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# THE INVESTIGATOR.

Incorporated with "Our Cheerful Friend."

OUR COUNTRY'S WELFARE PARAMOUNT.

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## The Investigator.

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The facts published in the Biographical Sketches that appear from time to time in this journal, are all compiled by the editor, and are carefully verified, and special care is taken to avoid publishing any one, as an example, on whose career the least shade of meanness or trickery is attached.

An illustrated description of the Union Station, Toronto, with biographies of the Grand Trunk Railway officials will appear in our next issue.

a similar, but more complicated machine, which was said to be very effective in its operation. Owing to the fact that solidity necessary to ensure permanency was not imparted to the blocks produced by these processes, only a market limited to prescribed localities resulted, and their employment has been practically discontinued.

One essential quality of peat in relation to its value as a fuel is its density; and consequently numerous efforts have been made, and various processes have been attempted, by which to give it a degree of solidity equal to hard coal and sufficient to stand the blast required for a very high degree of heat in the more severe processes of metal manufacture, and the rapid generation of steam. This has generally been attempted by means of direct pressure, variously applied, upon the raw materials, as taken from the bogs; none of these methods have, however, hitherto proved practical, owing principally to the elastic nature of the article itself,

burns with considerable flame, gives an intense heat, and leaves no residuum except a fine light ash, which passes off freely and leaves the grate bars always free and clear.

For domestic purposes the new process solves the problem of furnishing a cheap, clean, uniform, and reliable fuel, as it is equally serviceable for grates, stoves, cooking ranges, and furnaces, giving a long, bright flame and intense heat almost from the moment of ignition, and its durability compares favorably with that of coal in consumption, as the density and hardness of the blocks ensure the retention of their original form until the last atom of the inherent carbon and gas has been consumed. The combustion is so thorough that no volume of free carbon or deleterious vapor is allowed to escape, hence its hygienic and economic advantage over either soft or hard coal. It will not absorb any undue moisture or deteriorate while in storage, and it is odorless and cleanly to handle.

friends—holds a controlling share, will be of interest, we clip the following extracts from the Canadian Electrical News:—"The Canadian Peat Fuel Company, which owns about 4,000 acres of bog, near Welland, Ont., have their works now in operation.

"The process of manufacture, consists, first, in the excavation of the peat at the bogs and its natural drying in the open air, until the material retains only approximately the same humidity as the atmosphere. It is then ready for manufacture, and the next step is the reduction or disintegration of the dried mass until it assumes a pulverized character. This is accomplished by means of a breaker, which revolves at a high rate of speed, and breaks the material to powder. The fibre, however, is preserved free from any undue fracture, and without liberating any of the indigenous or inherent combustible matters. From the breaker an exhaust fan draws the powder in to a large hopper, from which it descends to the machine, where it is stamped into cylinders two inches wide, and to the same depth in a tube without bottom. The resistance to the enormous pressure of some thirty tons being entirely obtained by the friction of the material against the side of the tube. The reduction of bulk from the raw material to the finished block is in the proportion of 6 to 1. The product ready for burning takes the form of a block about 2 inches in length and 2 inches in diameter, very hard and dense, and containing all the fibrous, carbonaceous, volatile and other materials and elements which are originally embodied in raw peat, and an amount of moisture only corresponding approximately with that in the surrounding atmosphere. The patent vertical press, built of cast steel, the invention of Mr. Dickson, with a moderate expenditure of driving power, and only two formers or dies, working against a yielding resistance, has an output of about 1 1/2 tons of pressed peat per hour, but it is proposed to build machines of much greater capacity at an early date. The gear type of compressing machine now in operation is run by a small engine, but ere long a new type of press, carrying its own steam cylinders, running at a much higher rate of speed and producing fully twice the quantity of fuel per hour, will be adopted. This fuel is said to be non-frangible and weather-proof by reason of its solidity and the external glaze imparted to it by frictional contact with the forming dies. The inherent moisture of the peat is reduced to 12 per cent. The weight of the fuel is given as 83 pounds per cubic foot, while bituminous coal weighs 73 pounds, and anthracite coal 93 pounds per cubic foot. Other qualities of this fuel are claimed to be freedom from sulphur, and that it makes neither smoke, soot, dust nor clinkers during consumption."

## CANADA PAST AND PRESENT

(Continued)

### A WONDERFUL DISCOVERY

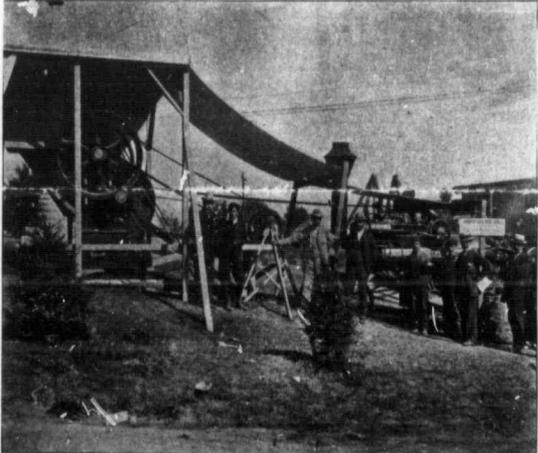
#### COMPRESSED PEAT AS FUEL.

