

On the Culture of Tobacco: from a Review of "Brodigan's Treatise on the Tobacco Plant," in the Gardener's Magazine.

TOBACCO was introduced into the county of Cork, with the potato, by Sir Walter Raleigh; but the culture of the former does not appear to have made much progress, though, according to Humboldt, it preceded that of the potato, in Europe, more than 120 years, having been extensively cultivated in Portugal at the time that Sir Walter Raleigh brought it from Virginia to England in 1568. A writer in 1725, quoted by Brodigan, says, "I have not heard that a root of tobacco was ever planted in this kingdom." An act of George III. repealed several preceding acts that prohibited the growth and produce of tobacco in Ireland, and this is the foundation on which Ireland now rests her claim to that branch of culture. Until the year 1828, Brodigan observes, the culture was limited; but, in that year, there were 130 acres under tobacco; and, in 1829, 1000 acres in Wexford alone. "It has been partially cultivated in the adjoining counties of Carlow, Waterford, and Kilkenny, and other places. In the province of Connaught, an experiment was made in the vicinity of Westport. It has been grown, in one or two instances, near Dublin; in the northern section of the kingdom, two or three trials have been taken place, on a small scale;" and our author has cultivated several acres in the neighbourhood of Drogheda, preparing the soil by horse-labour, as for turnips.

The culture of tobacco in Ireland, as practised by Brodigan, is thus given:—"Hot-beds, like those made for cucumbers, are to be prepared in March, and the seeds sown any time from the 15th of that month to the 1st of April. In the beginning of May, the plants may be hardened by exposure to the air; and, by the 15th or 20th of that month, they may be transplanted into the open field without injury. Forty thousand plants, fit for transplanting, may be raised on an area of 100 square feet. According to Carver, a square yard will rear about 500 plants, and allow proper space for their nurture till they are fit for transplanting. The field was prepared in every respect the same as for turnips; the drills or ridgelets were 18 in. apart, and the manure, of which a good supply was given, buried in the centre of each ridgelet. The plants were put in with spades, at 18 in. apart, along the centre of the ridgelet, and afterwards watered. "The planters were followed by women, with their aprons full of long grass, with which they covered each plant, and confined it by placing a stone or lump of earth at both ends; this covering is indispensable, unless the weather prove wet and cloudy. Such

is the extreme delicacy of the plant, it will not bear the heat of the sun, unless it has so far set in the soil as to be able to supply the loss from evaporation. This will not be for some days, during which time the cover cannot be safely removed, and watering to the extent of a pint a plant may be daily used. Some of the respectable planters in the county of Wexford have used pots as a covering for the plants, of which some thousands will be necessary. Others have used large oyster-shells, leaves of cabbages or docks. I have tried all these methods, and experience has satisfied me the mode I practised has decided advantages. It protects the plant sufficiently against the sun, and the water passes freely through it; whereas, where pots or leaves are used, they must be removed to admit water; and, in case of rain, the plants receive little or no benefit from it. The operation of planting may be continued until the 20th of June; but the earlier the better, after the frosts have passed away. In America and France, I found that four months were generally considered as necessary for the maturation of the plants; and that time, in this climate, cannot be allowed, unless they are put down early." (p. 160.)

The Summer Management of Tobacco, by Mr. Brodigan, consisted in loosening the soil about the plants, removing the weeds, watering "for weeks together," taking off the decayed leaves at bottom, topping when the plant has from 9 to 14 good leaves, and removing the side buds as they appear.

The curing Process, by Mr. Brodigan, is as follows:— "About the middle of August, the plants having attained their full size, four or five of the bottom leaves of each plant are taken off, suffered to lie on the ground for some time, and, when they lose their brittleness, and can be safely handled, they are carried home to a barn, and there put in a heap for fermentation. The heap is turned, placing that in the centre which was before in the bottom or exterior, and the temperature not allowed to exceed 100° or 110°. After remaining two or three days in this heap, the leaves are spread out and cooled, and strung by the midrib on lines of packthread; they are then hung up in an airy shady place, roofed in. When the leaves thus suspended have acquired an auburn colour, they are fit for a second fermentation. A quantity of hay must be placed between the tobacco and the ground, and the heap may be made of an oblong or conic figure, the ends of the stems being placed inwards. The heap being made, it is to be surrounded with hay, blankets, or other close covering. The period for this fermentation will depend upon the state of the weather, and the dryness and size of the leaves. In four or five days, I generally found the heat was sufficiently high to penetrate and reduce the stems; and when that is accomplished, the heap is to be cooled by spreading it out to dry.

