

the puddling of steel. The value of peat in the production of iron has long been established. Iron metallurgists are agreed in the opinion that iron so produced is of very superior quality. In every stage of iron manufacture, and in welding, peat charcoal is most valuable. At Messrs. Hick & Son's forge, in Bolton, a large mass of iron, about 10 in. square, was heated to a welding heat with peat charcoal made at Horwich. The time occupied was less than the operation would have taken with coal; the whole mass was equally heated through without the slightest trace of burning on the outside, and in hammering out the mass, as much was done with one heating as ordinarily required two heatings to effect. The importance of obtaining an abundant supply, at cheap rates, of peat charcoal, cannot, therefore, be too highly estimated."

This evidence is very encouraging, from so high an authority. The process of manufacture is very much the same as by Mr Hodges' process, except that the raw peat has to be brought to the mill instead of the mill floating to and keeping up with the raw material; and also that owing to the dampness of the climate, artificial heat has to be applied in drying. One result of charring in close ovens, however, is, that a considerable quantity of valuable chemical products are yielded, as ammonia, acetic acid, pyroxylic spirit, paraffin oils, the sale of which alone will nearly cover the expenses of the whole process.

"The fatty matter separated by distillation forms an excellent lubricating grease, the yield of which averages about 5 per cent. of the weight of charcoal produced; in its crude state it has been sold for £12 per ton at Horwich.

For the generation of steam, Mr. Clarke declares it to be superior to coal, both in locomotive and stationary engines. On the Northern Counties' Railway, of Ireland, a saving of 25 to 30 per cent of weight consumed, over the average of three months' working with coal, was effected. In experiments with stationary engines, on two consecutive days, "coal got up steam to 10 lbs. pressure in 2 hours 25 minutes, and to 25 lbs. pressure in 3 hours; peat fuel got up steam to 10 lbs. in 1 hour 10 minutes, and to 25 lbs. in 1 hour 32 minutes; 21 cwt. of coal maintained steam at 30 lbs. pressure for 9½ hours; 11½ cwt. of peat fuel maintained steam at the same pressure for 8 hours. But in addition to this a large economy is effected by the use of peat fuel for the generation of steam in the saving of boilers and fire-bars from the destruction caused by the sulphur in coal, from which peat is free. In Bavaria peat fuel has been used on the railways for several years past, and the economy effected by its use in the wear and tear of the engines is stated by the officials in their reports to be very considerable."

One of the experiments made in burning Peat on the Grand Trunk Railway, November 14th, 1866, is thus recorded:—

"Work performed by engine No. 158, burning peat fuel, with a mixed train of 18 cars, from Montreal to Prescott Junction, 112 miles. Prescott Junction being 260 feet higher than Montreal.

The train consisted of.....	16 freight cars
	1 passenger car
	1 van
	—
Total.....	18 cars.
Weight of freight.....	320,000 lbs.
Do of cars.....	345,000 "

Total weight of train, cars and freight.....	665,000 lbs.
Distance run.....	112 miles
Lost time made up in running between Vaudreuil and Matilda, 75 miles	110 minutes
Total weight of peat fuel consumed, 3½ tons.....	7,450 lbs.
Value of fuel at \$3½ per ton	\$11,65
Fuel consumed per mile run....	66½ lbs.
Cost of fuel.....	10 cents.
Number of car miles run....	2,016 miles
Fuel consumed per car mile run	3.69 lbs.
Cost of drawing a car containing over 10 tons of freight, a distance of one mile, a little over half a cent.	

The engine was in the same condition as when used for burning wood, with the exception of the blast nozzles, which were enlarged from 2½ inches to 2¾ inches diameter, or 34 per cent.

William Moore, the engine driver, before going this journey, had never seen peat fuel burnt."

The *American Artisan* says: "A Master Mechanic of the New York Central Railway reports that a large engine worked well with peat, made plenty of steam and kept its grate clear of ashes by shaking. Four cords were used in about 70 miles. He considers that peat, of the quality used, is a good fuel. It will not clinker; and as the ashes are easily got rid of by a shaking grate, the engine can work a long time."

In a paper read before one of the learned British Associations, by Mr. P. F. Nursey, he proves—so says the *Mechanics' Magazine*, "from well authenticated data, that the heating power of condensed peat is more than that of coal in the proportions of about two to one." On this subject *Leavitt's Peat Journal* says:—

It is an acknowledged fact that peat produces an intense heat—a feature of so much importance as to entitle it to prominent mention and careful consideration. Its virtue in this respect is much increased when properly prepared, solidified and dried, and it reaches its maximum of heating power when solidified and charred or coked. Mention has often been made of its peculiar qualities in this respect, but their importance will be more clearly comprehended when taken in con-