VI.—A DAY AT A TOBACCO AND SNUFF FACTORY.

In entering next upon a rapid review of the processes by which tobacco, cigars, and snuff are produced, we feel that we must not indulge in many remarks on either the use or the abuse of this plant. There is certainly a strong temptation so to do, when we are told in 'Dr. Everard, his Discourse of the wonderful Effects and Operations of Tobacco,' that the use of this plant will stay hunger and thirst, cure the dropsy, ease diseases of the head, catarrhs, and headache, cure dimness of sight, deafness, redness of the face, toothache, ulcerated gums, swelling of the throat, diseases of the chest, stomach pains, surfeit, swooning, colic, diseases of the liver and of the spleen, sciatica, burns, wounds, scalds,—in short, effect cures of all sorts of complaints in all sorts of animals. On the other hand, we have King James the First's dictum that the use of tobacco is "a custom loathesome to the eye, hateful to the nose, harmfull to the braine, dangerous to the lungs, and in the black, stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless." Leaving these two authorities to balance each other, we must be content to treat the matter simply in a commercial and manufacturing character; previously quoting Mr. Porter's remark, that "Tobacco is, perhaps, an object of more general use than any other production of the vegetable kingdom; and if we consider that in no sense can it be classed among articles necessary for human subsistence, this fact is calculated to excite our surprise as well as interest. The love of tobacco is evidently an acquired taste; yet it is one so easily and universally acquired, that this weed forms a luxury which is enjoyed in common by the African negro, the unclothed and houseless wanderer of Australia, the hardy American Indian, the slothful Asiatic, and every class of people throughout the more polished countries of Europe."*

It has happened in the preceding pages that a notice of manufactur-

* "Tropical Agriculturist," p. 151.

ing processes did not involve the necessity for a description of the raw materials operated on. For instance, in an account of the operations conducted at a Brewery, there is no necessity for beginning with a detailed account of malt and hops, the substances from which the flavour and qualities of the brewed liquor are derived. But in treating of *tobacco* the same remark cannot apply; for it is the actual leaf of the plant which is consumed, and not a particular substance extracted from it. Moreover, the processes whereby the leaf is brought into a prepared state are partly performed at the American plantation whence it is derived; and these must be glanced at before the subsequent processes can be understood. Although, therefore, we have headed this as being one branch of manufacture, yet the details will carry us to different quarters, instead of being confined within the limits of one establishment.

The botanical name for the tobacco plant is *Nicotiana*, given to it in honour of Jean Nicot, Lord of Villemain, who was ambassador from France to Portugal about the time when the plant was first brought to Europe. It is supposed that he introduced it first into France, as Sir Walter Raleigh did into England. There are seven species of the Nicotiana, of which only one, the *Nicotiana Tabacum*, need be particularly described. There are two varieties of this species, both annual herbaceous plants, rising with strong erect stems to the height of from six to nine feet, their foliage being fine and handsome. When full grown the stalk near to the root frequently attains a size greater than an inch in diameter, and is surrounded by a hairy clammy substance of a greenish-yellow colour. The leaves, which are of a light green, grow alternately at intervals of two or three inches on the stalk: they are oblong and spear-shaped; those lowest on the stalk are about twenty inches long, and they decrease in size as they ascend, the top leaves being only ten inches long, and five broad. The young leaves, when about six inches long, are of a deep green colour, and rather smooth; but as they approach maturity, they assume a yellowish tint, and a rougher surface. The flowers grow in clusters from the extremities of the stalks: they are yellow externally, and of a delicate red within; the edges, when they are full-blown, rather inclining to purple. These flowers are succeeded by kidney-shaped capsules of a brown colour, each one of which contains about one thousand seeds, so that the whole produce of a plant has been sometimes estimated at three hundred and fifty thousand seeds.

Such is the appearance which the plant presents when under culture. In Virginia (the centre of the tobacco-growing districts) the kinds of soil chosen for the cultivation of the plant are the chocolate-coloured mountain-lands, and the light black soil in the coves of mountains, and the richest low grounds. The ground is prepared in two ways, one for the seed, the other for the transplanted sprouts. The seed is sown in nursery-beds, called *patches*, bordered by some plant which will arrest the progress of the ravaging fly; and is effected generally about March or April. In a month's time, the young sprouts being ready for transplanting, ground is prepared for their reception. Hillocks, about eighteen inches high, are raised in parallel lines, four feet apart in one direction, and three feet in another. The sprouts, being about five inches high, are carefully taken out of the ground without injury to their tender rootlets, and conveyed to the field in a basket. One person places a sprout upon every hillock; and others, who follow him, make a hole with the finger in the centre of each hillock, and deposit the tobacco-plant in an upright position, pressing the earth round the root with the hands. This is an operation of great delicacy, as the leaves are exceedingly tender at this time, and any injury sustained by them would endanger the safety of the plant.

Incessant attention is required to the young plants in weeding, earthing, stirring the soil about the roots, removing dead leaves, removing superfluous sprouts called suckers, defending the plants from grubs and worms, &c. When the plant has attained the height of about two feet, it is *topped*, that is, the upper part is cut or pinched off, leaving such a portion of the stem as contains from five to nine leaves.

When the plants are in a fit state for being cut (at which time the leaves have changed their colour to a yellowish-green, the substance of the leaf is thickened, and the web more prominent), the cutters, each of whom is furnished with a sharp strong knife, proceed regularly along the rows of plants, cutting only such as appear to be ripe, leaving the rest for future operations. This selection is necessary, because if the tobacco be cut before it is fully ripe, it will not assume a good colour, and will be liable to rot when packed in the hogsheads. The stalks are cut almost close to the ground; and such of them as are sufficiently thick are slit down the middle, in order to admit the more unobstructed access of air and the evaporation of natural moisture. The cut and divided stalks are then laid down in regular order on the ground, the extremities of the leaves all pointing in the same direction, that they

may be more easily gathered. This gathering is effected after a short exposure to the sun.

