a sure crop, experimenting as he goes along, in order to improve the quality, as he may safely do so. When the stalk becomes dry and entirely cured, which will not usually be for some weeks, the crop is ready to 'strip.' The hanging tobacco yields to the influence of a rainy day or a foggy morning, and 'comes in case,' or softens, so it will not crumble. It must never be handled when dry. When it is just soft, not damp, or when it is barely so soft that it can be handled (if it is approaching that softened state), it may be taken down and taken off the sticks, and 'bulked,' by piling it alongside a partition, or by itself, with the butts of the stalks outward in every direction, and the tops or leaves in the centre. Several hundred pounds may be thus bulked down, and can be worked up while the hanging tobacco has gone out of case, and cannot be touched."

According to Bishop, it usually requires about 12 weeks to cure the plants thoroughly, that is, so that there is no more juice in the leaves or leaf-stems; it matters not if the main stalk is not dry, you need not expect it, and there will be green leaves that will not cure but freeze while green and are worthless. He calculates that to "hang an acre of good tobacco requires a building about 30 by 24 feet with 15-feet posts. Two girths should be framed into the posts on all sides of the building; one 5 feet above the sill, and the other 10 feet above, to rest the poles on, also to nail the covering boards to. This gives a space of 5 feet for each tier of plants. Have a beam run across the centre of the building, with a post in the middle with girths to correspond with those on the side, extending lengthwise

through the middle of the building for the poles or rails, each 12 feet in length, to be laid upon ; or if sticks are to be used (as hereafter described) lay rails or poles once in 4 feet for the sticks to rest upon. Place a ventilator upon the centre of the roof, and have one board in every 4 feet hung on hinges, to be opened or closed at pleasure. If made with a floor and a cellar underneath, to let down the tobacco into when ready stripped, it is all the better. We will now return to the crop, and commence hanging it. A common way of doing it is by tying with common twine. Tie the end of the string tightly around the butt of one plant, and by placing it against the side of the pole nearest you, put another plant on the opposite side and carry the string over and around it, placing the plants alternately on each side of the pole until filled, then fasten the string, place the pole in the right place (it should be nearly right before it is filled), and commence on the next one in like manner, having some one to hand the plants as wanted. As to how thick to hang it depends upon the size of the plants, but in good-sized tobacco about 9 inches on each side is close enough, that will be from 30–32 on each pole of 12 feet; place the poles 15–18 inches apart. Another method of hanging, much practised and approved by many, is to hang on slats or sticks sawed out 4 feet long, $1\frac{1}{4}$ inches wide, and $\frac{5}{8}$ inch thick. Chestnut timber is generally used here. The common lath answers very well for this purpose. An iron made something like a chisel is used to slip on to one end of the sticks, which are sharpened a little at one end to receive it. It is made about 8 inches long, wedge-shaped at the small end, and a socket $\frac{1}{2}$ inch by

1 inch to slip on to the sticks. When ready for use have a place fixed near where you unload, to hold one of these sticks out at right angles from a post and about 4 feet from the ground. Let the plants be handed you from the load and slip them on the stick, piercing the stalk about 6 inches from the butt; put 6 or 7 plants of medium size on each stick, thicker if smaller; when hung it will appear as in Fig. 9. As each stick is filled, it may be carried to its place in the barn. In getting them to the top of the barn, they may be handed up with a pitchfork, lifting them by the middle of the sticks. These sticks should be about 8 inches apart. I think a greater amount can be put into a given space by this method without danger of sweating, as it is more evenly distributed. The loose leaves that have been broken off while handling, may be cured by placing 4 or 5 together and securing to a small pole, in the same way as plants are hung with twine."

