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### A MAMMOTH BUSINESS.

A special correspondent of the Toronto *Globe* writing from Deseronto gives the following account of the great lumbering establishment there :—

In the evening I went out to obtain an idea of the appearance of a town which had struck me so oddly at first acquaintance, I didn't get over it; it seemed to cover much ground. The streets run at right angles, the north and south ones terminating in a ridge overlooking the town. The buildings are very scattered, apparently quite as much so on the main street as in the outskirts. Young trees are planted along some of the streets. The residences, several of which are large and of good architecture, are of wood and very new, the town having grown up from a very small village to a population of two thousand in a few years. There are several good hotels, full of boarders, for the Messrs. Rathbun, whose lumber and other business is centered here, employ 600 or 700 men, many of them young mechanics. Progress is visible everywhere. Several commodious and even expensive churches has been erected within the last few years; the latest, a R. C. Church, the site of which was donated by the Messrs. Rathbun, who have exercised a wise generosity in various ways in the community.

The business carried on by this firm of millionaires space does not permit me to describe. It includes the manufacture of fifty million feet of board and square lumber annually, 50,000 doors for export to Britain, ship building, shingle making, flooring, the manufacture of chemicals from wood, and of gas from sawdust. In fact provision has been made for the most economical use of all the fragments left in sawing up the the timber. The firm have also large saw mills at the Trent and near Belleville. The wood is floated down the Trent, Moira, and other rivers. In all there are nearly 2,000 men employed in winter by the firm, either in Deseronto and at the other mills along the bay, or up in the woods. The versatility of the enterprising firm is shown in other respects, for a little out of town they have a stock farm of 250 acres, on which shorthorns have been raised for a time, and latterly a fine herd of Jerseys, imported from the United States, and in charge of the manager, Mr. Howatt, a young American.

An interesting experiment, to learn the results and methods of which was my chief object in visiting Deseronto, is being conducted here in the manufacture of gas from sawdust, under an invention of Mr. George Walker, the foreman of the chemical works. Notwithstanding the extent and variety of the mills here, the quantity of wooden refuse is immensely superabundant, and how to profitably consume it was for many years a problem with the Messrs. Rathbun. The establishment of chemical works for making tar, methyllated spirits, and acetate of lime, disposes of part of the refuse, the consumption of sawdust and wood in creating steam power to work the chemical work and flouring-mill get rid of still more, but a cumbersome surplus yet remains. The material being thus almost worthless, a better place for the experimont in making sawdust gas could not well be found. Success in its fullest extent is not yet demonstrated to the satisfaction of the public, but is claimed will be in a few days when a number of the mills and buildings of Deseronto are to be lighted by the new gas, preparatory to its introduction in a general system of lighting for the whole town.

To see the appliances for manufacture, I visited the chemical works at early hour in the morning, in company with Mr. French, a young New York chemist, employed here in assisting to perfect the chemical operations. The first process in gas-making, as well as in the manufacture of chemicals, is undertaken in the end of the larger building, where the refuse of the saw mills is consumed. In this building, about ten feet below the side platforms up on to which a railway carries many steam cars and cart-loads of saw-dust, earth, and slabs every day, are four brick furnaces, and above these an equal number of large boilers. The car loads are dumped over into the great space before the furnaces from the track platform above, the wheels and gearing being kept from falling over, too, by a clamp-device which holds the car on to the outer rail.

A little further on the platform stands above a sheet-iron floored receptacle, into which only saw-dust is dumped. Thence it is shovelled by a man into a box descending below the floor. Then an endless chain furnished with pails conducts the sawdust up and pours it on the top of a dryer made of horizontal iron plates, or rather flat inverted cones, raised one above the other. Steam passes up a tube in the central part of this dryer, and is distributed through the hollow of the cones. Around each cone revolves a steel bar, which for lack of a technical term to describe it, I will call a brush. From the topmost cone the sawdust is brushed over the edge, and falls upon the flat upper surface of the next lower cone, where a brush differently arranged sweeps it inward, to fall through on the third cone and be swept outward again. After passing over the hot surface of these ten cones, and coming up by a bucket chain enclosed in a long hollow box, most of the fifty per cent. of water contained in new sawdust is gone.

From the boiler-room the sawdust is carried by a bucket across into the chemical works and droped into the range of deep iron receptacles in front of the retorts and above the front of furnaces. The close packing of sawdust several feet deep suffices to exclude the air from the retorts. Through the retorts which are horizontal cylinders, the sawdust is carried backward by archimedian screws, and discharged into an air-tight box. When this box is opened, as it is every few minutes, after turning a screw to close the pipe connected with it against the admission of air, the contents are found to be very fine charcoal, resembling coarse powder. The charcoal finds a ready market at all the powder factories.