The next part of the process is the *curing* of the tobacco, which is carried on in large barns, whose sides are left partially open to allow a free circulation of air; and the internal area of the building, including the roof, is occupied by horizontal poles stretching across the barn in a parallel direction, and four feet asunder. These poles are connected together by cross-pieces called 'tobacco-sticks,' upon which the leaves are hung in order to be cured. There are several stages of these poles and sticks, one above another, a perpendicular space of four feet being left between them. The plants are carried to the curing-house as soon as the leaves have lost so much of their rigidity and brittleness as to bear handling without breaking; and the operation of hanging them is then effected, by suspending the plants upon the sticks with the points of the leaves downwards, resting them either by the stalk of the lowest leaf, or by the slit which has been made in the stem. Each stick, after being loaded with plants placed four or five inches apart, is conveyed to the stage of poles to which it belongs; and the whole area of the barn becomes thus filled with the plants, no two touching each other.

The unassisted action of the atmosphere produces, in a general way, that effect for which this process is undergone; but it is sometimes necessary to have small smothered fires of rotten wood or bark in the barn, to counteract the effects of an unfavourable state of the weather. An exposure to the air for a period of about five weeks makes the leaves of tobacco elastic and tough, and slightly covered with a glossy kind of moisture. The tobacco is then said to be '*in case*,' and is taken down from the sticks, in order that the stalks may be separated from the leaves. The general plan is for a party of negroes—men, women, and children—to sit in a circle on the floor of the tobacco-house, and to pull the leaves from the stalks, handing the former to two men placed in the centre, who distribute them into separate heaps according to their qualities. The lower or ground leaves, being generally soiled and torn, are separated from the rest; while of those produced in the higher part of the stalk, some are inferior to others: the whole are therefore distributed into three heaps.

At this stage in the proceedings it is necessary to mention a difference in the form in which tobacco is imported from the plantations. Our manufacturers distinguish between 'strip' and 'leaf,' or 'strip-

leaf' and 'hand-work,' the former of which is the technical name for tobacco from which the stem of the leaf has been taken away before the latter is packed in the hogshead; whereas 'hand-work' is the name — sufficiently unmeaning, as most readers will deem it—applied when the leaf is packed whole, stem and all. The stripping is effected by taking the leaf in one hand, and the extremity of its stem in the other, in such a manner as to tear them asunder in the direction of the fibre—a process requiring some degree of expertness: but whether the leaves are stripped or not, the subsequent processes are nearly the same. The leaves are tied up in small bundles by a bandage at their thicker end, a small leaf being employed for that purpose by twisting it round the others, and securing its end in a kind of knot. Each little bundle of those leaves from which the stalks have not been removed is called a *hand*, and is, at the end where it is tied, somewhat thicker than a man's thumb, the length being from one to two feet, according to the kind of leaf. The 'strip-leaf' presents a slightly different appearance. All the bundles are then thrown together in heaps on a wooden platform, where they undergo the process of '*sweating*,' which is in its nature a slight degree of fermentation.

Packing for shipment is the next operation. The tobacco is packed in hogsheads; and there are three reasons why it is desirable to compress it into as small a space as possible—the expense of freight is considerably lessened by lessening the bulk; the tobacco is rendered less liable to external change by the air being nearly expelled; and the reception of moisture, or of injury from without, is rendered less likely to occur. Mr. Porter states that instances have occurred where vessels have been stranded, and their cargoes of tobacco, although long covered by sea-water, have yet been found on examination to be only very partially damaged on the outside; the middle, from one or two inches inward, proving perfectly sound and dry. The casks are made thoroughly dry for the reception of the tobacco, which is then deposited in them, the little bundles or *hands* being ranged one by one parallel to each other across the hogshead, the points all in the same direction. The next course or layer is reversed, the points being in the opposite direction; and any small spaces that may occur are filled up with bundles of less size, so as to bring all to a level. When the hogshead is about one-quarter filled in this way, a powerful lever-press is applied to the surface of the tobacco, so as to reduce the thickness from about twelve inches to three. The lever is kept in its position for

several hours, in order that the tobacco may become so completely consolidated that it will not spring up again when the pressure is removed. Fresh portions are then laid in the hogshead, and treated in a similar manner, until the whole space is filled with a dense and compact mass of tobacco-leaves. A hogshead, forty-eight inches in length, by thirty or thirty-two in diameter, will hold one thousand pounds weight of tobacco, when compressed in this way.

We have now seen our tobacco packed in hogsheads, and shall here take leave of the plantations. Mr. Tatham, in his 'Essay on the Cultivation of Tobacco,' details the mode of examination to which the hogsheads of tobacco used to be subjected before they were allowed to be shipped from Virginia; but as many changes have taken place in the tobacco-trade during the forty years which have elapsed since Mr. Tatham wrote, and as this mode of examination is in some respects similar to that which is at present acted on in the London Docks (of which we shall presently speak), any further notice respecting the proceedings previous to shipment may be dispensed with here. Referring to Mr. Porter's valuable volume, before quoted, for more minute details respecting the cultivation and curing of tobacco, we will suppose a cargo to have arrived at London, and will follow it in its subsequent career.

Among the wonders which are presented by the numerous docks at the east end of the town, few are so remarkable as the *Tobacco-Warehouses* at the London Docks. In Pennington Street, Ratcliffe Highway, is one of the entrances to these Docks, very near the tobacco-warehouses. The warehouses lie at the left hand of the entrance gates, and are entered through an archway. After going a few yards through a path bounded on either side by hogsheads of tobacco, we come to a vast area of ground whose appearance is indeed bewildering. Almost as far as the eye can reach, southward and eastward, are ranges, tiers, or alleys of hogsheads, whose number is immense. Passage after passage occurs, each several hundred feet in length, and only wide enough to admit the necessary traffic; all parallel one to another, and all bordered on both sides with close and compact masses of hogsheads, generally two in height. The whole are under one roof, or rather one succession of roofs. The mass of tobacco here stored is so great, that there have frequently been at one time more than *twenty thousand hogsheads*, averaging twelve hundred pounds of tobacco each.

Those who are unacquainted with Customs and Excise regulations

may perhaps not deem it immaterial to know why this enormous quantity of tobacco is kept in one place. The duty paid on every pound of tobacco is very large; but this duty is not demanded so long as the tobacco remains at the docks, or rather in the warehouses attached to the docks. As soon as it is landed at the docks from the ship and placed in the warehouses, it is considered to be "*in bond*," under the care of the State, and cannot be removed thence till the duty is paid. A small *rent* is paid during the time that it remains in the warehouses. Permission is given for the transference of samples from hand to hand, under certain regulations; but the bulk of the tobacco must remain until the somewhat inordinate demands of the state are satisfied.

