contemporary, "is 55 cents. This rate is charged by both the Canadian Pacific and Intercolonial railways. But the railways connecting the Ontario milling towns with Boston have made a special rate on flour for shipment east from Boston, which low rate enables St. John dealers to get flour delivered here at the present time somewhat below the all-rail rate. A quantity of flour is shipped from Boston to small Bay of Fundy ports. The low Boston rates would make it extremely difficult for St. John houses to re-ship flour received here by rail to customers on the other side of the bay. They were, therefore, in the habit of ordering it shipped direct from Boston to the smaller ports. The Canadian Pacific some time ago met this difficulty by making a special rate on flour brought to their Carleton terminus for shipment by water. The rate on such flour was placed at 42 cents, or 13 cents lower than the freight on flour delivered on this side for reshipment by rail. This movement transferred the point of distribution to this port, and has led to a considerable business in shipping flour from Sand Point. It is said the rate was a cent or two in favor of the Boston route, but the St. John houses were glad to give their own port the preference to that extent. Of late, however, the rival route has made another cut of seven cents. A barrel of flour may now be brought from Guelph or Galt to Boston and thence to St. John for 33 cents. It is rather expected that the Canadian Pacific will meet this cut and hold the business. Such at least is the hope of the flour dealers here."

SACKS VS. BAGS.

At a recent meeting of the National Association of British and Irish millers held in London, Eng., a discussion that became both lively and prolonged took place on a resolution to alter the weight of sacks of flour from 280 lbs. to 140 lbs. Though one speaker remarked that the matter did not require five minutes discussion, it is to be observed that in the report of the meeting in the London Miller more space is given to this subject than to any other, impressing an onlooker with the idea that it was the burning question of the convention.

We are always interested in the conservatism of English business methods. This conservatism has doubtless been a safeguard from danger in many times of trouble. Where the people of this western continent rush in, sometimes it might be said, where angels fear to tread, the conservative and cautious Englishman makes sure, usually, of the ground on which he has trod before he takes a fresh step in advance.

But where we are often interested in our English friends is in the tenacity with which they hang to minor methods of business, contending for their perpetuation as though some great principle were at stake. We see this illustrated in the discussion that took place among the British millers on sacks versus bags. London bakers, of whom there are seven or eight thousand, who employ probably 14,000 men, have been bringing pres-

sure on the millers to make the change. They are not over-strong men, physically, many of them, and the labor of moving and shifting a 280-lb. sack is heavy. Against this contention there was presented to the association a petition signed by 170 carmen, who have much to do with the unloading and handling of the flour, and they said: "We have no difficulty in carrying the 280 pounds and the alteration would add seriously to our work." This somewhat offset the humanitarian argument that had been used with a good deal of force in favor of the 140-lb. bag, albeit that one speaker remarked that the carmen feared that "there is a danger of their livelihood going." By another speaker it was said that "it would cost a great deal more to pack flour in 140-lb. bags than in the case of a sack of 280 lbs." The same speaker thought that the ideal package was one of 224 lbs, which any man could carry. A reply to the last contention came from a London miller who maintained that the life of a bag was about twice that of a sack. Where the proposed change hit others was in the fact that the bakers were demanding the change and ye miller was not so sure that he should listen to any dictation from that source. So the British miller labored, we would suppose from the size of the speeches, for several hours, discussing the question from the financial, economic, physical and humanitarian point of view. The original resolution, which was to fix the 140-lb. bag as a standard of the association, was finally withdrawn, and the following substantive resolution carried: "That the members of the British and Irish Millers' Association are fully prepared to deliver flour in bags of 140 lb, or any other weight, when desired to do so by their customers at the time of purchase."

We cannot but view the matter from this side of the water as a simple affair, and as we look at it there would seem to be little doubt that in a short time the 140-lb will become the universal custom in Great Britain, and John Bull will wonder why he had not got there sooner.

BRITISH OPINION ON FLOUR.

A GLASGOW firm, writing to David Plewes, the British agent of a syndicate of Canadian millers, residing at Liverpool, states that stocks of flour in the United Kingdom are far too heavy, heavier than the statistical authorities give them out to be. Beerbohm says that the stocks of flour and wheat in the hands of importers in the United Kingdom are 4,000,000 quarters. We believe that five is under the mark. Supplies in the States are also excessive, and if Canada has not shipped any of her surplus yet, as you think, that is more that has yet to be dumped on the European markets. It looks as if Russia alone would be able to supply all the United Kingdom needs between now and next American harvest. Indian shippers seem to have been pursuing the same course as Canadian, as although they reaped a heavier crop there last March and April than they did the previous year they have shipped very little, holding it back expecting higher prices later on. Then South America and Australia have the promise of a very bountiful harvest.

CURRENT COMMENT.

The Spanish miller is given two meals a day by his employer. That is more than the miller gets in this country, but lest some of our readers should be incited by this to emigrate to Spain, we will add that a miller's wages in Spain are but 40 to 50 cents a day.

The story is told of a speculator in wheat, on whom fortune did not shine, who bought 2,000 barrels of pork on margin in Chicago, and, finding the value declining, gave up eating any kind of meat but pork, thereby doing all in his power to diminish the quantity and so advance the price. It is suggested that producers of wheat and flour and bread in this country might adopt a similar method as a means of reducing the visible supply of their products.

Liverpool, says "Milling" of that city, is, perhaps, alone as a great milling center in the fact that none, or very few of its leading mills, are situated directly upon a railway or canal. In many other towns thousands of pounds have been spent to secure such situations, but in Liverpool many leading mills still occupy the sites of the old wind-mills, and the numerous and almost inestimable

advantages of direct communication have been unseen or ignored.