Hanging is done in the following manner :—"The 'hanger' stands in an erect position, having for a foot-hold the poles on the tier below the one which he is hanging; he has a ball of tobacco-twine (a twine made of flax, procurable at any seed-store) which for convenience is carried in the bosom of the loose blouse generally worn; he stands with the left side to the pole on which the tobacco is to be hung, left arm over it; the stalk of tobacco is handed to him by a boy whose duty it is to pass it to him; the stalk is then taken in the left hand and placed against the side of the pole, the butt projecting an inch or two, around which projection the twine is wound from left to right (the twine having previously been fastened to the pole); the next stalk is placed on

the other side of the pole, just far enough along so that the leaves of the two stalks will not touch and 'pole-burn,' and so continue, the stalks being hung alternately on the sides of the pole, as seen in Fig. 9. After the house is filled, some put fires under the crop to hasten its

FIG. 9.

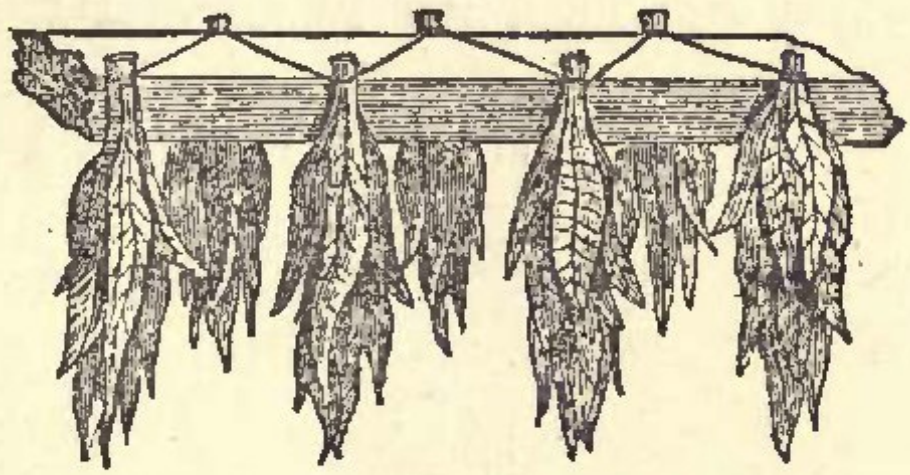
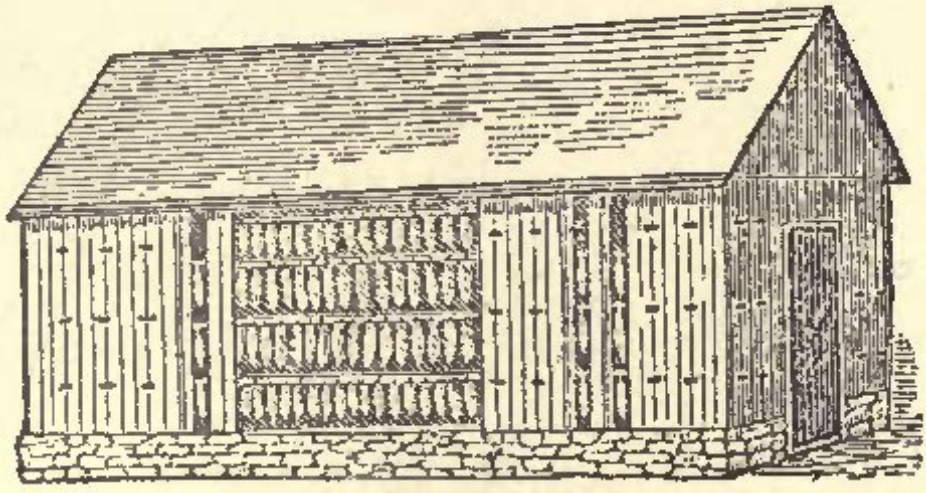


FIG. 10.