Scarcely any other important article of consumption pays a duty so enormous, when compared with the cost price, as tobacco. The average value of the tobacco brought to England, including the profits of the cultivator, the ship-owner, and all parties concerned, is about sixpence per pound; but the duty paid on it is now *three shillings and twopence* per pound, being more than six times the full value of the article itself. We have heard of an instance, at a time when the duty was somewhat higher than it is now, of tobacco worth only twopence halfpenny per pound paying a duty of four shillings,—nineteen times the value of the commodity! The expediency or inexpediency of this impost, in a fiscal point of view, it is no part of our purpose to descant on here; but it is necessary to mention these matters in order to understand certain curious effects which result therefrom. If by any circumstance the whole or a portion of a hogshead of tobacco becomes injured, previous to its arrival at the docks, the owner would rather lose it altogether than pay the enormous duty on the damaged portion. Were the duty very small, it is possible that the damaged portion might be sold at a price which would more than cover the duty on it; but as it is, the duty is too high to permit of such a speculation. The State allows the damaged portion to be *burned*, without any duty having been paid on it; and we proceed to describe the arrangements whereby this is effected.

In various parts of the warehouses are large scales for weighing the hogsheads of tobacco, together with other apparatus connected with the examination of its quality. At each of these stations is a small temporary room or counting-house, for the accommodation of the supervising officer, under whose immediate inspection the examination proceeds. A hogshead of tobacco having been brought to one of these stations, the head of the hogshead is knocked out, some of the staves

loosened, and by a dexterous management the hogshead is taken completely off the tobacco, leaving the latter standing upright as a brown-coloured mass of tobacco-leaves, very dense and impenetrable. As we before observed, such a mass, four feet high and less than three feet in diameter, weighs as much as a thousand pounds. By an examination of one end of this cylindrical mass, we can see the manner in which the little bunches of tobacco-leaves are ranged layer upon layer, and compressed very tightly together. The examination then proceeds, of which we can of course say very little in words, since it is only by long experience that the nature and extent of any damage which the tobacco may have received can be appreciated. Let us suppose, however, that a portion of the exterior has, through the action of sea-water, bad packing, or any other cause, become so damaged as to be not worth preservation. In such cases two men, provided with long cutting instruments, stand on opposite sides of the cylindrical mass of tobacco, and chop away all the injured part, by small bits at a time. The compression to which the tobacco has been subjected gives such a solidity and denseness to the mass, that very powerful blows are required to chip off the damaged surface, especially at the cylindrical parts, for there the cutting is effected crosswise to the direction of the stalk and leaf. When we visited the warehouses, we saw a mass of tobacco which was being cut away to the depth of eight inches on one side, so deep had the injury extended.

When the damaged portion is all cut away, the remainder is carefully weighed, in order that the amount of duty accruing to the State may be determined; and samples are then frequently taken from the hogshead, which suffice to effect a sale between the vendor and the buyer of the hogshead of tobacco. The opened and loosened cask is next slipped over the mass of tobacco, and fastened as closely to it as is necessary by the aid of the hoops, the head of the hogshead being also fixed at the same time. In the frontispiece to this subject we have represented some of the operations incident to the examination of the tobacco in the warehouses; the opening of a hogshead; the weighing by means of large scales; the cutting away of the damaged tobacco from the surface of the mass; and the pressure of the tobacco into the hogsheads again after examination, by a powerful screw-press worked by four men situated on a platform above. A walk through the warehouses at the London Docks brings us to many different spots where these operations are going on.

But what becomes of the damaged tobacco? Is it swept away, or sold as a perquisite? Neither. Damaged though it may be, it would still be worth a price sufficient to create a branch of trade, which, supposing no duty to be paid on the damaged tobacco, would lead to various plans injurious to the revenue. It is all burned within the walls of the warehouses. Not far from the north-east corner of the warehouse a door inscribed with the words 'To the kiln' points out the spot where this burning is effected. The kiln is a building of a form somewhat circular—so dark, that its interior arrangements can with difficulty be seen until the eyes are accustomed to the dusky light—and provided with a furnace and several troughs. Here the superintendent points out to the visitor the 'Queen's tobacco-pipe'—

"Queen's Tobacco-pipe"—Tobacco-kiln.—Fig. 2.

a jocular name applied to the chimney and the furnace in which the damaged tobacco is consumed. The tobacco is brought to the kiln, placed on the floor, and thence thrown into the furnace by an open door, and burned. As the smoke arising from this combustion is of a deleterious character, the chimney of the kiln is carried to a considerable height in order to convey the smoke to a sufficient distance for avoiding unwholesome effects. The greater part of the tobacco is thus

consumed; but an ash remains, which is from time to time drawn out of the furnace, and thrown into the bins or troughs at the side. These ashes are by no means valueless: they are sold as manure, for which they possess good qualities, one ton of ashes being used to manure four acres of ground. The ashes also constitute a useful kind of tooth-powder.

Thus much for the operations which the tobacco undergoes before it comes into the hands of those who are termed "snuff and tobacco manufacturers." It will be seen by these details why it is that a notice of the processes carried on in any one establishment would necessarily fail in conveying an accurate idea of the routine by which the simple plant is brought into a state fit for use. The tobacco is in fact half-manufactured before it leaves the warehouses.

The leaf being brought to the manufacturer in hogsheads, he proceeds to give it one of the three forms in which it is used, *i. e.* tobacco, cigars, and snuff. Most persons are probably aware of the main points of difference between these three forms of the plant; but as all are not so, we may shortly state that common smoking *tobacco* is the leaf, generally divested of the stalk, and also generally cut up into shreds or filaments; *cigars* are bundles of the tobacco-leaf, divested of the stalk, and wrapped up into the close and well-known form which those articles present; *snuff* is formed partly of the stalks of the leaves, and partly of the leaves themselves, cut and ground into the state of powder. These are the distinctive qualities in which the three *commercial* forms of the plant differ one from another; but each one of the three has many varieties, arising partly from differences in the quality of the original leaf, partly from the manner in which the leaf is cut, and partly from the processes preparatory or subsequent to the cutting. It may likewise be here remarked that the manufacture of the leaf and stalk into the three forms in which the plant is used generally devolves upon three classes of persons. The same man who makes cigars does not generally prepare the tobacco which is smoked in pipes, while the grinding of snuff is a different occupation from either. The processes, too, are conducted in a somewhat different manner in different houses. We shall therefore state in a simple form the general nature of the processes, as carried on in London.