It is an axiom as trite as it is true, that good work is only done with difficulty, if at all, with the surroundings and conditions largely antagonistic to such work. The best workman will require more than the ordinary share of enthusiasm to enable him to do first-class work in a mill unheated, when the thermometer outside is varying several degrees below zero. A contemporary forcefully remarks: "Operatives numb with cold are not likely to give as close attention to their work as they would were the mill not uncomfortably cold. The office stove has a strong attraction that is hard to resist. The machinery will not bear as great strain or give as good results when run in a very low temperature." And there is no reason why mills attempting to do business in a climate like that which Canadians enjoy should not be heated.

The heavy shipments of flour from this side of the Atlantic that keep going into Great Britain are proving a constant source of concern to the miller and bakers of that land. The British and Foreign Confectioner, London, attributes the present depressed conditions of the market to the bringing in from America of large quantities of low grade flour and "Red Dog," which cannot be made into bread, and is only fit for stock feeding. "This class of flour," says our English contemporary, "comes into London in large quantities, and, as it is reckoned by merchants of the United Kingdom as flour for bread purposes, it depresses the markets to a greater extent than it would do if the returns showed exactly what it really was. Prices of different flours are affected by the figures, or rather the amount of flour said to be in hand or afloat, when in reality much of it cannot properly be designated as flour in the sense of a bread-making article."

THE FLOUR MARKETS.

THE last month of the year comes upon us with little activity in flour markets. A fair demand exists for domestic uses, but nothing very large in orders is coming to hand. Export business is dull. Offers are being made, but at a price that means no profit, and not unfrequently, would represent a loss to the miller.

PRICES OF FLOUR AND MEALS.

TORONTO.—Car prices are: Flour (Toronto freights), Manitoba patents, \$3.65 to \$3.75; Manitoba strong bakers, \$3.50 to \$3.60; Ontario patents, \$3.10 to \$3.20; straight roller, \$2.75 to \$2.85; extra, \$2.50 to \$2.75; low grades, per bag, \$4. Bran, \$1.5. Shorts, \$1.4 to \$1.50. Flour and Grain Trade Bulletin of the Dominion Millers' Association says of Ontario flour: "Sales—Straight grades at \$2.75 to \$2.80 west, and \$2.90 east; and 90 per cent. patents at \$2.80 to \$2.90, and 80 per cent. at \$2.50, f. o. b. for Lower Provinces. Bran, \$1.1, \$1.2 and \$1.50. Shorts, \$1.3, \$1.35 and \$1.75. Bran, good demand."

MONTREAL.—Quotations: Patent winter, \$3.50 to \$3.70; do. spring, \$3.60 to \$3.80; straight roller, \$3.00; extra, \$2.65 to \$2.85; superfine, \$2.45 to \$2.65; strong bakers, \$3.40 to \$3.50; Ontario bags, \$1.35 to \$1.55. Oatmeal, \$2 to \$2.10.

HALIFAX, N. S.—Flour market, dull; Hungarian patent Manitoba, \$4.50 to \$4.75; Manitoba strong bakers, \$4.10 to \$4.30; Canadian pastry, \$4 to \$4.25; 75 per cent. roller patent, \$3.80 to \$3.90; 80 per cent. do, \$3.60 to \$3.75; 90 per cent. do, \$3.40 to \$3.60; straight roller patent, \$3.20 to \$3.40; superior extra patent, \$3.10 to \$3.20; extra, \$3 to \$3.10.

The New York Commercial Bulletin of recent date says: "The supply of buckwheat flour is so small and demand so good that adulteration by country mills with white corn flour is charged by the trade against some of the stock now arriving. Sales, 700 bags at \$3.20 to \$3.25; 20,000 Canadian grain recently at 85c., with that bid and 85c. asked in car lots free, and 80 to 82c. delivered. We quote: Flour, \$3 to \$3.25 spot and \$3 bid to arrive; state grain nominal at 78c. for black, 81c. bid for silver, or 85c. bid for Japanese, and 80c. on spot for Canada; 83½c. for country delivery."

When your trade is running slow, and your cash is getting low, don't sit down and wipe your eyes! The cure for all is ADVERTISE.



Office of the CANADIAN MILLER, }
 December 15, 1893. }

THE GENERAL SURVEY.

THE discussion on wheat prices gathers strength. All sorts of theories are put forth as to the present low prices, and various are the predictions touching the future. The "Hold your wheat" policy is being urged in some quarters. With others the counsel is to sell quickly. It is pointed out by certain writers that England and Germany are buying Argentine wheat quite freely, the increase in the past four years running into large figures. So it is that competition is increasing in India and Russia. These various changes of the conditions render the work of antangling the wheat problem very difficult. In another part of the MILLER we make more lengthened reference to some of the difficulties that are given in suggestion above. Bradstreet's has this to say of the wheat supply: "The mere fact that prices of wheat continue to lag at or about 60c. per bushel at Chicago seems to a disinterested mind to indicate that the trade, as a matter of fact, do not really believe in the short crop estimates of wheat here this year. If they did put faith in them wheat would be nearer \$1 per bushel at Chicago than it has been in a long time, because the demand to buy on speculative account would be extraordinary heavy. It therefore becomes quite plain that, so far as the speculative public are concerned, low crop wheat estimates are completely discredited. As has been pointed out in these columns many times within a few months, the outlook so far as the wheat crop in the United States in 1893 is concerned, is for a harvest of not less than 440,000,000 bushels, which, if added to about 76,000,000 bushels available reserves carried over on July 1 last, furnishes a total of available wheat for the cereal year of 516,000,000 bushels. Taking out 368,000,000 bushels for probable wants for seed and food for the entire year, 148,000,000 bushels are found remaining available for export, of which, as heretofore explained, about 81,000,000 had been shipped abroad by the middle of November, leaving, as it would appear, about 67,000,000 bushels for export, if needed, between November 16, 1893, and June 30, 1894, a little more than average of 2,000,000 bushels available for shipment weekly during the remainder of the cereal year. On the other hand, if the 380,000,000 bushels wheat crop estimate, or even the 400,000,000 bushels estimate, is to prevail, it is time the trade appreciated what such a shortage in supplies means, and proceeded to buy May wheat to the extent of their ability."

