

PEAT FUEL ON RAILWAYS.

Editor CANADIAN ENGINEER:

In your number for last month there is an article by Herbert Wallis, late mechanical superintendent of the Grand Trunk Railway, on the "Efficiency of Coal Consumption in Railway Practice," in which he makes a comparison between wood and peat as fuel for locomotives; as it stands in Mr. Wallis' paper, peat is made to appear of 50 per cent. less value than wood, a statement which is misleading and requires qualification. I am interested in peat, and have been engaged in its manipulation, more or less, for thirty years, and cannot allow that statement to go forth and remain unnoticed.

Archibald Blue, director of the Bureau of Mines of Ontario, in his report for 1891, has an exhaustive chapter on "Peat, its Use and Value for Fuel." At page 206, speaking of Mr. Wallis' report on his trial with peat, he says: "It is evident from the result of these experiments that the peat which Mr. Wallis had under trial was of inferior quality, and although it is stated to have been compressed, the fact that he objects to it on the score of its losing materially in weight, shows that it cannot have been properly dried. No one could pit green or air-dried peat against dry, hard maple or Welsh coal with the expectation that it would compare favorably with them. The tests appear to have been fairly and carefully made, but if the peat was not a representative article in point of quality, as is probable was the case, they ought not to be considered as conclusive evidence of its inferiority to the other fuels with which comparison is made."

I can speak with some confidence in corroboration of the deduction arrived at by Mr. Blue as to the quality of the peat used by Mr. Wallis in 1875, the year in which he says his observations were made. The year 1874 was a very favorable year for peat operations, and the Canada Peat Fuel Co., who supplied the peat used on the G. T. R., made a much larger quantity than usual, inasmuch that their storage sheds and drying beds were completely filled. The Grand Trunk Railway Co., according to their agreement, were to remove 300 tons per day, but they failed to remove more than 60 or 70 tons per day, consequently there was no room to complete the curing of the peat during the short summer season, and a large quantity, some thousands of tons, was imperfectly cured and was partially frozen during the following winter. A curious feature of peat when condensed by maceration is that if it is allowed to freeze in a partially dry state then thawed and the drying completed, it loses density and weight and returns to its original spongy state.

The larger quantity which had been stacked or stored for the winter incompletely dried, was frozen and then dried the following summer of 1875, was of a loose spongy nature, and had lost that density and hardness which would enable it to resist the blast of a locomotive, and this was the peat used on the locomotives of which Mr. Wallis speaks. There was another reason, why the peat did not compare favorably with wood: the fire grates and blast were not altered to suit the peat, but were used indiscriminately as for wood. Numerous trials on the Grand Trunk Railway with fairly good condensed air-dried peat, under careful usage, gave results of from 45 to 55 lbs. per mile.

DAVID AIKMAN.

St. Lambert, April 20th, 1897.

SEWAGE DISPOSAL.

We have received the following letter from the International Water and Sewage Purification Co., Ltd., London, Eng., and we append a letter by the author of the article complained of, which gives his explanation of the subject.

Editor CANADIAN ENGINEER:

DEAR SIR,—We have had brought to our notice the March number of your valuable journal, in which there appears an article on "Sewage Disposal," by W. M. Watson, Toronto, from which it is evident that the writer of the paper has confused the porous carbon process of sewage treatment with the ferrozone and polarite process of the International Water and Sewage Purification Company. It is stated in the article that in the porous carbon process "the sewage is clarified by a precipitant named ferrozone, and then passes through a filter containing polarite." This method has been severally criticized in England. It is stated that the Porous Carbon Co. was offered every facility to prove the efficiency of its system at the town of Leicester, England, but they had utterly failed to produce a telling effect. From the above extract it will be seen that it is only right that you kindly allow us space to correct the error into which the author of the article has fallen by

mistaking the Porous Carbon Company for the International Water and Sewage Purification Company. The International Company are the sole proprietors of ferrozone and polarite; the Porous Carbon Company, which has now ceased to exist, used materials entirely different from those of this company.

The International system includes all the latest improvements for the efficient and economical treatment of sewage, and has been adopted at over 300 towns and places in this country, and is in most successful operation at a great number of sewage works, purifying all kinds of sewages. Her Majesty's Government have had it in use for the past six years with entire satisfaction, and its adoption is being extended to all parts of the world. We would like to say that at Leicester the International system was demonstrated with complete success after the Carbon Company's process had failed, and the following is an extract from the report of the medical officer of health of that town:

"*Re Polarite Filter*—We have had constructed at our sewage works an experimental filter of the above material, which has undoubtedly yielded better results than any of the numerous processes adopted here. It gave a filtrate which remained free from putrescence or appreciable smell after being kept continuously at a temperature of over 70° Fahr. for three weeks." The report further adds that the filtered effluent remained free from smell or unpleasant odor, even when exposed for three weeks hot weather in a large tank to the sun and air. Fish also lived in it, a striking proof of the comparative purity of the water.

When we mention that such towns as Middleton, Nelson, Wednesbury, Royton near Oldham, Maidenhead, Bowness on Windermere, Failsworth, Blackburn, Darwen, Chorley, Crompton, Melton Mowbray, etc., etc., as well as the Home Office and War Office Departments of H. M. Government have adopted the ferrozone and polarite process, and that it has been favorably reported on by some of the most eminent scientists and sanitarians of the day. We trust we have made it clear to your readers that, instead of being a failure, the International system is a highly successful, and the most economical method of treating a town's sewage, as is proved by its very extensive use.

The Engineer in Chief to the Local Government Board of England, Major H. Tulk, R.E.C.B., has inspected the International process in operation at several sewage works, and the following is a copy of the opinion he expressed:

"The results are most excellent. The sewage was very strong, but the effluent from the polarite filters was most beautifully clear, and without any smell or taste."

We are, yours obediently,

THE INTERNATIONAL WATER & SEWAGE PURIFICATION CO., LTD.

Editor CANADIAN ENGINEER:

DEAR SIR,—Replying to the letter from the International Sewage Purification Company, dated March 27th, I may say that I am not confused, for I believe I rightly understand the International Company to be a new name for the Porous Carbon Company, which they very properly say ceased to exist when they registered themselves as the International Water and Sewage Purification Co., and that whatever kind of precipitant they thought it necessary to use for clarifying sewage they alone should be allowed to call the chemical ferrozone and the material used for filtering, polarite. This statement may be proved by referring to their own advertising pamphlet, page 5, where they say that the polarite filter beds at Acton sewage disposal works are now (1894) working as well and effectively after continuous use since 1887 (a date previous to the registration of the new name) as when they were laid down. Then turn to the report on the Treatment of Sewage made by Arthur Turley, Esq., C.E., of Leeds, England, dated 1890. On page 11 he reports that the porous carbon process has been working at Acton for some time and that the precipitant used is magnetic ferrous carbon—probably some of the same chemical that they now call ferrozone. He also reports that the cost of constructing the works was £400, and annual cost of management was £133 6s. 8d. for each 1,000 of the population.

I have a copy of a report from Acton Local Board in 1892, stating that their sewage system was satisfactory, but that they would prefer irrigation. They do not contradict my quotation from the records of the civil engineers, but state that their system was demonstrated with complete success at Leicester. Now I have a copy of a letter before me written by the Leicester corporation, dated 1892, stating that they have lately disposed of their sewage principally by broad irrigation over a space of 1,400 acres of land, and that a portion of their old works was still treating sewage by undergoing a chemical treatment, by mixing six grains of the ferrozone and eight grains of lime to each gallon of sewage, but that