A hogshead of tobacco being opened, and ready for preparation, the plant is dug out piecemeal by the aid of an iron instrument. The bundles of leaves are, as we before observed, compressed so powerfully

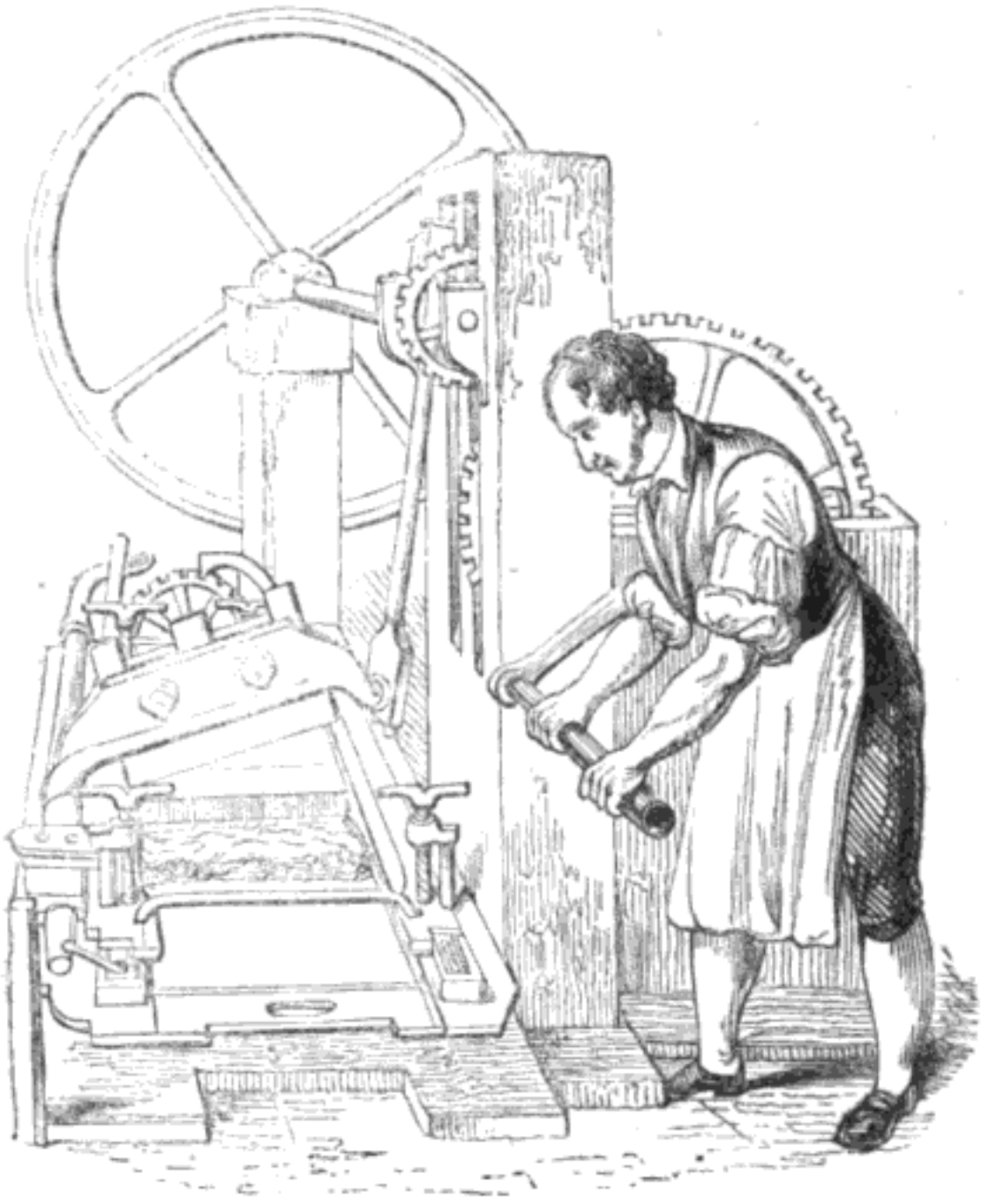
together, that they become almost one mass; and indeed without the aid of moisture it would be almost impossible to separate them. The heaps or pieces are sprinkled with water, a process technically termed 'liquoring,' by which the bunches of leaves may be separated one from another. If the tobacco is in the form called 'strip-leaf,' in which the stalk has been removed before the leaves were packed in the hogshead, each separate leaf or half-leaf becomes loosened from the others by the operation of liquoring; but if it be 'hand-work,' *i. e.* retaining the stalks, and bound up in bundles called 'hands,' the liquoring in the first place loosens the bundles one from another; and these being untied, the leaves themselves are separated.

The 'hand-work' must become 'strip-leaf' before the tobacco is in a fit state for use; or, in other words, the stalk must be taken out, either at the plantations where the plant is grown, or in England after importation. The stripping or taking off of the stalk is effected generally by women or boys. The leaf is folded along the middle, and by means of a small instrument, and a dexterous manœuvre acquired only by practice, the stalk is stripped from the leaf, and laid on one side,—the leaf being laid in another place by itself. One particular kind of tobacco, however, known to consumers by the fanciful name of 'bird's-eye,' contains a portion of stalk as well as leaf. To produce this form of the 'Virginian weed,' the various processes are performed on the leaf without the previous extraction of the stalk. The action of the cutting-machine, presently to be described, produces a large number of round, light, and exceedingly thin sections or slices of stalk, which become mixed up with the fine thread-like fibres into which the leaf itself is cut, and thus produce an appearance which has given rise to the name of this particular form of the plant. Let not the reader, curious in the philosophy of tobacco, hope, however, to meet with the brilliance of a bird's eye in these slices of stalk. He will meet with no such thing. The workers in polished woods have also appropriated this simile, by giving the name of 'bird's-eye maple' to a spotted variety of that wood. The birds have no reason to be proud of the compliment in either case.