No More Foughts for Coal in Future

To be a British subject is a privilege all may be proud of, but to be a citizen of the Dominion of Canada, as we call the British Empire, is a title that might well be envied by the most exalted.

That she is moving, and that rapidly, in the advance guard of civilization, is every day more patent to the most obtuse or prejudiced. The perfect system of her schools and colleges, the extent of her marine, the resolute fervor she has displayed toward Imperial confederation, the self-sacrificing spirit she has shown in throwing off 25 per cent. of her custom duties in favor of the Mother Country to that end, her projects for faster steamship service, the dauntless manner in which her Postmaster-General overcame the obstructions of the postal authorities of England in obtaining an ocean penny postage, and last, though by no means least, the startling fact that a Canadian has perfected an invention that will benefit the world for all ages, which has baffled the persistent efforts of the most ingenious minds for centuries, viz., the process of converting crude peat into a marketable fuel equal for some purposes superior to coal.

It is difficult to ascertain when peat was first used as a fuel, but that it was at a very early period there can be no doubt. Mention is made of its use by authentic writers in Germany, A.D. 1112, in Scotland, A.D. 1140, in Flanders, A.D. 1223, and in France, A.D. 1308. Charred peat is said to have been used in Freyburgh smelting houses about 1560, and for like purposes in England, A.D. the early part of the 17th century. Dr. King, an Irish writer, in 1685, says of turf:—"When it is charred it serves to work iron." "Turf charred I consider the sweetest and most wholesome fire that can be; fitter for a chamber and for consumptive people than either wood, stone-coal, or charcoal." Many methods of preparing peat by hand for fuel are still in use in Europe. It was only during the present century that labor-saving machinery has been introduced in North Prussia. A peat-cutting machine patented by Brosowsky was extensively employed. Lepreux, of Paris, invented



PEAT FUEL EXHIBIT AT INDUSTRIAL FAIR, TORONTO, 1888.

increased to a considerable extent in all peat of a fibrous nature, which caused a distention after the pressure was removed.

In 1885 the British Government offered a reward of £50,000, which was open for five years to any inventor who could produce a process which would convert crude peat into a commercial fuel, and although the incentive was great enough to set hundreds of inventive minds at work, none could arrive at the solution of the problem until a Canadian, in the person of Mr. A. A. Dickson, of Toronto, who, after an expenditure of large sums of money, and nearly a decade of time, accomplished the desired end. A discovery, the advantage of which to the whole civilized world will be inestimable.

The purposes to which peat as a fuel can be applied, and the manner in which it can be used, have a range as wide as coal or wood, or both. For manufacturing and mechanical purposes it is available wherever fuel is required, and possesses characteristics which render it decidedly superior, as, for instance, the simple fact of the entire absence of sulphur so prejudicial to the metal, is a consideration of immense value.

For generating steam it is superior to any other fuel. It ignites freely,

If then the above advantages are facts, and the Dickson process can supply the peat so that it can be handled commercially the same as coal; and they have both been proved by experts of undoubted authority, what a great field of enterprise is opened in Ontario alone with our vast areas of peat bogs in close proximity to important towns in every part of the province. A new era is about to dawn upon us. For many years we have been mainly dependent for fuel, for our iron works, our machine shops, our steam power, and the heating of our homes, to the importation of coal at a cost of millions of dollars annually, and as it is probably true, as stated that this fuel can be prepared for market at a less cost than coal can be mined ready for shipment, it is obvious that a saving of more than one-half the price will be attained. Our millions will be retained in the country, and the employment of thousands of Canadian workmen will be assured. As a brief description of the process used in this new and valuable discovery, and the present and future operations of the Canadian Peat Fuel Company, which has for its object the utilization of the immense peat bogs to be found in Canada, and in which the inventor, Mr. Dickson—with a few of his personal

Critical tests of the Dickson pressed peat, in the presence of advocates of coal, and the local engineers in charge, as well as of the Company's representatives, have been made upon the raising of steam in stationary boilers. The various figures and comparisons would occupy too much space to admit of extended reference in this article. The following extracts from the very latest trials will suffice to show the regard in which the fuel is held by competent judges:—

The certificate of the Chief Engineer of the Toronto & N. W. Company states "that for quick-steaming this fuel proved superior to coal, quantity consumed was not greater, smoke was not visible at any time, and ash was very much less."

The report of the fireman running one of the Sawyer-Massey Company's portable engines at the Toronto Exhibition says:—"For quick-steaming I never used fuel to equal peat. It is