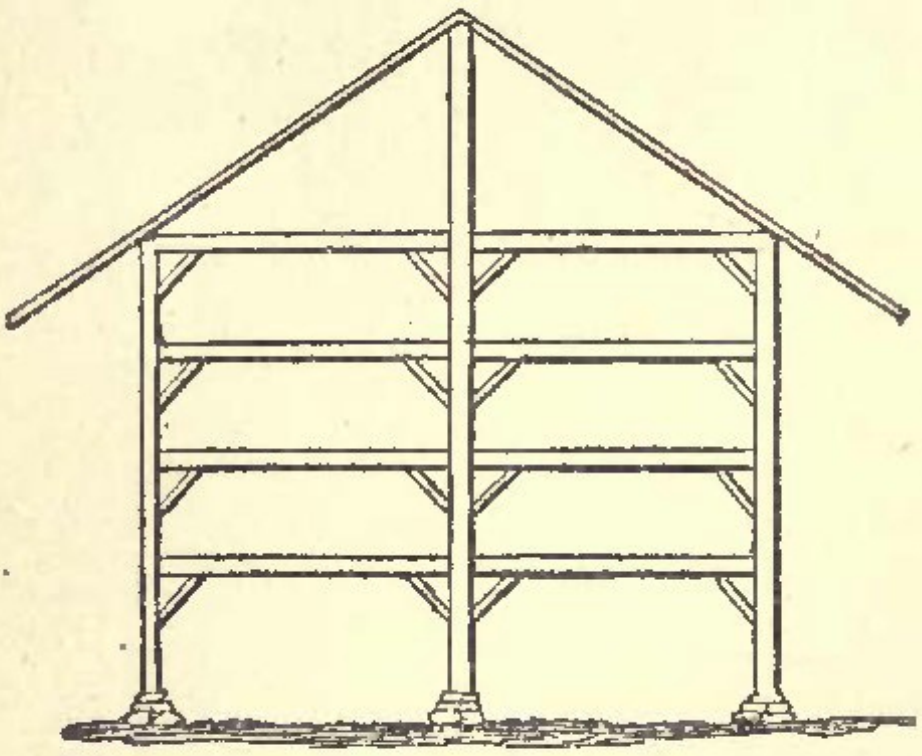
Tobacco-house.

drying; but it is found by experience that the practice is not a good one."

Bishop describes the common size of tobacco-house as about 100 feet long by 24 feet wide, posts 17 feet long, and built upon a wall 18 inches high; the buildings are framed with girths from bent to bent, for boarding up and down, the bents being 12 feet apart. The external appearance is illustrated in Fig. 10. "The boards for

closing up the building should be 1 foot wide, and at intervals of about 5 feet a board should be hung with light strap hinges, to serve as a ventilator to admit light and dry air, and to exclude damp. These ventilators or doors must be closed on frosty nights, but in fair dry weather should remain open. The tobacco poles, the ends of which rest upon the bents, should be about

FIG. 11.



13 feet long, 2 inches thick by 6 inches wide, of some light timber, such as elm or basswood, and when hung with tobacco should be 8–10 inches apart. A large door should be placed at either end for ingress and egress. The poles, of which there should be 4 tiers, are laid from bent to bent, resting the ends of the cross beams in the bent, tiers 4 feet 4 inches apart." A sectional view of the barn is shown in Fig. 11.

White suggests that stables, sheds, and barn floors can be arranged "so as to hang up an acre or two by setting

stanchions with holes mortised in them to hold rests for your poles about 4½ feet apart. Set such ones on either side with a very stout rail, one end in either post. Set these as often as you may need them, depending on the length of your poles. No poles should be so long as to sag very much when filled with plants. But for another reason I would build a house expressly for hanging and storing tobacco. Make it of good, liberal dimensions, 30 feet wide, by 40 or more in length; posts, 14 feet, with two tiers of girths for poles to rest on; one tier can hang on the beams, and another above on the purlin plates, thus hanging 4 tiers under the same roof. Ventilate by a ventilator in the roof, also by hanging every other board of the siding on hinges. For such a building, I would have a tight floor to the whole, and underneath a good walled cellar lighted with suitable windows, and chimney in one corner, with a stove, to keep fire in in very cold weather, to work by when stripping the tobacco. For poles to hang on, I would get, if possible, straight, slim, white pine staddles about 4–5 inches in diameter; shave the bark off smooth, and we have poles that will last and remain straight a lifetime, if kept housed.