The cutting of the leaves into those fine shreds which form the greater part of smoking tobacco is not effected leaf by leaf; but a large number of leaves are pressed together in the form of a cake, and then cut. The leaves, after having been separated one from another, and stripped of their stalks, are moistened to a certain degree, either

by sprinkling or by immersion in a liquid prepared for that purpose. This process not only gives to the leaves a degree of moisture which enables them to cake well together, but also has an influence on their subsequent flavour, and is therefore of considerable importance in the manufacture.

The cutting-machine by which the thread-like fibres are produced is represented in Fig. 3, and the mode by which the tobacco is brought



Tobacco-shredding Machine.—Fig. 3.

into a form fit for placing in the machine is as follows:—On one side of the tobacco manufactory is a powerful press, or a series of presses, capable of operating on a surface fourteen or sixteen inches square. The leaves are taken up out of a trough, in a damp state, and laid in a 'mortar-press,' layer after layer being piled up to a certain height. The whole are then subjected to pressure, by means of an iron plate which descends into the press upon the tobacco, and is con-

nected above with the screw of the press. The tobacco is then removed from the 'mortar-press' to the 'standing-press,' where it is pressed into a mass one-third of the thickness which it originally presented. The mass of leaves is allowed to remain in the press several hours, in order that it may not spring up or loosen when the pressure is removed.

The cake, pressed as hard as a board, but clammy and wet from the previous sprinkling of the leaves, is then laid on the bed of the cutting-engine, in order to be cut into shreds. These engines, like most other engines used in manufactures, have undergone considerable changes as improvements became introduced. Originally tobacco used to be cut by means of a long knife worked by hand. After a time, a hand-engine was used, in which the workman had nothing to do but to turn a winch-handle, the arrangement of the machine serving both to cut the tobacco and to shift the cake along as it became cut. Then horses were used to turn the machine, instead of applying human labour. Lastly, the power of steam was applied, by which the whole work was brought within the scope of this moving-power; the attendance of men being required only to place the cake in the engine, to attend it while at work, and to remove the tobacco when cut.

But the hand-engine, the horse-engine, and the steam cutting-engine, however different in their moving-power, all cut the tobacco nearly in the same manner. The cake is laid on an iron bed, which is susceptible of a slow progressive motion by means of a screw passing beneath it. This screw is connected at one end with a cog-wheel, in such a manner that, while the machine is working, the bed on which the tobacco is laid is urged slowly forward. Another part of the mechanism gives motion to a sharp blade, rather longer than the width of the cake. This knife or blade has a reciprocating vertical motion, or rather a motion somewhat similar to that of a pair of nut-crackers, inasmuch as there is a hinge or fulcrum at one end.

The cake being placed on the bed of the engine, confined in a kind of case or box, the motive power is applied, and the process of cutting is immediately commenced. The cake is about two inches thick, and each action of the cutting-blade slices off a thin film from one end of the cake. As the cake itself is composed of a very large number of separate leaves of tobacco, it follows that each film or shaving taken from the edge, generally at right angles to the surface of the leaves, must be formed of separate pieces, in no case larger than filaments or

fibres. The thickness of these fibres is regulated in a very ingenious manner. Immediately after the blade or knife has made one cut, the cake is moved forward a minute distance, so that the next following cut of the blade may be distant some small space from the former. It depends upon the number of cogs in the wheel at the end of the underlying screw, whether this distance, and consequently the diameter of the fibres of tobacco, shall be greater or smaller. For one kind of tobacco the cog-wheel contains about thirty cogs, for another about thirty-six; and these produce fibres whose diameters differ in the ratio of thirty-six to thirty, or six to five. To explain minutely how this difference is brought about is no easy matter. Those who are acquainted with the action of wheel-work will readily understand the nature of this effect; while those who are not could scarcely understand it from mere description.

When the cake is entirely cut up into shreds, or when, as it is technically termed, the 'box is out,' the engine is stopped, and the cut tobacco, in a clotted and damp state, is taken up and put into a trough or case. A new cake is then adjusted to the bed of the engine, and the operations proceed as before. In the principal factories the cutting-machines are worked by steam-agency; but our cut represents one of the hand-engines, worked by means of a winch: the principle of the cutting part is the same as in the other, and more easily understood when divested of the mechanism connected with the steam-engine.

The various kinds of tobacco ordinarily used for smoking owe their different qualities to many different circumstances; some depending on the kind of leaf, some on the colour of the leaf, some on the retention of the stalk, some on the extent to which the leaf is 'liquored,' and some on the relative fineness of the fibres into which it is cut. 'Bird's-eye' is, as we have before stated, produced by cutting up the stalk together with the leaf, a plan which is, we believe, never adopted with any other form of tobacco. That kind of tobacco which is called 'returns' is made of the lightest-coloured leaf selected from the hogshead; and this light colour is preserved by caution in the subsequent arrangements. A considerable quantity of water in the process of 'liquoring' has a tendency to darken the colour of the leaf, as has likewise an excessive amount of pressure when in the form of a cake; by using a small amount both of moisture and of pressure, therefore, lightness of the colour of 'returns' is preserved. The very strong kind of tobacco called 'shag,' which is used both for chewing and

smoking, owes its quality to different circumstances, the first of which is the choice of the darkest-coloured leaves in the hogshead; and in the subsequent processes the tobacco is well 'liquored,' and screwed down in the press with great force. This kind of tobacco is subdivided into two sorts, 'fine' and 'common,' the chief difference between which is in the diameter of the fibres into which the leaves are cut, the 'fine' being cut by the engine when the bed is pushed forward by a wheel having more cogs than for cutting the 'common' kind.

Many of the names by which tobacco is known were given from the names of the places whence it was brought, and from other circumstances having but little reference to the quality of the tobacco. 'Oronoko,' a name given to one kind of tobacco, was probably derived from the South American river of that name. 'Kanaster' or 'Canaster' was originally the name given in America to baskets of rushes or cane, in which they put the tobacco sent to Europe; and hence the designation of 'Kanaster tobacco' was given to the leaves imported in those baskets. At present the two kinds known by these respective names are manufactured from the best leaf, generally from Havannah. Oronoko is cut finely, somewhat similar to fine 'shag,' but Kanaster is much coarser. This forms the chief difference between the two kinds, the quality and preparation of the leaves being in other respects about equal.

