In the first volume of Dr. Macculloch's valuable "History of the Western Islands of Scotland," he has given a luminous description of the formation of peat, which completes the natural history of peat moss. Beside the Sphagnum palustre, he has enumerated nearly forty plants which concur to the generation of peat.

The process by which these vegetables are converted into peat, is most clearly seen in the sphagnum. As the lower extremity of the plant dies, the upper sends forth fresh roots like most of the mosses, the individual thus becoming in a manner immortal, and supplying a perpetual fund of decomposing vegetable matter. A similar process, though less distinct, takes place in many of the rushes and grasses, the ancient roots dying together with the outer leaves, while an annual renovation of both, perpetuates the existence of the plant. The growth of peat, necessarily keeps pace with that of the vegetables from which it is formed; hence the necessity of replacing the living turf on the bog where peat has been cut,—a condition now required in all leases, in which liberty to cut turf is included. On the conversion of vegetable matter into peat, Dr. Macculloch observes:—"Where the living plant is still in contact with peat, the roots of the rushes, and ligneous vegetables, are found vacillating between life and death, in a spongy half decomposed mass. Lower down, the pulverized carbonaceous matter is seen mixed with similar fibres, still resisting decomposition. These gradually disappear, and at length a finely powdered substance alone is found, the process being completed by the total destruction of all the organized bodies."—P. 130. The best peat is that of which the decomposition is most complete, and the specific gravity and compactness the greatest. The quality of peat, Dr. Macculloch observes, is much affected by the wetness or dryness of the soil, and the elevation or other causes, which influence the temperature and moisture of the atmosphere.

For a description of the chemical changes produced in peat by water and fire, I must refer to the first volume of Dr. Macculloch's work before quoted, p. 131. It is only in the first stages of decomposition that peat is soluble, and communicates a dark colour to water.

The rapid formation of peat in many situations, where it is found covering ground that was formerly pastured, admits of an easy explanation, since Dr. Macculloch has so clearly described the mode in which this substance is generated.

The property possessed by peat of preserving animal matter from putrefaction is well deserving notice. It is probably owing to this, that some of the fleshy parts of the mastodon have been so long preserved in peat bogs.

In the *Philosophical Transactions*, 1734, there is a letter from Dr. Balguy, giving an account of the preservation of two human bodies in peat for fifty-nine years. "On January 14, 1675, a farmer and his maid-servant were crossing the peat moors above Hope, near