CURRENT PRICES OF BREADSTUFFS.

WHEAT—Toronto—Red and white wheat, north and west freights quoted at 57c., and middle freights 58c. for export. Goose 57c., and middle freights 58c. for export. Flour and Grain Trade Bulletin of the Dominion Millers' Association says of Ontario wheat, car lots: "Ontario fall wheat, very little offering at 56c. straight for fall, and 58c. to 60c. for spring." Montreal—No. 1 hard Manitoba, 69 to 70c.; No. 2 hard Manitoba, 67 to 68c. Chicago—December, 61 1/4c.; January, 67 1/4c.; May, 68 1/4c. Toledo—61 1/4c. bid for cash and December, 67 1/4c. asked for May. St. Louis—58 1/4c. for cash, 58 1/4c. bid for December, 58 1/4c. bid for January, 64 1/4c. to 64 1/2c. asked for May. Duluth—Wheat, No. 1 hard, 61c. for December, 65 1/4c. for May; No. 1 northern, 60c. for December, 64 1/4c. asked for May.

BARLEY—Toronto—Only a limited demand; No. 1 sold at 40c.; seed at 35c. west and 36c. east. A Buffalo dispatch of 14th inst. says of American barley markets: Fancy western, 66 to 67c.; choice, 60c.; lower grades 48 to 56c., according to sample; state 67 to 72c. At New York—Barley steady; No. 2 Milwaukee, 61 to 62c.; western, 50 to 54c. At Milwaukee—Barley, 48c. bid for January. Receipts, 22,000 bush.; shipments, 2,000 bush.

At Chicago—Barley, No. 2, 52c. Receipts, 67,000 bush.; shipments, 28,000 bush.

OATS—Toronto—Steady; prices ruling about 29 and 29 1/4c. Mixed and white on track are quoted at 32 and 32 1/4c. Buffalo—Offerings light; No. 2 white, 34 1/4c. on track, 34 1/4c. in store; No. 3 white, 33 1/4c. in store. No. 2 mixed quoted at 32 1/2 to 33c., closing easy. Sales, 4 cars No. 2 white, 34 1/4c. on track.

PEAS—Toronto—An export of 30,000 bushels was sent via St. John within the past few days. Ruling prices are 51 1/2 to 52c. for No. 2 north and west freight.

RYE—Toronto—A fair trade doing, sales being made at 45c.

THE MAN AND THE MACHINE.

THERE was a former time when an issue was made in the minds of working people principally in the form of "Men vs. Machines," and a labor saving invention was believed to be entirely antagonistic to the interests of manual labor, says the Metal Worker. In mechanical processes especially brains were popularly considered a less important factor than muscle, and men clung to primitive ways because they were old, and to their limited views, satisfactory. Happily, that time of obstinate ignorance is past, the prejudice against machines has largely abated, and the trials of inventors have taken a different form. It is probably that the triumphs of steam have so settled opposition that its competitor and possible successor, electricity, will have less to contend against. We have learned that the man and the machine are not in opposition, but are both important factors in the world of industry.

We would call attention to what may be termed the teaching of machinery, meaning the attempt to learn from its operations, if possible, a way of working which the artisan may copy to advantage. The machine, while it is on duty, so to speak, attends strictly to business, carrying on processes of construction assigned to it, whether simple or complex, in a consecutive, orderly, and perhaps monotonous manner. We do not imply that the man should be a mere automaton, but that the head and the hands should both be interested. If the labor is such that the hands do it nearly independently, the head may be seeking a method of helping them. In this manner inventions are generated and the machine is made which does the work faster and better than it was previously done. In those constructive operations where the machine has not replaced the man, experience has taught that the doing of the right thing at the right time, or "machine fashion," is productive of the best results. The discipline of soldiers, which is largely effective in producing a reliable fighting machine which moves at the will of a controlling mind, is illustrative of that attention to routine and detail which the young mechanic will find a good rule to work by. The machine has come to stay, and the man must adapt himself to it, learning the lesson that undivided attention to the work in hand, with a systematic progression, from start to finish, will make him successful both as a man and a machine.

DANGEROUS PRACTICE.

IT is always dangerous, says Locomotive, to calk leaky joints, or screw up nuts, about boilers that are under pressure, and many accidents result from doing so. The other day we learned of an accident of this kind. The engineer undertook to tighten up a leaky cap on a sectional boiler while the boiler was under steam pressure. A slight twist did not seem to do any good, so he gave the cap a good, vigorous wrench. Immediately steam and boiling water began to pour out, increasing in quantity every instant. He could not get away quickly enough and was severely scalded all over the upper part of his body. His assistant was down in a pit in front of the boiler and was immediately overcome by the scalding cloud. The assistant was dead when the cloud had subsided enough to allow of his removal.

HOSE OR FUEL.

IF oil is to be the future fuel for steam making, some inventor who will devise an easy way to get around the noisy part of the burning, will be a benefactor if he doesn't make a cent, says an exchange.

COOPERAGE D'P'T.

There is a close affinity between the work of the cooper and the business of milling. The miller is either his own cooper, having a cooperage as an adjunct to his mill, or else he rests for his supplies on an outside cooperage. The cooper in any case binds up his best customers to the miller. The object of this department is to bring each in close touch with the other and to materially advance the interests of both trades.