In reducing very strong tobacco, I found it necessary to permit the heat to ascend to 126° . In 60 hours, I found the heat had attained 110° ; and, in 72 hours, 126° ; but the general range of the second fermentation was from 120° to 125° Fahrenheit. In some cases I had to resort to a third fermentation of the same tobacco, but the heat did not rise beyond 90° . Upon this important point of fermentation, or sweating the tobacco, I have given the result of my practice. For greater accuracy, and the benefit of the inexperienced, I have given it from a thermometer; but, at the same time, the hand and feeling of a practised overseer can direct the process. As soon as the tobacco has been perfectly dried, by exposure to the sun and the weather, it is still necessary to dry any remaining moisture in the midribs, for which purpose they must be packed so as to be outside, that the air may have its influence upon them. When they are perfectly dry and hard, the tobacco may be considered as fit for use, although it will possess more or less of crudeness, until the month of March following. To correct this crudity, or any acrimony that may exist, different preparations are used in different countries. In Brazil, the leaves are steeped in a decoction of tobacco and gum copal. In Virginia, I understand they sprinkle the tobacco, in the packing process, with a decoction of the green tobacco stems, or a decoction of hay, with a small portion of molasses: the effect of this innocent application is to soften and improve the flavour, darken the colour of the tobacco, and render it, in appearance, a more merchantable commodity. The next and last operation is, to tie the leaves in hands, and pack them in bales or portable packages." (p. 166.)

Improvements in the curing Process.—Some of Mr. Brodigan's tobacco, he informs us, only wanted age to be as good as Virginia. Tobacco improves by a sea voyage, as it undergoes a certain degree of fermentation in the hogsheads in the spring or summer months. Drying-houses, heated by flues or steam, as now erected in America, he thinks, would be an improvement in Ireland. Captain Basil Hall visited a tobacco plantation on James's River, and found the house, in which the *hands* were hung up, with fires of wood made upon the earthen floor. The flavour of the wood burnt in this way, Mr. Brodigan states, is now strongly perceptible in the tobacco of late years imported from America.

As *suggestions* derived from considering what we have read and observed on the subject of cultivating and curing tobacco, we submit the following:—When a farmer, who thoroughly understands and successfully practises the Northumberland mode of cultivating turnips, intends growing tobacco as a field crop, we would recommend him to prepare the soil exactly as for

Swedish turnips, give a double dose of well rotted manure, mix the seed with fifty times its bulk of sand or bone-dust, and sow with Common's turnip drill, usually called French's, about the middle of May. When the plants come up, they may be thinned out as turnips are, 16 or 18 in. apart, and topped in the beginning of August. The rest of the process may be conducted as by Brodigan, drying, however, in a barn or house heated by an iron stove. A cottager or spade-cultivator may find it worth his while to sow in a hot-bed or in a flower-pot, and transplant; he may dry his leaves the first time under the eaves of his cottage, and the second time in his garret; or, if the quantity is small for home use, in his kitchen. For his tobacco liquor, or sauce, he may grow a score or two of poppy plants, collect the opium from them, and mix this with whisky, or spirit of any kind, in which abundance of peach leaves, or a few leaves of *Laúrus nóbilis*, or one or two of the common laurel, have been infused, adding water and salt as directed above. A gardener, where there hot-houses and hot-house sheds, may dry and ferment in them; and, indeed, with such opportunities, and seeds of *N. repándum*, he ought to grow better tobacco than any person whatever, not in Virginia or the West Indies.

The produce, in America, is from 1000 to 1500 lbs. per acre; in the county of Wexford, 1200lbs.; and in Meath, Mr. Brodigan has had at the rate of 1680 lbs. per English acre. In Virginia, the leaves of four plants, each occupying a square yard, give a pound of tobacco. The money-cost of production in Ireland, Mr. Brodigan estimates at 18*l.* per acre, where the land is prepared by horse-labour; and 30*l.* where it is prepared by manual labour. The produce, at 16*l.* 8*s.* per hogshead of 1350 lbs., barely pays the expense of horse-labour.

The value of tobacco, as an agricultural crop, is much diminished from the circumstance of its producing no manure. The farmers of Virginia, as Jefferson predicted, have now ascertained that it is better to raise wheat, at 1 dollar per bushel, than tobacco at 8 dollars per cwt. As a source of labour, Mr. Brodigan thinks the culture of tobacco a desirable employment for the rural population of Ireland. Its great advantage is, that it affords employment for those intervals when the labouring poor are at present destitute of occupation. "The cultivation of a potato crop is of vital importance to the Irish peasant; but as soon as that crop is planted, there is a long interval of idleness and distress. The stock of potatoes is then generally exhausted, or unfit for use, and the summer months are the most pinching times with the poor. The planting of tobacco may be said to commence when the other is finished, and the field management occupies the interval until the corn harvest. Again, between the corn harvest and the taking up of the potatoes there

is another interval of idleness, and that is occupied in the curing of the tobacco." (p. 178.) As a cleaning crop, and a preparation for wheat, the tobacco must be about equal to the potato. The nourishment it abstracts from the soil must also be of the same general nature, since both plants belong to the same natural order, *Solanææ*.

