lution of gases (marsh gas, carbonic acid) of a disagreeable and partly noxious odor, at the same time that they take up oxygen from the atmosphere and from compounds contained in the soil and water surrounding them, *e. g.*, sulphates, which they reduce, they become brown and soft, and eventually are converted into an earthy, black-colored mud. The debris of plants, reduced to this state of decay, or in which the process is still going on, is called *peat.*"

Dr. Ure describes the course pursued in ascertaining the commercial value of the products of peat, in Ireland; and gives as the results of the examination the relative quantities produced by 100 parts, the average of the several ordinary varieties experimented on, as

Charcoal	29·222
Tarry products	2·787
Watery products	31·378
Gases	36·616

The average amount of ashes in 100 parts of peat was found to be 3·43.

Sir W. Logan gives the density of peat from the surface of the Bog of Allen, Ireland, as 0·335, or one-third that of water, while the blackish-brown earthy peat, from the lower layer of the same bog, is from 0·639 to 0·672, or double that of the surface. A peat found in Devonshire has a density of 0·850; while a specimen from the bog in Storrington, Canada, was "fine grained, compact, and so heavy as to sink in water," and gave by incineration 3·53 per cent. of a light grayish ash. Other specimens gave as much as 7·27 of ash.

In localities where coal and wood are expensive, peat is an excellent and economical substitute fuel for domestic uses. The solidified or compressed peat, made under Gwynne's patent, in Great Britain, is said to evolve no opaque smoke in burning, no sulphurous acid is set free, the heat is quickly raised and quickly diffused, the ashes do not form clinkers, and the peat does not contain any metallic sulphuret, or other substance that is likely to produce spontaneous combustion. It is also a valuable fuel for the manufacture of iron, and is for this purpose largely used in France, Sweden and parts of Germany, producing a quality of iron much superior to that manufactured with coal. The *Montreal Gazette*, recently noticing the first bloom of iron made with pure peat fuel in Canada, pronounces it of a quality equal to the best Swedish iron. The bar was bent by a vice, when cold, and "doubled up close at right angles with an edge, without a crack or flaw appearing, the outer corners remaining smooth and sharp: a test which it is said no coal-iron in Canada will stand."

Overman, in his work on "the manufacture of Iron," speaks of peat as being of little value to the American people as fuel, because of the abundance of wood and stone coal in the country; but admits that, in a charred form, it is "a most excellent fuel for the blacksmith's forge, in case-hardening, tempering and hardening steel, forging horse-shoes, and particularly in welding gun-barrels.

Fairbairn says that the iron ores of Balcarry Bay, in Ireland, yield 70 per cent. of iron; and if they were worked, and peat used for fuel, they would make iron equal to Swedish charcoal iron—that the ore, the peat, and good limestone are cheap and abundant; and on account of the purity of these materials, iron of the greatest strength and ductility can be made; which, from its non-liability to corrode, would be well adapted for marine purposes. The writer of the article, "Iron," in the Encyclopedia Britannica, says if the Irish iron mines were more extensively worked, and peat fuel used in the smelting operations, the "iron would probably be of the very best quality, and might rival the famed Swedish charcoal iron." "In Austria, all the iron is smelted with charcoal or carbonised peat, and is in consequence of the first quality." "The superiority of the Swedish iron has long been acknowledged, and till recently it has been unrivalled. This arises not only from the purity of the ore, but in consequence of its being smelted with charcoal only." From experiments recently made, in Europe as well as in this country, carbonised peat appears to be as superior to wood-charcoal for the manufacture of iron, as wood-charcoal is to coal. If this is so, with our extensive and superior native iron ores, and immense fields of peat, combined with our other rich mineral resources, what stores of wealth the Province has in reserve!

At Dartmoor, England, peat is cut by the convicts, and stored up; from this a highly illuminating gas is made, with which the prisons at Prince Town are lighted. The charcoal left is used for the prison fuel, and for sanitary uses (for which latter purpose it is a valuable article), and the ashes are finally used to improve the poor land of the neighbourhood. According to the experiments of Dr. Letheby, one ton of peat furnished as much as 14,000 cubic feet of illuminating gas, which, when passed through an alkaline mixture, was found to be free from sulphur; in this respect having a decided advantage over coal gas.

In Great Britain and in the United States, many patents have been taken out for the cutting and preparation of peat for fuel; but owing to the competition of cheap coal, or the want of perfect-