TRADE REVIEW.

A GREAT stir has been created in cooperage circles by the proposed action of the United States to take the duty off staves; there is not the least doubt but the new tariff bill will go through practically unchanged and staves will be on the free list from March. No doubt this will have the effect of raising the price of staves in this country, as there is an unlimited market in the United States for the output of Canadian mills. The present duty on staves is 10 per cent, and when this is taken off 10 per cent, will go on to the price of staves f. o. b. cars at mills for the Canadian consumers.

Up to the present time the winter has not sufficiently developed to tell whether we are going to have a full stock of logs or not. There has been some slight sleighing, but the amount of logs that has been put into mills is very inconsiderable. The prices of staves, hoops and heading have not materially changed for the last three months, but from the first of the year there is no doubt but prices will be raised owing to the scarcity of dry stock. Many mills are now using kiln dried stock which is worth 25 cents per thousand extra f. o. b. cars at mills than the air dried stock. The following are the present prices on cooperage stock delivered at Toronto:

	Per 1,000
No. 1 30' painted elm staves	\$5 55
" 2 30' " " "	3 55
" 1 24' " " "	4 60
M. R. 30' " " "	5 20
No. 1 5 1/2 ft. patent coiled hoops	6 00
" 1 6 1/2 ft. " " "	6 60
No. 1 1 1/2" kiln dried heading	Per 100
" 2 1/2" " " "	4 1/2c.
12 in. head-liners, 40c per net 1,000.	3 1/2c.

COOPERS' CHIEFS.

Of the Chicago markets the Lumberman of that city says: The cooperage market, so far as this city is concerned, has practically gone to pieces. Tierces are dull at 90 cents, and barrels slow sale at 70 to 72 1/2 cents. Packers are not anxious to buy, and sales can only be made at less than cost. Overproduction of tierces and light receipts of hogs are the principal causes of present conditions. It is thought there are enough prison tierces on hand to supply packers for the balance of the season. Some shipments of hoops are now arriving which could not be got in earlier, and returns on these will be disappointing as the market is overstocked. Prices on all classes of cooperage are only nominal.

Commenting on the new tariff bill, so far as it effects staves, the Northwestern Miller says: This measure, as now framed, makes staves free of duty, and would relieve the Canadian dealers of a duty of about 50c. per M which they now have to pay on shipments to the United States. They already have a decided advantage over Michigan, Ohio and Indiana manufacturers, by being able to ship by lake at least six months in the year, and with the tariff removed entirely, they would have 50c. per M more in their favor. Upon logs brought from Canada into this country there is now no duty. In well-posted quarters the feeling seems to be that the tariff bill will be passed by Congress without any great modification, particularly as to staves. Some dealers, reasoning from this point of view, are inclined to discount the future by asking a little less for staves. As far as Minneapolis is concerned, \$6.75 is the prevailing price for elm, though there is no buying to test the market. A few of the shops have begun to use a limited number of oak staves to make their barrels less vulnerable to the effects of cold, frosty weather and are able to buy the staves at 12 to 12 1/2c. per set. Little or no oak has been used in Minneapolis for quite a long time, and Wisconsin dealers are disposed to make low figures in order to get it in favor again. There is some little demand for heading, and the shops seem to have no trouble in getting what they need of No. 1 for immediate use at 4c. per set. One shop manager, however, claimed that he could not buy at less than 4 1/2c.



THE Empire has been publishing a series of interviews with prominent business men asking each the question, "How should a young man invest his first \$100?" Mr. J. L. Spink, the successful miller, has answered the question in these words: "If the young man's education was very limited as mine was I would advise him to expend his first \$100 in getting a thorough knowledge of bookkeeping as I did. That is the history of my first \$100, and if I had life to live over again I would do the same thing. It may not have been the first \$100 I ever owned, but it was practically the first hundred I ever got which I could afford to spend in this way. As to investment, I would say that there are in all lines of business in our day plenty of men with ample capital and my idea is that a young man starting in life should fit himself either in a trade or profession where his talents and ability will stand as a set-off to capital, which he can always borrow. Nearly all men who are at the head of the different commercial enterprises to-day started at the lowest round of the ladder and fitted themselves for the positions they now occupy by their knowledge of every detail, and it seems to me that this is a well-beaten path by which all young men must travel to future success or position." Mr. Spink's own business career began in a country store thirty-one years ago at \$5 a month.

Spoken to in regard to the proposed changes in the United States tariff, several Montreal millers and dealers have expressed their opinions. Mr. W. W. Ogilvie said, "It will not affect the milling business." Mr. D. A. McPherson, of the well-known produce exporting house of D. A. McPherson & Co., and president of the Corn Exchange, said, "I have no doubt it will be of great advantage to Canada in many ways. Barley, the sale of which to the United States had altogether fallen off, will once more be in demand from the other side. Canadian farmers have grown very little barley for the past two years. It is a well-known fact that the United States was willing to pay 15 to 20 cents per bushel more for Canadian barley than was obtainable for the American product." Mr. E. F. Craig, flour and grain dealer, said that if the Dominion Government would meet the American Government in the same spirit, it would undoubtedly be a good thing for Canada. He believed that it was the thin edge of the wedge for reciprocal trade. It would be a great thing for the farmers, especially as regarded barley, as it would give us an outlet for that product.