These are the principal forms of tobacco calculated to be smoked in pipes; a mode of using which gave rise to the following lines, in the "Marrow of Compliment," a work published in 1654:—

"Much meat doth Gluttony procure,
To feed men fat as swine;
But he 's a frugal man indeed
That on a leaf can dine.

"He needs no napkin for his hands,
His fingers' ends to wipe,
That hath his kitchen in a box,
His roast-meat in a pipe."

We must not omit to mention a kind of tobacco which glories in the name of 'pig-tail,' and which perhaps is about equally well named with 'bird's-eye.' Pig-tail tobacco is a rope or cord, about equal in diameter to the thicker end of a common tobacco-pipe, and of as great a length as the manufacturer may choose to make it. The manufacture of this article requires the simultaneous aid of a man and two boys. The bench employed is several yards in length, and at one end of it is

a kind of spinning-wheel, which is kept in rotation by one of the boys. The other boy has spread out before him a supply of leaves, deprived of the stalks and in a damp state. He opens the leaves one by one, and lays them down on the bench, end to end. The man follows him, and rolls up these successive leaves into the form of a cord, by a very peculiar motion of both his hands. The length of 'tail' which hap-

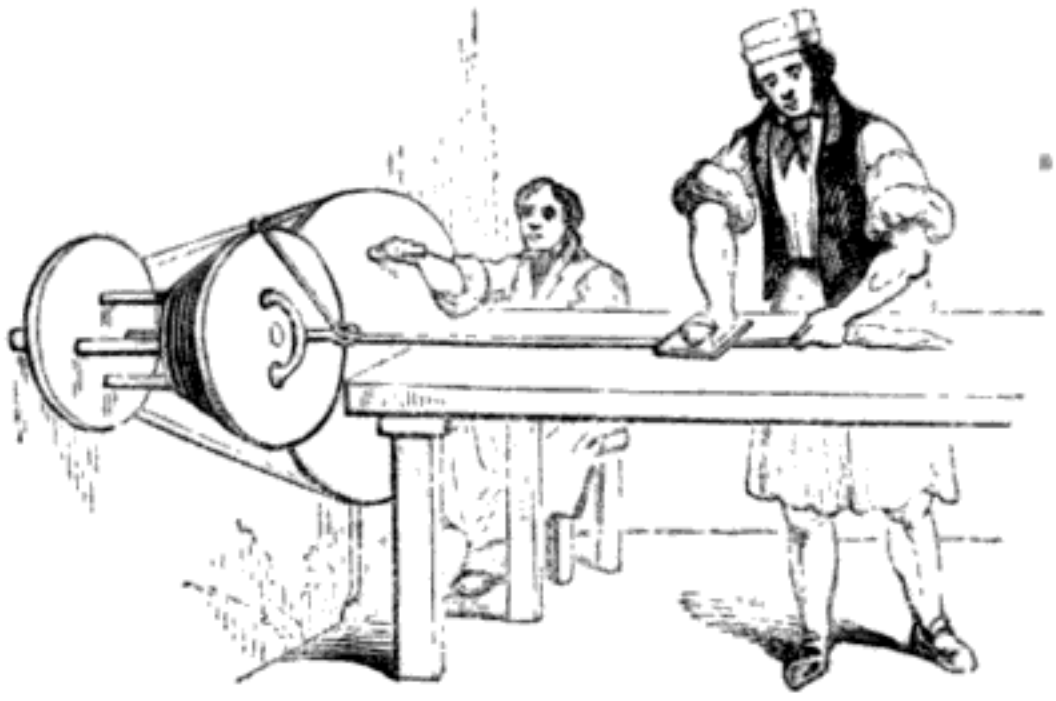


Fig. 4.

pens to have been made at any one moment is kept constantly rotating by the action of the wheel; and the man, adding leaf after leaf to it with the left hand, presses and rolls it by means of a palm of leather or wood held in his right. The manœuvre is so quick and so dexterous, that a spectator can hardly see where or how the leaf becomes absorbed into the 'tail,' and made part of its substance: it is one of those operations of which manufactures present such numerous examples, in which considerable skill and 'knack' are required for an apparently simple operation. As the tobacco is spun, it becomes wound off at the same time on a frame connected with the spinning-wheel. The pig-tail is afterwards wound or twisted up into a hard, close ball, and has a black colour given to it by steeping in tobacco-water.

Of all the various ways in which tobacco is used in England, none has made a more striking advance within the last few years than *cigars*. However much this form of the plant may be used in Spain and in the tropical regions of America, it was till a few years ago scarcely known in England, except to the higher class of smokers; but now every stripling who is just shooting up into manhood thinks a cigar indispensable, as a symbol whereby the world may know that he has at length become a man; and lest this important piece of information should not

be diffused widely enough by his remaining within doors, he exercises his new vocation in the open street.

The process of cigar-making is pretty nearly the same, wherever carried on. In Figs. 5 and 6 we have represented a boy prepar-

Fig. 5.

Fig. 6.

ing the leaves for the cigar-maker, and a man making the cigars. The unstripped leaves, *i.e.* the leaves from which the stalks have not yet been removed, are placed in front of the first-mentioned workman; he takes up the leaves one by one, folds them, strips off the stalk by a quick and dexterous movement, throws the stalks on his right hand, and lays the stripped leaves smoothly on his left. He is on the left side of the cigar-maker, to whom he hands up the leaves as fast as they are wanted.

