

FACTS ABOUT PEAT AS AN ARTICLE OF FUEL

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Facts About Peat as an Article of Fuel by T. H. Leavitt

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T. H. LEAVITT

**FACTS ABOUT PEAT
AS AN ARTICLE OF
FUEL**

FACTS ABOUT

PEAT

As an Article of Fuel.

WITH

Remarks upon its Origin and Composition; the Localities in which it is found; the Methods of Preparation and Manufacture of Peat and Peat-Charcoal for Fuel; its use in the Smelting and Manufacture of Iron, Steel, and other Metals; its superiority as a Fuel for generating Steam under Stationary, Locomotive, and Marine Engines; for the Production of Gas; the various Products obtained from it by Distillation; the use of Peat in the Manufacture of Gunpowder and Paper, and for Pavements, Roofing Tiles, and various articles for Building and Ornamental Work; together with many other matters of practical or scientific interest.

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T. H. LEAVITT.

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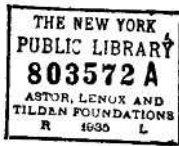
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PEAT AS AN ARTICLE OF FUEL.

PRELIMINARY REMARKS.

"THE importance which, in every age from the earliest period of human existence, must have been attached to fire, and the necessity which has ever impelled mankind to provide for it, not so much for purposes of luxury as an absolute essential to enable them to counteract the effects of climate and other external influences which affect the human frame, are sufficient, apart from any other considerations, to impress every one with a sense of its usefulness."

Nations, however rude or barbarous, have always made use of fire as a source of comfort or luxury, as a means of preservation, or as a destructive agent. The history of its application in relation to these three objects would go far toward illustrating a comprehensive view of the advance of civilization.

It is not in reference to these primary applications, however, that the full value of fire, or the extent of its influence, will be understood, but only when it is studied in connection with the various natural and artificial transformations of matter which it tends to produce.

Not only do the attributes of fire exert a gigantic influence in the various social requirements, but in the most minute as well as the most elaborate changes which take place in nature.

Heat and light, indeed, seem to be the life-giving principles of the material world, and are not less essential to man in subduing matter to his service.

Some kind of fuel has always been an article of prime necessity to man ; at least from the time when he began to prepare his food by the heat of fire, or had learned to prize its com-

fortable warmth in the cold of winter. As experience was gained in the properties and uses of materials about him, the applications of fuel to supply his increased wants were multiplied.

By means of it, clay was converted into better bricks than those baked in the sun ; limestone was burned for cement ; and the ores were made to give up the valuable metals which they held concealed with a grip so fast, that nought but fire could disengage or reveal them : and the subsequent treatment of these for obtaining the articles they were fitted to produce was also wholly dependent on the use of fuel.

So from the fruits of the field were obtained by various processes, alike dependent on the combustion of fuel, new products, the continued preparation of which, in many cases, adds not a little to their value. Indeed, most of the operations in the useful arts require, directly or indirectly, the application of artificial heat.

But the comparatively modern discovery of its being the most available source of motive-power has given to it a new importance hardly inferior to that derived from its other uses ; causing it to contribute more than all other resources of nations to their wealth and prosperity.

It may be said that the political power of the United States, Great Britain, France, or any other civilized country, is due not so much to their armies or navies — for these are defensive, not productive — as to the great development of their manufactures ; and these are in great measure dependent upon an abundant supply of fuel, easily procurable, and at cheap rates.

The means of obtaining this, then, are of first-rate importance in every manufacture ; and the question of its supply, preparation, and most economical application, are of the highest interest.

Among the material sources of heat, all the substances chemically termed *combustible* may be regarded as particular kinds of fuel ; although the name is usually restricted to organic products of ligneous origin, such as woody matters, — peat, coal, and the like.

The substances usually employed as fuel are *wood, peat*, and

coal, either in their natural state, or modified by peculiar treatment.

The abundance of all or either of these in a country must always constitute a principal source of its wealth, more especially since steam has become the moving-power of manufacturing industry as well as the great agent in locomotion.

It is evident, therefore, that none of the productions of nature should be more carefully husbanded than those which can be used for fuel.

Every attempt also to improve the quality of inferior materials, so as to increase their efficiency as heat-producers, and consequently their value, should be liberally encouraged.

The term "fuel" is commonly applied only to substances originally derived from the growth of plants; as wood, peat, charcoal, coke, and the various kinds of mineral coal. Even thus limited, it might properly include the inflammable gases and oils which are used of late for the sake of the heat generated by their combustion.

For objects requiring a quick heat, and at the same time diffused over a considerable space, the most inflammable fuels are found most efficient.

The results of numerous experiments, practical as well as scientific, go to show that peat, in its rudely prepared state, goes far toward answering these requirements; and, when solidified, it is for most purposes superior.

Wood, peat, and coal, though so different in physical appearance, are nevertheless very closely allied in composition; all the three being chiefly composed of ligneous fibre, a compound of four simple elements, — carbon, hydrogen, oxygen, nitrogen.

Physical effects have induced certain changes in some kinds of peat and coal, which cause them to differ considerably in their properties from woody fibre: but, by observing the action which analogous artificial agencies exert upon the latter, a remarkable coincidence is observed; and sufficient data are found for inferring that woody fibre is the basis of these substances, although, in the course of time, they have passed through various chemical transformations, differing in some particulars according to locality, temperature, &c.

The analogy which exists between peat and coal is perhaps