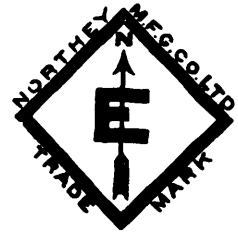
Toronto millers and grain men have been expressing their views on the new Wilson tariff bill. Mr. H. N. Baird said, "As I understand it, everything is now left with this country, and we can keep up or take down the tariff wall on breadstuffs. It would be of immense benefit to this country if the duties were removed, and I think the government should lose no time in meeting the Americans half way. "I don't want to become a prophet," was Mr. J. L. Spink's reply to a question regarding the probable effect on Canada of a reciprocal trade in breadstuffs with the United States. He continued to say, however, that the result of the change would be an entire change in the Canadian trade. Canadians would have to compete with Americans and Americans with Canadians in the countries of each. Some mills would likely go under, but the fittest would survive. There would not be a much wider market for either country, because the supply of both are equal to the demand. He has not yet made up his mind as to whether or not Canada should place breadstuffs on the free list. Mr. J. F. McLaughlin said that there was no reason why the old trade in barley should not be revived. He thought if Canada took advantage of the offer to

admit breadstuffs into the United States free of duty, Canadian millers would be immensely benefited, and especially the millers of Ontario, who would virtually control the trade of the Eastern States. The present duties of both countries are virtually exclusive duties.

A well-known local baker criticises the contention of a Toronto flour dealer in the November MILLER, that the profits of the bakers at the present price of flour run into a considerable figure. He says, "Flour dealer reckoned up the cost as follows: One barrel flour produces 66 loaves at 10c., \$6.60; flour cost per barrel, \$3.80; baking and delivery cost \$1, \$4.80; price per barrel, \$1.80. If the dealer in question had consulted any intelligent baker he would have found that his calculations were away out. In the first place my flour averages \$3.91 per barrel, but, taking the price at \$3.80, has the baker no other expense beyond that of baking and delivering? Will our friend, the dealer, ask some of his miller friends if they have no expense beyond the price paid for the wheat, and the bare cost of running the machinery to convert it into flour. What of expenses for rent, and interest on capital, gas bills, office work, and such items of expense as insurance, wear and tear, etc? expenses that the baker has learned are very real. In order that I may not trespass further than necessary on your space, I will simply state for the benefit of this dealer and any others whom he may have been the means of misleading that there must be added to his calculation of the cost fully \$1.13 per barrel for merchandise other than flour, general inside expenses, bad debts, interest. This leaves 7c. per barrel, and if the price of bread be reduced 1c. per loaf which would represent the price that many sell at to-day, there is left, to the greedy baker, the very substantial profit of 1c. per barrel. Truly experientia docet and your dealer's remarks also teach something, and that is, that a good deal of allowance must be made for the fault-finding and grumbling of outsiders when dealers in flour who are supposed to know something of business can put such erroneous statements into print."

There passed away to his long home on 10th December, Mr. Thos. Lawrie, who was perhaps the oldest millwright in Canada. The deceased was the father of Mr. W. S. B. Lawrie, of the firm of Wm. & J. G. Greey, of this city, with whom I had the pleasure of talking a few days since. He says that his father was a Scotchman by birth, coming from the county of Haddington, where he was for many years in business connection with the late John Gartshore, of the Dundas Foundry, and resided in the town of St. Catharines from 1837 to 1856, after which he moved to Dundas, where he lived for four or five years, finally settling in Hamilton, where the last active years of his life were spent. About eight years ago he suffered the loss of sight of one eye, incapacitating him from further work. Since this occurrence he resided in the city of Detroit, with his daughter. During his long and active life he was well known by the milling fraternity, and many of the best mills in the old times of stone milling were planned and constructed by him. Probably the last mill the deceased built was one for Mr. R. Noble, of Norval, Ont.; the elevators of the G.T.R. at Sarnia, and also the C.P.R. at Owen Sound, were constructed under his supervision. Very interesting were the stories that the Senior Lawrie could tell of mill building in Canada in the days when water and not steam or electricity were the propelling power. The millwright of to-day does not need to worry himself over much about either the overshot or the undershot wheel, but it was not so in the days when Mr. Thos. Lawrie commenced mill building. Mill-building was slow work in those pioneer days. There was no such thing as constructing the machinery in a large mill-building concern like the Greeys, and shipping it to be placed in proper place within the walls of the mill building. Everything was then constructed on the spot. Such is the progress of flour milling the past half-century, for the connection of the deceased with the milling trade went back to 1835. Born in 1812, Thos. Lawrie died full of years, aged 81. Four sons and two daughters survive him.

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THE NEWS.

CANADA.

John Plewes is negotiating for a grist mill in Wentworth township, Ont.

A million and a half bushels of wheat are still in Port Arthur elevators.

The new Canadian Pacific railway elevator at Quebec city was opened on December 2nd.

E. D. Tillson, of Tilsonburg, Ont., is making important additions to his milling property.

The flour mill operated by J. W. Ford, Jr., at Flesherton, Ont., was destroyed by fire a fortnight ago.

J. Fair, Clinton, Ont., has placed in his mill what is said to be a very complete system of fire protection.

The grist mill at Fort Albert, Ont., formerly owned by J. Mahaffy, has been rented by Platt & Ranciman.

Ratz Bros., of Tavistock, Ont., secured a medal at the World's Exposition for their popular brands of flour.

John McFadden, night miller at McDonald & Robb's mill, Valleyfield, Que., had his hand badly crushed whilst engaged at his work.

Brackman & Ker Milling Company, Victoria, B.C., were awarded a gold medal at the World's Fair for their brand of rolled oats.

Hilsborn & Brubacher of Berlin, Ont., are adding new machinery to the mill, known as the East End Mill, which they recently purchased.

The last car of machinery has reached the new flour mill at Hartney, Man., and it is expected that the mill will soon be ready for operation.

A shipment of 10,000 bushels of wheat, 100 tons of flour and over 1,000 tons of flaxseed was recently received at Sarnia, Ont., from Southern Manitoba.

