discomfort in consequence. I remember after passing a very uncomfortable night with the temperature of my room something nearer 100 than 60 degrees, I told one of the leading New York engineers that "I supposed that I was very old-fashioned, but I had yet to discover that steam was superior as a heating medium to hot water." His reply was, "You never will discover it in this world, and especially for the English climate."

He went on to tell me that there was more hot water work being done in the States than ever there had been, though, of course, with the winters being so severe, they have to put in a very large surface compared with what is necessary in England.

While comparing the two systems, I think the fact is well worthy of consideration that plant life thrives much better with hot water than with steam, as any good gardener will tell you. The Americans do use steam largely in their greenhouses, but they find that, to obtain good results, there must be very careful watering and vaporizing; and, where the plants have to be kept in the houses all the year, they are not so healthy as where the houses are heated with hot water.

MANUFACTURES AND MATERIALS

THE GEORGIAN BAY PORTLAND CEMENT COMPANY.

On the site of the old Polson ship-building works, alongside the harbor of Owen Sound, the Georgian Bay Portland Cement Company have erected and equipped extensive works. The company was organized at the commencement of the present year with a capital of $95,000. The officers are: President, Mr. M. Kennedy, of the firm of Wm. Kennedy & Sons, Owen Sound; vice-president, Mr. H. B. Harrison, Owen Sound; secretary-treasurer, Mr. J. W. Maitland, of the lumber firm of Maitland, Rixon & Co., Owen Sound. The additional directors are Messrs. Samuel Lloyd and A. G. Mackay. The manager is Mr. W. J. Budd, formerly of the Cassadaga Cement Works, New York.

The company have utilized only one of the buildings formerly occupied by the Polson Co., but have erected four new ones specially adapted to the requirements of the business. The group of buildings, as has been stated, is situated close beside the harbor, and the company have a private slip and dock at which vessels can deliver fuel or receive consignments of cement. The works are also connected by a spur with the Canadian Pacific and Grand Trunk railways.

The marl, which comprises 75 per cent. of the manufactured product, is obtained from Williams Lake, near Holland Centre, 14 miles distant. In order to drain this lake and obtain dry marl throughout the year, the company have dredged a channel 3 000 feet long, 20 feet wide and 9 feet deep. They have also constructed and own two miles of railway connecting the marl deposit with the Canadian Pacific Railway, over which the material is conveyed to the works. An analysis is said to have shown the marl to consist of 95 per cent. of pure carbonate of lime.

The company own three different deposits of clay, some of which is adapted to the manufacture of slow setting and some to quick setting cement. The bulk of the clay required will be brought across the head of the bay. At present it is being hauled in carts, but a less expensive method will be employed. The experiment will be tried of bringing it across on the ice during the winter, and should this not prove satisfactory, scows will be used.

The character of the clay combined with the marl from the Williams Lake deposit is shown in recent tests, which give 200 pounds in two days, 440 in four days, 525 in five days, 640 in six days, 675 in eighteen days, and 750 in thirty days.

The works consist of the main building (260 × 60 feet), the dryers building (140 × 100 feet), and the kiln building (78 × 70 feet and 65 feet high), in the centre of which are the four kilns, which stand 100 feet high. Besides these there are the office buildings and a number of outbuildings. The C.P.R. have laid down about 2,000 feet of sidings in the yards, while ample fire protection is supplied from the town system, the two hydrants being covered by hose houses in which the hose reels stand ready to attach. The water supply for mechanical purposes is drawn from the bay. Foundations are down for a large storehouse to the immediate north of the main building near the railway tracks, the capacity of which will be 40,000 pounds.

The marl, on arrival at the works, is shovelled into self-dumping trucks, hauled up to the second floor, and tripped into hoppers, the spouts from which run into the mixers on the floor below. On the second floor are also the bins holding the clay, which is also hauled up on trams, weighed, and fed into the mixer hoppers in proper proportions, both forming the paste which gives the process the name of "semi-wet." From the mixers the paste goes into a long iron trough, where it is thoroughly kneaded and passed on to the compressing machines, where all the moisture possible is squeezed out. The bricquettes are pressed and placed on steel shelves, which fit into steel trucks. Rails lead from the pressing room across to the big drying house, in which are located the dryers. Fourteen tracks 114 feet in length run through the chamber, which is heated to a high degree by an enormous furnace located at the south side. The drying rooms are thoroughly fire-proof, the floors and roofs being constructed of brick and iron. No smokestack runs up from this furnace, but smoke and heat are driven through various compartments into the section in which the briquette trucks are run, by two gigantic fans creating a draft which keeps the furnace at a white heat. After it has served its purpose, the hot air, made moist by the evaporation of the briquettes, passes out through ventilators in the roof. After the briquettes are passed along the tracks of the dryer, the truck loads are run along on a transfer track and up the elevator to the fourth floor of the kiln house, in which are located the bases of the four big Alborg kilns. The kilns are fired from the third floor, coal chutes for the purpose being placed all round the kiln, thereby securing uniform heat. Each of these kilns has a capacity of 75 barrels per 24 hours, and requires re-lining only once in eighteen months. The fuel used is Virginia slack coal, costing about $2.25 per ton, of which 9,000 tons per year will be consumed. The clinkers are drawn out on the ground floor, and thrown into pan conveyors, which carry them up to the grinding rooms, which are located in the centre of the main building, where are two ball mills of 300 barrels capacity and one tube mill of equal capacity. Here the briquettes are fed into hoppers and drop into the two enormous revolving grinders, in which the heavy steel balls crush them to coarse cement. This falls into a bin below, and is then carried by bucket elevators to the second floor again and fed into the finishing pulverizer, a huge cylinder in which have been placed barrels of flinty pebbles, which grind to the finest powder the cement as it revolves. From this machine the finished article is elevated and carried into the receiving room, afterwards being bagged or barrelled as the orders require. The process is most complete, a strong feature being the small amount of labor required for handling during the process of manufacture.

The works are operated by a 360 h.p. Brown compound horizontal engine, carrying an 18-feet fly-wheel and pulley, supplied with steam from a bank of three boilers. These boilers also furnish steam for heating the offices and works and for driving a 40 h.p. engine used to operate the blowers, the self-fueling machinery and fans for the furnaces, the dynamo which will supply the buildings with 125 incandescent lights, as well as an arc light in the yards. The boilers are fitted up with blowers operated by small independent engines, which will give a forced draft and for which a saving of fuel is claimed.

The works were put in operation for the first time last week, and are said to have started off without a hitch.

It is the intention of the company to send an exhibit of their product to the Paris Exhibition.

A letter was received by them recently from Lord Kitchener, making enquiry with regard to the capacity and cost of construction of kilns. The letter stated that the Sirdar contemplates the early construction of cement works in the far East.

The city of Winnipeg owns and operates a large quarry at Stoney Mountain, employment being given to about one hundred and fifty men. On an average twenty car loads of stone per day or 8,000 tons per month are shipped out from this quarry. The stone is employed in street making in Winnipeg, and for this purpose passes through a crusher at the quarry. The quarry has been excavated to a depth of 20 feet, and is equipped with railway tracks converging to a turntable in the centre, from which the stone is lifted into a chute and dumped into the crusher. An electric drill is also employed. The quantity of stone is said to be almost inexhaustible.