"Having provided all required, even to the strong cotton or hemp twine for tying up the tobacco, have a good man to hand it to you. Commence by tying the end of your twine around the butt of a plant, about 2 inches from the end, in a slip or loose knot; place this plant at one side of the pole near the end, your hand carrying the twine over the pole; on the opposite side of the pole, about 6 inches along, place another plant, and with a single turn of the twine around it from before,

round back, and by drawing it close, the plant is secure. Proceed thus till you have filled your pole; then with a knife, cut a notch in the pole and draw your twine through, and it is fast. You can now cut it off and commence another pole. Place the poles far enough apart to prevent the tobacco crowding; about 1 foot will do. In this manner you will have a row of plants hanging on each side of the pole about 1 foot apart. The man, in handing up, should take the plant by the butt, carefully from the pile or load, raise it up and gently shake it sideways, to shake off dirt and loosen the leaves when stuck together, and also adhering to the stalk; with the other hand, take hold about midways of the stalk and pass to the one tying up, enabling him to receive the plant in such a way as to not need to shift it in his hand, but to place it immediately into its position beside the pole. All leaves which are accidentally or otherwise broken from the plants, should be gathered up each day, and hung three or four in a bunch, the same way as the plants, or string them on a string; the latter is the best way—with a large needle-thread, a suitable cord, and on to this string the leaves one at a time, by running the needle through near the end of the stem. These can be hung by attaching the two ends to some suitable nail, and having it remain stretched. In this way they will cure very well.

"Having housed the whole of your crop, give it all the air you can, by opening doors, shutters, &c. Let them remain open during pleasant weather, remembering to close them in wet, damp weather, as well as nights; and also shading the crop so far as may be from the direct

rays of the sun, to prevent blanching. When it has nearly cured, shut it up and let it remain till perfectly cured. This may be known by the stem of the leaves being dried up, so that no green sap will show itself. If you have hung in your stables and other places that you wish to use, it will be necessary to take it down and strip it at the first favourable opportunity, which is described farther along. The separate building elsewhere described is to be preferred, as it does not necessitate any immediate hurry in getting it down. In such it can be allowed to hang and freeze and thaw two or three times, which improves the colour and weight, and will give more leisure in stripping, &c. Watch a favourable time, when it rains and is damp, to open your buildings, and let in the damp air till the tobacco is damped, so that it can be handled without any danger of breaking the leaves. It need not get too damp, as in that case it is liable to injure in the pile before you can get it stripped. It will gain dampness from the stalk."

The Cuban tobacco planter, according to Davis, "would force the drying in wet weather and retard it in dry weather, as either extreme is injurious; the wet is injurious, as the leaves, when they change from the natural colour to a pale yellow and light brown, easily mildew; when dry, as before-named, it is taken down. Damp weather is best, so as not to break the leaves, which are immediately stripped from the stalks and sorted into as many grades as the market may require, from one to four and even more grades, as 'bright yellow, dull, seconds, and ground-leaves.' But I see no necessity for but three grades, as the over-ripe, the unripe, and the just ripe at

cutting, and when properly dried they show their grade plain enough to sort. After being stripped and sorted, they are to be separately piled ('bulked' some say) in courses of leaves—2, 4, or 6 tiers of leaves, stems end out, and 3–4 feet high. The leaves should be kept straight in all these handlings. The heap should be made up each day separate, as it begins to make tobacco in 12 hours or so, by fermenting, which is variously called 'curing,' 'sweating,' 'conditioning,' &c. Soon as the heap begins to get warm it should be re-piled, putting the inner tier out so as to equalize the fermentation; some re-pile several times and some none; but the fermentation should be kept equal, and if covered with old sail-cloth it can be regulated. This fermenting is allowed to proceed for 4–6 weeks by careful manufacturers; as it is the process that makes the tobacco to suit the taste of tobacco-epicures it should be carefully done, yet many do it in a careless manner, and thus have an article so poor as to not find many lovers. At the end of the 4–6 weeks the Cuba grower would have one side of each leaf slightly moistened with the decoction of tobacco, which is made by letting some leaves rot in clean water, and then he would tie it up in hanks of 25 or 30 leaves, and hang one day for drying, then take it down and pack it in tight casks as being best. From these leaves he would make the best Cuba cigars. The Virginian grower would not wet his tobacco after it had fermented, but simply tie it in hanks so that 5 or 6 would weigh a pound, and then pack it in his hogsheads for market; and this, after it had lain from one to six months in the 'conditioning bulks.'"