The cigar-maker is seated on a low stool in front of a low work-bench, provided with raised legs on three of its sides, but open at the side next the workman. He takes a leaf of tobacco, spreads it out smoothly before him on the bench, and cuts it to a form somewhat like that of one of the gores or stripes of a balloon. He then takes up a few fragments of tobacco-leaf, consisting of various small cuttings, lays them on the spread leaf, and rolls them up into a form nearly resembling that of a cigar. He next places this cigar against a gauge or guide, formed of a piece of iron, and cuts it to a given length. Finally, he lays a narrow strip of leaf on the bench, and rolls the cigar spirally in it, twisting one end to prevent the leaf from becoming loosened. All this is done with great rapidity, a few seconds only being required for the making of one cigar. When the cigars are made, they are dried in different ways, according to the time when they are wanted for sale. The rate of duty on foreign cigars, as well as on all kinds of tobacco manufactured abroad, is so enormous (nine shillings per pound—probably sixteen or eighteen times the real value of the leaf itself), that the quantity imported from abroad is very small compared with that of tobacco in the leaf. Only one hundred and fifty thousand pounds weight were entered for home consumption two or three years ago, although the unmanufactured tobacco amounted to sixteen millions of pounds. This rate of duty has, therefore, given rise to an extensive home manufacture of cigars.

We have next to direct our attention to the third form in which the plant is used, viz. *snuff*. This article has been the theme of as many grave accusations as those directed against tobacco in the form for smoking; but the grave accusations have been as fruitless in the one case as the other. Some have treated the matter in a medical point of view; others in reference to the welfare of the purse; while a Lord Stanhope, of past times, made the following curious statistical estimate of the subject:—"Every professed, inveterate, and incurable snuff-taker, at a moderate computation, takes one pinch in ten minutes. Every pinch,

with the agreeable ceremony of blowing and wiping the nose, and other incidental circumstances, consumes a minute and a half. One minute and a half out of every ten, allowing sixteen hours to a snuff-taking day, amounts to two hours and twenty-four minutes out of every natural day, or one day out of every ten. One day out of every ten amounts to thirty-six days and a half in a year. Hence, if we suppose the practice to be persisted in for forty years, two entire years of the snuff-taker's life will be dedicated to tickling his nose, and two more to blowing it. The expense of snuff, snuff-boxes, and handkerchiefs will be the subject of a second essay, in which it will appear that this luxury encroaches as much on the income of the snuff-taker as it does on his time; and that by a proper application of the time and money thus lost to the public, a fund might be constituted for the discharge of the National Debt." Without entering upon this "second essay," or upon the patriotic plan alluded to in the last sentence, we proceed to the only part of the subject to which this paper relates, viz. the commercial and manufacturing arrangements by which these luxuries are produced.

Snuff is made from stalks alone, from leaf alone, or from leaf mixed with stalk,—circumstances which render the whole of the imported leaf valuable. In every case a greater amount of care is required in the preparation of snuff than of tobacco. The various qualities of snuff are due to a great variety of circumstances, principally under the control of the manufacturer. The purest kind, known by the name of 'Scotch,' is either made entirely of stalks, or of stalks mixed with a small proportion of leaf; and in either case there is very little 'liquoring' applied to the tobacco, as that would darken the colour of the snuff. There are many kinds of snuff called 'high-dried,' such as 'Welsh' and 'Lundyfoot' (the latter being named after a celebrated maker). These owe their qualities chiefly to the circumstance that they are dried so much as to acquire a slight flavour of scorching.

The snuffs called 'rappee,' of which there are two kinds, 'brown' and 'black,' are made chiefly from leaf, mixed with the 'smalls,' or broken fibres of tobacco, that are too small to be smoked conveniently in a pipe. The dark colour is principally produced by wetting the powdered tobacco in a bin or box, and allowing it to remain for a considerable time, turned occasionally with a shovel; during which time it undergoes a slight degree of fermentation, whereby the colour is darkened.

The original quality of the leaf is as much attended to as the manu-

facturing processes. 'Scotch snuff' is made principally from the stalks of light dry leaves; whereas 'rappee' and the darker snuffs are made from the darker and ranker leaves. A process of *scenting*, too, has great influence on the flavour of the snuff, since the manufacturer can introduce any kind of scent which he thinks may please his customers. Thus, 'Prince's mixture,' among the low-priced snuffs, and the interminable varieties of 'fancy snuffs,' owe no small part of their flavour to the kinds of scent introduced. Other kinds, however, such as 'high-dried,' 'Welsh,' 'Lundyfoot,' &c., are chiefly dependent on the peculiar circumstances under which they are dried. In relation to the last-named snuff, Mr. Barlow states—"The celebrated Lundyfoot snuff derives its particular flavour chiefly from having the fermentation carried to a very high pitch before the batch is turned; and it is said that its first discovery was owing to the neglect of the man attending upon the batches, and who, by getting drunk, made his master's fortune. Another story also prevails with respect to the discovery of this snuff, so much esteemed by inveterate snuff-takers, which attributes it to an accidental fire, which, by scorching some hogsheads of tobacco, gave them a peculiar flavour when manufactured. This story is, however, evidently without foundation, as the snuff manufactured by Lundyfoot still continues to retain a peculiar flavour which cannot be imitated by other manufacturers; a circumstance which is not likely to continue if the effect simply depended upon the degree of drying."

It is a curious circumstance, and one little suspected by those who are in the habit of using snuff, that almost the whole of that article which is sold in the metropolis, either wholesale or retail, is ground in or near the town of Mitcham, in Surrey, owing to the excellent water-power afforded by the river Wandle, in flowing through the town. Many manufactories on the Wandle derive their mechanical power from water-wheels, which were almost invaluable before the use of steam became prevalent. The advantage of employing a particular class of persons for grinding snuffs, instead of each manufacturer grinding his own, is easily understood. Few manufacturers dispose of enough snuff to keep a grinding-mill constantly employed; and under such circumstances it is generally cheaper to obtain the aid of another person whose premises and arrangements are devoted wholly to that occupation. Such is the case with regard to the snuff-mills on the Wandle. There are several of these establishments to which the London manufacturers send their snuff in a certain stage of preparation.