The manufacture of tobacco we have slightly described in the *Encyclopædia of Plants*. We have since had an opportunity of witnessing the progress of all the different operations carried on in preparing shag and other kinds of smoking tobacco, pigtail and other chewing tobacco, various snuffs, and different kinds of cigars, in one of the most extensive manufactories in London; and the conviction on our mind is, that very little in the way of manufacturing can be attempted by the gardener or cottager. That little we shall shortly describe.

The tobacco, being properly fermented and cured, may be kept closely pressed and excluded from air, in casks, till wanted; or, when the curing process is completed, smoking-tobacco and snuff may be made from it as follows:—Open out the leaves singly, and from each tear out the midrib. The midribs are better adapted for rasping into snuff than for cutting into shag for smoking; and being scented by any essence, such as that of thyme, anise, lemon, or more especially by that of the root of *Pris florentina*, the orris root of the druggists, may be tied up in what are called carrots, or rolls, about 18 or 20 in. long, 2 or 3 in. in diameter in the middle, and half an inch at each end.

They are tied with packthread drawn as tight as possible, and the threads quite close, so as to compress the tobacco into one solid substance, and completely to exclude the air. When snuff is wanted, unroll a part of the packthread at one end, and rasp the tobacco into snuff with a file or grater. The carrot may then be laid in a dry place till wanted for a fresh supply. The soft parts of the leaves may be treated in the same manner, and a snuff produced which some prefer to the other. Gardeners may dry leaves of any odoriferous plant, such as thyme, mint, *Aloysia citriodora*, &c., and tie them up in the tobacco carrot as substitutes for liquid scents; and, if thought necessary, they may add a leaf or two of *Veràtrum álbum* to add purgency. For cottagers, there are agrimony, wild thyme, and various other plants, which may be added.

The soft part of the leaves, from which the midribs have been removed, may be slightly sprinkled with water, without any admixture whatever, and twisted into a rope, about the thickness of a common straw rope. The rope may then be coiled up in a ball, as firmly and compactly as possible, tied round in two or three places with packthread, wrapped in paper, and placed in a dry place, excluded from the air, till

wanted for use. When to be used for smoking, cut off a few inches of the rope, open it out, and cut in into shreds with a knife or chopper, so that it may resemble shag tobacco. If it is to be made into snuff, open out the leaves, dry them over the fire or in an oven, and pound them in a mortar, adding to the powder any scented water, or volatile odoriferous oil, at pleasure. If more snuff is made than is wanted for immediate use, put it in a glass bottle, and cork it closely. The Scotch and Irish snuffs are, for the most part, made from the midribs; the Strassburgh, French, Spanish, and Russian snuffs from the soft parts of the leaves.

The process of forming cigars is very simple; but, as it cannot be done well without much practice, it would be of little use to offer a description. Whoever wishes to make himself master of all that is known on the culture of tobacco or different modes of its manufacture, may consult *Cours d'Agriculture Complet*, Paris, 8vo. edit. 1823, art. Tabac; *Carver's Treatise*, London, 8vo 1779; *Tatham's Essay*, London, 8vo. 1800; *The Experienced Bremen Cigar-Maker, or fundamental and practical Instructions for making Twenty-five Sorts of Cigars according to the latest experience*, Chemnitz, Kretschmar, 1824, 8vo.; *Schmidt's Tobacco Culture of the French and Dutch combined, with the Mode of preparing the Plant for Use*, Dresden, 8vo. 1824, Arndt.

On the substance called Fine Linen in the Sacred Writings. By the Rev. DAVID SCOTT, M.D., M.W.S. &c.

[Abridged from the Edinburgh New Philosophical Journal.]

WHEN I first turned my attention to the fine linen of the Sacred Writings, I imagined I should soon come to a decided opinion; but, on inquiry, I found it involved in great obscurity, chiefly arising from the vague terms which the ancients had employed in describing it.

The indistinct accounts which they have left us, will be some excuse, it is hoped, for the imperfections of this essay, which was undertaken at the suggestion of a venerable member of this society, — Dr. Baird, Principal of the University, and one of the ministers of the city.

Linen, as every one knows, is a manufacture from the fibres of flax, and, in correct language, has the character of fine, when the manufacture is of a superior quality.

Among the Israelites, garments made of linen were worn by the Levites, in contradistinction to those made of fine linen, worn by the priests.