It was Jacob Steinmiller, not John Steinmiller, of Waterloo, Ont., as mentioned in last month's MILLER, who carried off a medal at the World's Exposition, Chicago.

Two thousand eight hundred bushels of wheat were stolen from a barn and granary on a farm near Virdee, Man. The grain was held by a trust and loan company in Winnipeg.

Stanley & Dight's storehouse at Lacan, Ont., was burned on 1st inst., with 17,000 bushels of wheat. Loss about \$10,000, partly covered by insurance. Cause supposed to be incendiary.

The propeller Tilley, with grain from Fort William to Kingston, went ashore at Nine Mile Point, Lake Ontario, on Nov. 26. A fog and floating elevator were sent to her assistance and after lighting about 8,000 bushels the Tilley came off and landed at Kingston the same day. It is not supposed the vessel or cargo is much damaged.

The Canadian Pacific railway have arranged to ship 16,000 bushels of Ontario wheat and about 1,000 tons of Quebec hay to the English market from the port of St. John, N. B., as an experiment. The undertaking is important, as marking the first effort of the road to use St. John as a winter port for the upper provinces.

The steamer Miles from Fort William, bound to Owen Sound with wheat, lost her rudder off Cabot's Head on December 2nd. After drifting in sight of Christian Islands on Sunday the crew rigged up a temporary rudder, using the steamer's topmast for a rudder post, and managed to arrive off Owen Sound on December 9th, when she was picked up and towed into port.

The C. P. R. has made a move that is proving quite gratifying to the people of St. John, N. B., and it is thought to be the Dominion as a whole. Hitherto the winter business of Canada has been done largely from

New York, Boston and Portland. Recently the C. P. R. acquired the short line between Montreal and St. John with a view, as now appears, to use St. John as a winter port. To further the plan the city gave a bonus of \$40,000 for the erection of an elevator which has now been completed. The first consignment from St. John has now been made. It is 10,000 bushels of wheat, and is the commencement of a trade which is expected to expand enormously. The new elevator has a frontage of 400 feet and a depth of 27 feet and upwards at dead low water, spring tides. The wharf, therefore, is capable of accommodating one steamship of the largest size, or two smaller vessels; and, as it is connected with the grain elevator, it offers ample facilities for the loading of steamships with grain. The elevator, which is situated on the city wharf, is entirely modern in its construction and it has been pronounced by expert judges the best elevator in Canada. It has a storage capacity of 350,000 bushels, and the machinery which it contains is quite sufficient if its storage capacity should be doubled. The elevator has a capacity for loading an ordinary freight steamship in four or six hours. It is estimated that four million bushels of grain can be shipped there monthly, provided that there is not too much detention on the railway.

CAPTURE OF LEON M. CARRIER.

STORY OF AN INTERESTING CHASE.

THE chase of the Canadian Pacific Railway after Leon M. Carrier, the defaulting flour dealer of Quebec, has finally ended in the capture of the abconder. It will be remembered that Carrier was a commission merchant in Quebec city. On April last he went to different grain and flour merchants in Quebec and made contracts for the delivery of flour and grain, principally flour, at figures considerably below the market price, cash to be paid. He secured orders covering a large quantity of flour, after which he went to different milling points in Ontario and made contracts for consignments of flour sufficient to cover the orders he had taken. Carrier agreed to pay slightly above the market price for this flour, only stipulating that it should be in Quebec on May 10. Some forty-five carloads reached Quebec on this date, billed to the order of the various banks there. The flour altogether was worth about \$35,000. Carrier called on the Canadian Pacific agent at Quebec, and, under the promise of having the bills of lading surrendered before the cars were unloaded, had the cars placed before the warehouses of the parties to whom he had sold the flour. Instead of surrendering the bills of lading, however, Carrier did not take up the drafts at the banks, but, securing the payment for the flour from the merchants to whom he had sold the flour, he shipped out. The banks came on the Canadian Pacific and wanted the grain or the money. The railroad put up the money, \$35,000 in all, and determined that Carrier should not escape. Fisher's Agency was engaged in the case, and the chase for Leon Carrier commenced. Carrier first went to New York city, where he took one of the Atlantic liners for Southampton. From Southampton he fled to Havre; from Havre to Paris, then to Geneva, in Switzerland, and back to Paris again. The detectives were by this time on his track and followed Carrier to all these places, the fugitive keeping ahead of them, however. From Paris Carrier went to London and sailed again for New York. He next visited Chicago, where he met his wife, who had gone on to meet him. Madame Carrier left Chicago for Denver, while Carrier himself proceeded on to Mexico. From Mexico Carrier went to Denver to rejoin his wife, and here his wanderings were abruptly brought to a close by the detectives who had followed him around the world. At Denver he was arrested on nine warrants issued at Quebec and

charging him with the larceny of the cars-always mentioned. The extradition proceedings were of a very interesting nature. There was a large array of legal talent on both sides. Carrier had no less than four lawyers. Their contention was one of obtaining goods under false pretences, an offence not extraditable under the extradition treaty. The Canadian Pacific contended that it was a case of constructional larceny. The case was heard before Judge Hinsdale of Denver. Mr. Charles Fitzpatrick and three other lawyers represented the prisoner, who brought four witnesses from Quebec to testify in his behalf. The hearing lasted for three weeks, when the judge decided to hold the prisoner for extradition, under the clause of the extradition treaty which gives the fugitive sixty days in which to appeal to the Secretary of State in Washington. The clause Carrier availed himself of, and his attorney, Mr. Taylor of Denver, and Mr. H. V. Johnson of Denver, representing the Canadian Pacific Railway, proceeded to Washington and argued the case before Secretary of State Gresham. The latter confirmed the decision of Judge Hinsdale. An official of the Canadian Pacific was sent to look after the interests of the company in Denver. He was also dispatched again last month, with the documents authorizing the prisoners transport back to Canada. When he reached there he found that Carrier had bribed the gaoil officials and was out on the street visiting faro banks and having a good time generally. Before the United States Marshall Carrier admitted that he had bribed his gaolers, who were indicted before the Grand Jury. Carrier further stated that he had been offered his liberty for \$7,500. Detectives Pattry and Walsh of Quebec brought Carrier back and he was landed in Quebec on the morning of November 29, or just 203 days from the time he had fled from Quebec. It is said that the chase and capture of the proceedings against Carrier have cost the Canadian Pacific Railway a large sum of money.

