PROFITABLE LUMBERING.

The great waste incident to lumbering as carried on in the Canadian forests is in marked contrast to the thrifty operations of our European relatives. Across the Atlantic every chip and twig may be said to enter into the operator's calculations, and no source of profit is too insignificant to be overlooked While much of the value of what are in Canada the waste products of lumbering, find their value in Europe from the neighborhood of a large market; yet much more can be made of our timber than has hitherto been generally attempted, as the splendid achievements of the Rathbun Co, of Deseronto, prove. In this connection much interest is taken in the report of Ontario Clerk of Forestry Southworth, issued not long ago. He says:

"I had, in a general way, understood that the Rathbun Company employed methods somewhat different from most of our lumbermen, and that those methods caused a consumption of many forest products usually considered as waste material, and treated as such. My ideas in this respect fell far short of the reality. The Rathbun Company is unique in Canada, if not on the continent. Originally a lumbering concern purely cutting down white pine and sawing it into deals, they seem to have been impressed with two ideas, the attempted realization of which has revolutionized their business and sent it into different channels from that of ordinary lumbering In the first place it became apparent to them that in a few years at best, with their at that time improvident but immediately profitable methods, the supply of white pine tributary to Deseronto would be gone, and they would have to leave the place where they had made their home, and seek new fields, with the alternative of making a radical change in their method of working. Secondly, the enormous waste incident to the lumber business in Canada appealed to them as it doubtless has to other lumbermen, but unlike other men in the trade, they set out to find a remedy for this and to devise means for the profitable converting of what had formerly been waste material into a manufactured product, affording employment for labor and a profit for the capitalist. For thirty years these two ideas seem to have been kept in view by the Rathbun Company, and the result is a vast industry, giving employment steadily and directly to three thousand men—indirectly to many more and by its consumption of waste materials in the forest and mill adding greatly to the wealth of the province.

"The Rathbun Company float logs, cut from their own limits and bought from settlers down the Napanee, Moira, Salmon and Trent rivers to Deseronto, and by the Madawaska and Calabogie. Considerable quantities are also brought in by rail, over a thousand car loads of cedar and non-floatable timber coming in this way yearly. Upon reaching Deseronto, the logs are separated, and to some extent classified. The cedar is taken to the cedar mill, and if large enough they are sawed up into lumber, now become very scarce If the log is not large enough or good enough for lumber, it may do for a couple of railway ties, in which case it is sawn in two and flatted, or it may make a tie and a fence post, or two fence posts, leaving enough over at the end for one or more blocks for street paving. In some cases, the log has to be made into shingles, but it is a pretty tough stick that is not manufactured into something, if it is no more than steam.

"The sawdust is used partly for fuel, as is that from the other mills, which I will further refer to. With the other logs the process is similar. In the case of pine and spruce, waste pieces that cannot be made into lath may be long enough for matches, and if so, they are cut into match splints and exported to England. This branch of their business, though of quite recent date, already gives employment to nearly one hundred hands. Short pieces of lath not long enough for use as lath are cut regular lengths and sent to New York to be made into banana crates. Oak, maple, cherry, ash, birch, butternut, tamarac and other woods are used in ship and car building Of the timber found unfit to be sawn into any kind of lumber, the worst and roughest is sent to Napanee mills to be used in the Portland cement works to burn lime and hydraulic cements Other of the rough wood is fed to sixteen big bee-hive furnaces or kilns, and is made into charcoal and a variety of other articles of commerce A cord of wood will produce forty five bushels of charcoal, and quantities of alcohol, oil of tar, pitch, etc., which are distilled from the smoke of the wood during carbonization in a large building erected for that purpose. Scarcely any wood is consumed in the process of carbonizing the contents of the kiln, as this is effected by means of the gas generated from the wood being carbonized, the generating of this gas being started by a small quantity of wood placed in an arch inside the kiln. When this quantity of wood is consumed the gas does the rest of the work.