In passing through the retort, vapor composed of various gasses is expelled from the sawdust. This vapor is conducted by a large pipe into a condensing reservoir, after passing through which the tarry fluid condensed from the vapor is set free and flows off from the end of a pipe into a large tank. Further processes, not differing in essentials from those in use in other chemical works, separate the various chemicals. The pyroligneous gas expelled from the retorts is carried by a pipe to the gas works, where it undergoes similar processes to those followed in coal gas factories. The illuminating gas thus produced is then conveyed for a storage to an immense isolated tank of 20,000 cubic feet capacity. Here, as the turpentine present interferes with the illuminating power of the gas, a light hydro-carbon is introduced from a naphtha reservoir, and the gas thus improved is conveyed to the mills and houses.

Of the quality of the gas I cannot speak definitely, as the only light burning the night of my visit was one in Mr. E. W. Rathbun's residence, and I was informed that certain little mechanical details not being satisfactory, the proper mixture of gases and an exhibition of the illuminating power of the article had to be deferred for a few days. The flame in the light which I saw was, where issuing from the burner, of a beautiful blue color, shading off into the light yellow of the flame above. This light blue color is ascribed to turpentine, and it is said interferes with the illuminating power, but is easily got rid of sufficiently by adding the napthous gas. As it was, however, I do not think that the light was any less brilliant than that of Toronto water gas. The heat thrown out by the flame was very marked. This was claimed as a merit, as the gas could be used to advantage in cooking and heating as well as for illuminating purposes.

It is proposed to light the mills, and in fact the whole town, with this gas early this winter. The charge per 1,000 feet will be the same as that charged by the Belleville Gas Company. The cost of production, the managers estimate to be almost nothing, owing to the fact that sawdust is a superabundant commodity here, and the processes of manufacture up to the time the pyroligneous gas leaves the chemical works are such as must be undergone in order to produce the other chemicals. Theoretically a share of the cost of these main processes is chargeable to the gas; practically, however, the only expense is in the simple processes of the gas building, and interest on the investment. The chemical works are said to have cost $30,000—some say more. Any kind of sawdust is suitable for gas-making.

Messrs. Walker & French do not think the manufacture of gas from sawdust can be carried on economically except in lumber towns or in cities close to gigantic saw mills, as sawdust is a bulky product which can not be handled as cheaply as coal. To towns favorably situated, however, and to saw mills and to saw mill villages, they expect the invention to be a great boon. Wood gas, they think will pay much better than coal gas under those favorable circumstances, oven where it is the only product; and if combined with works for the manufacture of tar, methyllated alcohol, or acetic acid it would cost very little.

The manufacture of gas and chemicals is not, however, the only use to which sawdust is being applied at Deseronto. It is converted into fuel for shipment. The sawdust under the blows of a steam hammer is compressed into solid and adhesive blocks. The cast-iron moulds are so arranged as to fall into place filled, as rapidly as the hammer rises. The adhesiveness of sawdust when thus compressed is great. The bulk is remarkably small, 60 pounds of sawdust being required to make a cubic foot of the fuel. It is proposed further to add tar to the sawdust. The fuel, it is thought, may come into extensive use; and it is barely possible that it may even be used in the manufacture of gas for towns removed a considerable distance from lumber mills.

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AITKIN, Minn., is forging ahead as a lumber producing point. A couple of years ago it was but a settlement, and now it claims 1,000 inhabitants, has three saw mills, one planing mill, while the second planing mill and a sash, door and blind factory will go up in the spring. The last accession to the saw mill is that of Messrs. Parker, Hazelton, & Co., the firm being composed of Messrs. G. W. Parker, ex-congressman G. C. Hazelton, and another gentleman named Hazelton, who resides at Boscobel, Wis. The capacity of the mill will be 50,000 feet daily, and the combined capacity of the three mills, 130,000,

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THE manufacture of wood-working machinery has developed at a wonderful rate during the past ten years. Where, formerly, the business was mainly confined to a number of large concerns, there are now a great many small establishments engaged in the business. It is safe to say that no line of machinery has made greater strides towards perfection than this, and many of these small establishments will probably ere long develope into wealthy corporations. The manufacture of lumber and its subsequent manipulation, are properly recognized as among the leading industries of the United States.—*Wood-Worker.*