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The report was adopted, and the retiring Directors unanimously re-elected. The Board of Directors is now constituted as follows: James Goldie, Guelph, president; W. H. Howland, Toronto, vice president; H. N. Baird, Toronto; Wm. Bell, Guelph; Hugh McAllister, Galt; N. Newell, St. Catharines; George Patterson, Preston; W. H. Story, Acton; J. L. Spink, Toronto; A. Watts, Bradford; W. Wilson, Toronto.
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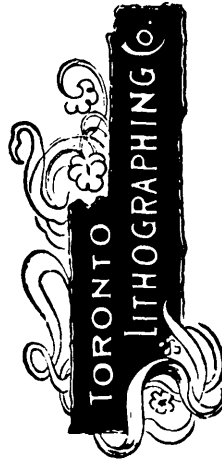
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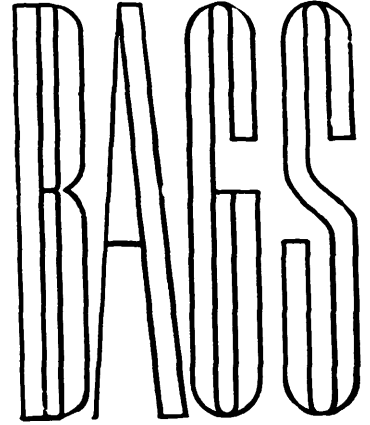
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Gibbs' Patent Dust Protector protects the nose and mouth from inhalations of poisonous dust. Invaluable to operators in every industry where dust is troublesome. Product guaranteed with perfect satisfaction. Nickel plated interior by mail. In postage 3¢. Circulars free. Agents wanted.
Gibbs' Respirator Co., 36 LaSalle St., Chicago.

... NORTH AMERICAN MILL BUILDING COMPANY, LIMITED ...

STRATFORD, ONT.

Line of Machinery WE MANUFACTURE

ALLIS ROLLER MILLS
 FELD ROLLER MILLS
 PERFORATED STEEL SCALPERS
 ROUND REEL SCALPERS
 HEXAGON SCALPERS
 SEIVE SCALPERS
 INTER-ELEVATOR FLOUR DRESSERS
 CENTRIFUGAL REELS
 BRAN DUSTERS
 SHORT DUSTERS
 AIR PURIFIERS
 SEIVE PURIFIERS
 COMBINED DUSTLESS PURIFIERS
 GERM ASPIRATORS
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 CLOSE SQUEAKERS
 BRUSH MACHINES
 COCKLE MACHINES
 DUST CATCHERS
 FLOUR PACKERS
 BRAN PACKERS

THE BROWN AUTOMATIC CUT-OFF ENGINES

The Best, most Economical and Durable in the market

Read what Archibald Campbell, M.P., has to say regarding his mill:

TORONTO JUNCTION, NOVEMBER 28TH, 1893.

NORTH AMERICAN MILL BUILDING CO.,
STRATFORD, ONT.

GENTLEMEN,

I have much pleasure in informing you that the contract you entered into with me in December last year, to complete a six hundred barrel mill for me here, has been completed to my entire satisfaction.

The mill has now been running nearly four months, night and day, and we have had scarcely a moment's delay on account of anything going wrong with your machinery, while the quality of the flour is giving such good satisfaction that I have been able to dispose of the whole output as fast as made.

The plan adopted of building the mill in two parts—one side for hard Manitoba wheat and the other for soft winter wheat, has been eminently successful, as I am thus enabled to make more even and better granulated flour than could possibly be obtained under the old system of mixing the wheat before grinding.

The capacity of the mill is also greater than we agreed upon (we having turned out nearly seven hundred barrels in the twenty-four hours), while the clean up of the offals and the general run of the flour is the best I ever saw.

I have been in the milling business for a great many years, and have had to do with many different kinds of mill machinery, but I am better pleased with your work than with any other that I have had to do with.

If you complete all your contracts as you have mine, I am sure you will be very successful in mill building.

Yours very truly,

ARCH. CAMPBELL.

WE MAKE Mill Building

A SPECIALTY
NOT A SIDE LINE

Full line of most modern and improved Machinery furnished for Mills of large or small capacity from basement to attic.

Prices as low as any in the market consistent with first-class Material, Workmanship, Style and finish.

We guarantee results superior to any that can be obtained from any other line of machinery in Canada.

Estimates, Plans and Specifications cheerfully furnished upon application.

All kinds of Rolls corrugated with promptness and despatch

Dufour Bolting Cloth and Mill Supplies

ALWAYS IN STOCK

North American Mill Building Co., Ltd.

STRATFORD, ONT.

DID YOU KNOW IT?

Messrs Dominion Dry Kiln Co.
Toronto, Ont.

GENTLEMEN,

We have thoroughly tested the "Andrews Lumber Dry Kiln" furnished by you and must say that it more than surpasses our expectations. We put green spruce lumber in from the saw dripping with water and in 18 hours it was drier than lumber that had been stuck up in the yard all summer, and in four days it was as dry as a bone, and without nearly as many checks or warps as the same grade air dried.