The mills are provided with two different kinds of grinding-machines, such as are represented on a small scale in Fig. 7. In one of

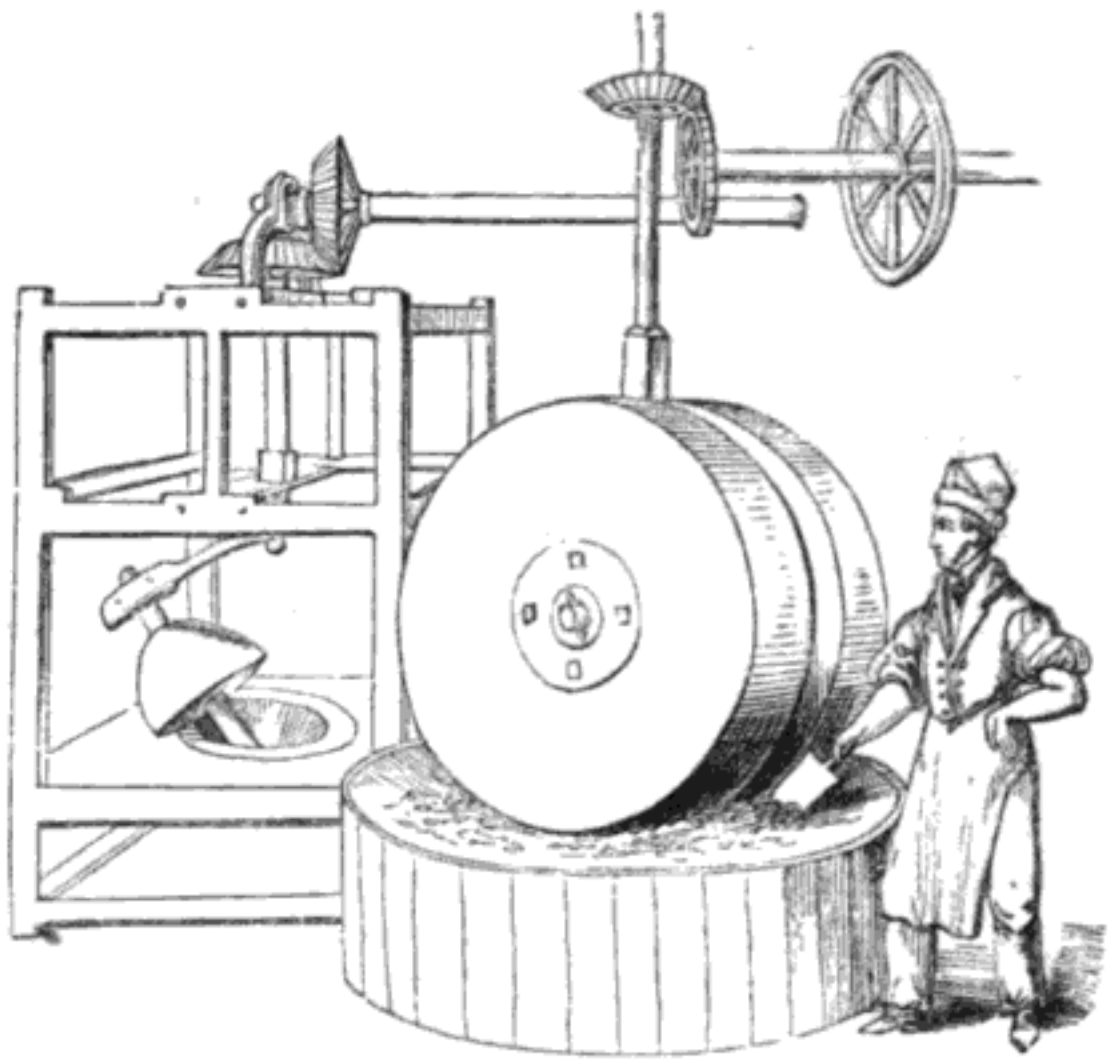


Fig. 7.

them a pair of cylindrical stones, several feet in diameter and a foot or more in thickness, are set up on edge on a slab or bed beneath, and have then a twofold motion given to them, resembling that of the wheel of a carriage which is going round in a small circle. By means of a horizontal axis passing through the centre of the stones, the stones wheel along the surface of the bed; and by giving to the axis itself a motion round another but vertical axis, the stones are carried round in a small circle. The snuff to be ground is laid on the bed or support, and the broad edge of the heavy stone passes repeatedly over it, by which the particles are reduced to powder.

In the other form of grinding-mill, the snuff is put into a kind of cell or mortar, in which it is ground by a pestle moved in a singular manner. The pestle is connected with a set of jointed arms or levers, so adjusted one to another as to give to the pestle a motion best calculated to effect the grinding of the snuff. Every establishment for grinding snuff contains a considerable number of both these machines; since some kinds of snuff are best ground by the one, and others by the other.

Beyond the grinding, and a preparatory drying, nothing is done to the snuff at the snuff-mills. The proprietor brings it to a certain stage of preparation before it is sent to the mill, and in most cases passes it through some finishing operations after it is brought from the mill. The high-dried snuffs, such as Lundyfoot, Welsh, Scotch, &c., are sometimes made from stalks, which, before grinding, are cut into fine shreds; but very often the entire stalk is dried so intensely that it may easily be ground to powder without the preparatory shredding. In such case the lightest and finest stalks are presented.

Many of the London manufacturers have small mills on their own establishments, for grinding small quantities of snuff, or for passing through any particular process the various kinds of fancy snuffs; but we are not aware that there is a single establishment in London where the main bulk of the snuff is ground.

The Excise regulations relating to tobacco, which were formerly very burdensome, are now much less vexatious. Indeed, so far as regards the mode of collecting, there is probably no other instance in which the revenue of three millions sterling per annum from one article is obtained with less personal annoyance. Here is one of the old laws by which the operations of the manufacturer used to be controlled:—

"Every manufacturer shall give notice in writing to the officers (if in London six, in cities and market-towns twelve, and elsewhere twenty-four hours) before he shall begin to strip, spin, or press any tobacco for cutting; or make any tobacco into carrots, or flatten any stalks for Spanish; and shall express therein the weight of each article, and the time he intends to begin. And the officer shall attend accordingly, and he shall begin within one hour of the time so mentioned, and shall proceed without delay." These embarrassing regulations are no longer rigidly acted on; although similar plans still disgrace the modes of collecting the duty in the glass-manufacture, the soap-manufacture, and many others. And indeed, since the period of the "visit" to which this article relates, the tobacco-laws have been again made stringent, owing, as it is said, to improper practices on the part of some of the manufacturers.

VII.—The Hat-Battery, or 'Kettle,' with Men employed in Wetting, Rolling, Pressing, 'Ruffing,' and Blocking the Hat-Bodies.—Face p 137.