"Of the product of the charcoal works and the chemical works nearly all is exported to the United States. The charcoal is sent to Detroit and is used in smelting iron. The Rathbun output would run a twenty ton iron furnace, and it seems odd that with so much iron ore of good quality as is known to exist all through Eastern Ontario, this charcoal should be sent to the United States to be used in making iron there. The greater part of the saw-dust and small chips and blocks too small to be worked up into anything, is used to make steam, but a considerable portion of the saw-dust is sifted, mixed with an equal quantity of clay and made into a building material now coming into very general use, known as Porous Terra Cotta brick. This brick possesses some remarkable qualities and is fast growing in favor with the building trade. It is said to be absolutely fire and frost proof, is a good deadening material for partition walls in houses, is very warm and dry, and will stand a very heavy crushing strain and is very light in weight. It can be sawn and nails can be driven into it as into wood. When heated to white heat sudden immersion in water will not make it crack."

THE TAYLOR HYDRAULIC AIR COMPRESSING COMPANY, LIMITED.

On November 18th a party of nearly 100 people interested in various ways in the Taylor Hydraulic Air Compressor constructed for the Magog cotton mills, visited Magog, Que., on the invitation of the company, to observe the working of the compressor. In No. 12, Vol II, of THE CANADIAN ENGINEER, will be found a description, with diagram, of the apparatus, which will enable any careful reader to understand its working. When first brought before the public many engineers of experience pronounced the scheme impracticable, and it was generally believed that, supposing the plant perfect otherwise, air obtained must be very damp. It is now found that the air in the receiver is six times drier than when it enters the air inlets A change of opinion is often reluctantly made and always slowly, but it would be impossible to maintain any objection to this contrivance after studying it, and the party was unanimous in the expression of its complete satisfaction.

Great difficulties had to be overcome in sinking the shaft, and it is entirely due to Mr. Taylor's unbounded faith in his invention that so successful a consummation has been reached. The compressor has been at work for nearly four months without any interruption, and the continuance of this happy condition is assured by the simplicity of the mechanism. Mr. Taylor finds that by a slight change in construction he can obtain 25 per cent more power, but this compressor now provides more than the contract provides. There are also some problems of a purely scientific interest yet to be attacked, but these are for the scholar rather than the actual user of power In the mill both management and operatives are perfectly satisfied Mr Dolphin, superintendent of the cotton mill, says that the saving in coal is enormous, it is easier to regulate the machinery, there is no damp caused by condensed steam, and the absence of heat is a great benefit The six cotton printing machines were at work, and standing beside them Mr. Dolphin pronounces the operation of the compressor perfect.

The plant, it appears, is fitted with an automatic valve which would turn on steam the moment any failure of compressed air became apparent. Such a contingency has not yet happened. The visitors were very careful in their investigations, and questioned not only the management, but also the individual operatives Some felt the supply pipes, and finding them slightly warm, thought they had discovered a plant of another kind. Prof Nicholson, in the course of some subsequent remarks, explained that a small quantity of steam was run through the compressed air pipes, partly to further dry the air, and also to produce a little more pressure by causing expansion of the air By this means another horse power was produced at the expenditure of 1 lb. of coal

The arrangements made by the Taylor Co. for the comfort of guests were admirable. Two special cars were chartered to convey the party to Magog, where an excellent dinner was provided. After this the party was taken down to the mills by the cars and inspected the compressor under the guidance of Messrs. Taylor, Sutherland and the shareholders, and the mill under the guidance of Manager Whitehead and Superintendent Dolphin On the journey home a stop was made at Farnham for tea. During the homeward journey J C Wilson proposed, and P. W. St. George seconded, a vote of thanks to the company for the opportunity that had been afforded. Mr S. Carsley, president of the company, replied Prof. Nicholson also thanked the company on behalf of the contingent of McGill fourth year students, who had so heartily enjoyed their trip and the opportunity of increasing their knowledge of hydraulics.

Among those present were S. Carsley, president; J. K Fair, vice-president and managing director; R. W. Sutherland secretary; Chas. Morton, Robert Archer and George Durnford