A very important feature of the "Andrews" kiln is that it saves so much steam over that of any other system.

You may refer any one you like to us, or send them down to inspect, and we can satisfy them that your kiln cannot be beat.

Yours truly,

EASTMAN LUMBER CO.

WHAT?

WHY

CHATHAM, ONT.

August 24th 1893

A. G. MORTIMER, Esq.
Manager Dominion Dry Kiln Co.,
Toronto, Ont.

DEAR SIR,

The "Andrews" dry kiln which I purchased from you has now been in operation over a month and is so perfectly satisfactory that I cannot say enough in its favor.

I use very little steam and my staves come out as dry as a bone, and are not in any way injured by warping or discoloration.

Yours truly,

(Signed) N. H. STEVENS

.....

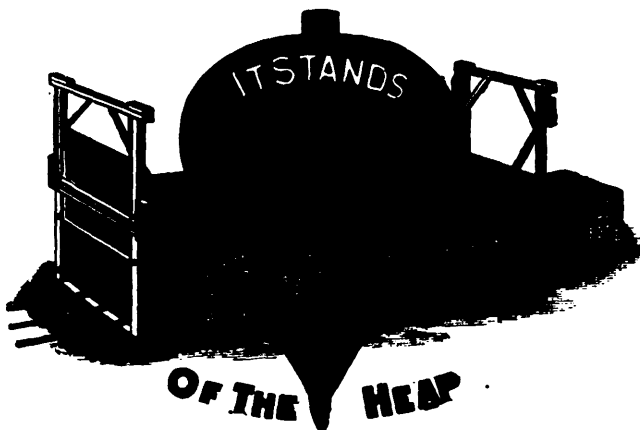
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Nearly 500 Kilns

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In Successful Operation

THE

ANDREWS DRYER

FOR

Lumber, Shingles, Heading and Staves

MANUFACTURED BY

THE DOMINION DRY KILN CO.

TORONTO, ONT.

—=====EVERY=====

PROGRESSIVE MILLER

WILL READ THIS

OFFICE OF
PENN YAN ROLLER MILLS.

PENN YAN,
Nov. 16th, 1893.

PLANSIFTER COMPANY OF CANADA, LTD.,
STRATFORD, ONT.

GENTLEMEN,

Answering your esteemed favor of the 15th inst., would say that we have the Plansifters working in our mills both on wheat and buckwheat. We like the operations of them very much. We think they are at least equal, if not superior, to the most modern round reels. They possess many advantages which the reels do not. They run with very much less power, and the same capacity can be produced in a much smaller space.

The yield and quality of the product we are now getting is much superior to that which we formerly had under the reel system.

We have given them a very thorough trial, and do not believe there is anything equal to them in the way of a bolting device.

Yours very truly, RUSSELL & BIRKETT.

FOR FURTHER INFORMATION ADDRESS ———

THE PLANSIFTER COMPANY OF CANADA, LTD., PLANSIFTER COMPANY · STRATFORD, ONT.

SOLE MANUFACTURER OF CARL HAGGENMACHER'S PLANSIFTERS THOUSANDS IN USE

Millers Have Worry Enough These Hard Times

Without Unnecessary Worry

... THE IMPROVED ...

Eureka Special Close Scouring Smutter

Either Horizontal or Upright will save worrying about dirty wheat

— AND THE —

The Improved Niagara Upright

AND

Richmond Horizontal Bran and Shorts Dusters



Will save all worry as to waste of flour in Bran and Shorts

— WHILE THE —

Victor Wheat Heater W. D. Gray Flour Dresser

AND

Little Wonder Reel

Will so improve the color, dress and yield of flour as
to banish worry entirely



The miller having these is well equipped to successfully combat the hardest times.

ALL THESE ARE MADE BY

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ONTARIO MUTUAL LIFE

on an ordinary Life Policy of \$1,000,
No. 199 during its first 20 years,
issued for age 37:

In 1872	Paid \$26.57	In 1882	Paid \$13.29
1873	26.57	1883	12.31
1874	26.57	1884	11.69
1875	26.57	1885	11.35
1876	26.57	1886	11.22
1877	26.57	1887	11.19
1878	26.57	1888	11.18
1879	26.57	1889	11.18
1880	26.57	1890	11.18
1881	26.57	1891	11.18

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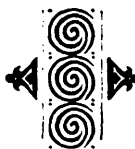
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PRINTING CAPACITY 15,000 BAGS DAILY

HESSIANS or BURLAPS

We carry the Largest and Best Assorted Stock in the Dominion.

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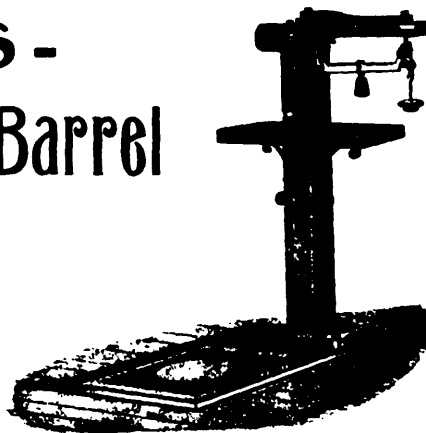
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Flour Bag and Barrel SCALE

With Improved Drop Lever



This Scale replaces the old style of "Flour-Packing Scale," and is superior to it in many respects

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THE GURNEY SCALE COMPANY
HAMILTON, ONT.

Capacity, 600 lbs. Platform, 20x28 ins.

NOTE.—We manufacture all kinds of Scales. Write for Illustrated Catalogue.