PEAT FUEL.

There is little doubt but that the manufacture of peat fuel in the Province of Quebec is destined, at no distant time to assume proportions far exceeding the present scale of operations. The deposits are immense and in view of the probably continuous increase in the cost of coal, a home fuel will certainly attract greater attention every year. About the middle of last month a number of gentlemen were invited by the President and Directors of the Canada Peat Fuel Company to inspect the works of the Company at St. Hubert, about six miles from Longueuil. On the arrival of the party at the bog they were conveyed over a portion of the ground and embarked on board a large scow which had been covered in and decorated with evergreens It was slowly towed through a cut made by the previous excavation of peat, which is about 6 miles in length and about 5 to 6 feet in depth. The barge traversed the extent of the cut to the point where new excavations had been made. The works have now been in operation for about five years, during which time 25 miles of peat have been taken out. There are 250 men at present employed on the works at St. Hubert, with three excavators driven by powerful steam engines each cutting about 250 feet per day about 6 feet deep. A new and important feature in the drying process has been introduced which cannot fail to be of immense importance to the interests of the Company. Rows of racks have been erected along the canal in which the peat is placed, and it is thus dried in one quarter the time employed by the old process.

We hope, before long, to be able to give our readers an illustration of the machinery employed at St. Hubert. In our last number we refer to the peat machinery designed and manufactured by Messrs. Clayton, Son, and Howlett, and to its working at their establishment in the Woodfield-road, Harrow-road. Since the machinery was described in our columns several alterations have been made in its details, improvements having suggested themselves to Messrs. Clayton in the course of its working. We now, therefore, illustrate on page 97, from *Engineering*, the latest arrangement, the engraving having been prepared from a photograph of the apparatus taken as it stands in Messrs. Claytons' yard. To follow the course of manufacture with this apparatus we must begin with the squeezing trucks, which we have not thought it necessary to illustrate. These are simply closed wagons running upon a light railway, and fitted with covers which are secured when the wagons are filled. The sides and bottom of each wagon are perforated with small holes, and one end of the body of the wagon is movable and is actuated by a screw. As soon as the wagon is loaded this movable end is forced inwards by means of the screw, and thus the peat is put under pressure so as to rid it of some of its surplus water on its way to the machine. These wagons are used when the peat contains much surplus water, but in cases were the peat is not very wet, the ordinary tipping trucks only are required. The wagons are hauled from the bog to the works by a barrel hoisting gear which is erected over the machine and from which it is driven.

From the trucks the peat is tipped into the vertical hopper of the machine, in which are inclined blades fixed upon the vertical shaft. The blades break up the lumps of peat and press the mass downwards into the horizontal cylinder into which it is fed by a worm placed on the central shaft. The peat is thus brought within reach of the propelling arms which are fixed spirally around the central shaft in the horizontal cylinder, and which pass between sharp steel knives. The knives are made with dove-tailed feet and are received into corresponding grooves in a removable bar-plate, which is secured in the side of the horizontal cylinder by bolts. By means of the scissor-like action of this internal machinery the peat is cut up into small pieces and squeezed or kneaded together. The fibres of peat are, by this treatment, so divided that facility is given for setting free all moisture and fixed air that may be retained in the cells of the stalks, and the peat is deprived of elasticity, or resiliency, so that it is reduced to a suitable condition for moulding. The spaces between the cutting knives are gradually reduced from the feeding to the delivery end of cylinder, the propelling arms being correspondingly placed. The moulding orifices are adjusted at the nose of the machine, and may be of any desired form. Five of these orifices have hitherto been used and have been found convenient in working.

Beneath the chamber upon which the moulding orifice is fixed, and which is seen to the left of the machine, is a roller table on which the trays for receiving the moulded peat are placed in succession by a boy, so that they run in a continuous series underneath the moulding orifices and receive the peat issuing from them. As the front end of each tray comes up, the workman severs the streams of moulded peat by means of a sliding cutter, and pushes the loaded tray forward until it is opposite the cutting frame, in which several wires are stretched. These wires being brought down on the peat severs each bar into pieces 5 in. long, which is a convenient size for use. The loaded trays are sent along the roller table until they are opposite the tray racks. The trays are then lifted off on to the racks, where they remain for about three days, until the peat will bear handling, when they are placed upon the open shelving for final drying. The tray racks consist of uprights with arms fixed upon them, between which iron rods are strained. The contingency of accident to the machinery from stones or hard foreign substances passing in with the peat, is provided against by means of a friction clutch seen to the right of the machine in front of the driving gear. This clutch can be screwed up to give any desired pressure, or resistance, and when any substance having an objectional degree of solidity passes into the machine, the clutch slips, its resistance being overcome, and breakage is thus avoided. The cylinder has a movable cover so that the interior may be readily examined, foreign substances removed, knives replaced, or anything else necessary done.

Various kinds of peat have been tried by this machine, and it is interesting to notice the difference between the peat dried without having been previously treated, by the machine, and that which has been operated upon. Peat of very fibrous nature when dry has an open spongy appearance, suggestive of cocoa-nut fibre. The same peat treated by this machinery becomes compact and hard and assumes a specific gravity of from 1.05 to 1.10, whilst black decomposed bog consistences to about 1.20. A set of machinery to work 100 tons of crude peat employs in all ten men and five boys including diggers, engine drivers, men in drying sheds, &c, so that the cost, allowing a fair amount for wear and tear, is placed by Messrs. Clayton at 3s. 6d. to 7s. per ton.

The calorific value of peat, which has been much questioned, varies considerably, some kinds of peat being very rich in heat-producing power, whilst others are very poor. In Canada prepared peat is said to do 5.06 the work of coal. With regard to the intensity of peat, it appears from the practical use of this fuel in Canada and in Europe, that a large grate surface and slow draught are necessary for its most advantageous combustion, and under such conditions its full intensity is realised. The form in which it is used is another consideration, that is whether applied in the form of condensed peat or merely dried turf. In the latter case the fuel is too light to withstand any considerable draught, whilst that in the concentrated form has been successfully used under strong blasts. Experiments now being carried out by burning in a locomotive the peat recently made by Messrs. Claytons' machine, give promise of its successful application in this direction The value of peat charcoal too, has long been recognised, and as the peat produced by this apparatus appears to be in good form and condition for charcoal making there are grounds for anticipating its use in this respect. This point is also being practically tested, and there is no apparent reason why this, as well as the other applications, should not succeed, in which case this condensed peat, being economically produced, will become a general manufacture.

ATMOSPHERIC TELEGRAPH AT PARIS.

We illustrate on page 101 the despatching room of what is somewhat erroneously called the Parisian Atmospheric Telegraph Company. By telegraphing we understand the transmission over wires of messages by means of electrical signals. The system we are about to describe briefly is exactly similar to that which has been in successful operation for some time in London for the distribution of mails to and from the different post offices. It consists in the propulsion through tubes of small carriages containing within them messages, etc These tubes are of small dimensions as may be seen by the illustration and are laid down beside the gas and water pipes. The system is composed of sixteen tubes each of which is