Burton, translating from Mitjen, goes more fully into

the Cuban practice. He advises firstly that the "shoots and the sprouts should be put apart from the principal tobacco, with which it should never be mixed, neither in the heaps nor in the packages. The day after the tobacco has been cut and placed in the curing-houses, the poles should be pushed together, making thus a compact mass, with the object, that by means of the warmth, which this contact produces, the fermentation should commence, called *maduradero*. In this state it should remain 2 or 3 days, according to the consistency of the tobacco and the state of the atmosphere. By means of this first fermentation it acquires an equal and a yellowish colour: by the second or third day, at the latest, this colour should be uniform, and then without loss of time the poles should be spread apart, and given all the ventilation possible, so that fermentation may not continue, and the drying of the leaves may be facilitated—care being taken that they are not exposed to the dew, the sun, nor to sprinkling of water, should it rain. As the tobacco dries, the poles should be hung on higher pegs, so as to leave the lower ones unoccupied for the fresh leaves brought from the fields. This operation should be performed early in the morning whilst the leaves are flexible and soft; because later in the day they become crisper, and are more apt to tear.

"It is not judicious to allow the tobacco to dry too precipitately, by exposing it to a very strong current of air, because strong wind greatly injures its quality; many leaves break, and that silkiness of appearance is destroyed which good leaves should have, and which it is desirable to preserve. During heavy winds the doors of the drying-

house should be kept closed; they should also be kept closed if there is much dampness in the atmosphere occasioned by heavy and continuous rain. Dampness causes mildew, which shows itself first in the points of the leaves, and is the commencement of the rot. Under these circumstances, and to check this evil, it is convenient to spread, or part the poles a little; and if the rains, or the excess of humidity continue, fires should be kindled and smoke made in the curing-houses, opening at the same time the doors and the windows, so as to facilitate the circulation of air whilst the smoking is going on.

"After the tobacco is thoroughly dry, it should be placed on the highest beams, or pegs, of the framework which support the poles, squeezing them compactly together. This must be done in the morning whilst the leaves are soft, and all this should be done with a view of protecting it from the effects of change in the atmosphere. The house should, after this, be kept closed, until it is time to make the heaps.

"The object of heaping up the tobacco is to produce a second fermentation, so as to equalize the colour of the leaf and wear out of it that excess of gluten or resinous matter which is natural to the plant; this fermentation makes the leaves more silky and ductile, and gives them a more agreeable flavour. The place for making the heaps should be prepared beforehand, in one or more of the rooms of the tobacco-house, by making a kind of box lined with *yaguas* (sheets of palm-tree bark) at the bottom and the sides, the base is a boarding on which should be placed a sufficient quantity of dry plantain leaves, which serve as a bed for the heaps.

"In the months of April or May, when the rainy season commences, the poles which are on the highest pegs of the scaffolding should be taken down and placed somewhat apart, one from the other, on the lower pegs. The doors of the house should be left open at night, so that the humidity from the atmosphere may enter, and when, in the morning, the tobacco is found to be soft and silky, it is fit to be placed in heaps. The pairs of leaves should then be collected in armfuls, with all the bits of stalks placed in one direction; the leaves that may be found doubled or crooked should be smoothed out, and each armful should be placed in layers in the heaps, placing the first layer at the bottom with all the woody pieces of the stalk touching the *yagua* which forms the sides of the case; other layers should be placed with the stalk reversed, and in this manner, crossing the leaves, the pile should be raised up level. When a pile has a sufficient height, another, and another, is made until the tobacco is finished or the case is full, so that each heap may form a compact mass of leaves protected by the pieces of stalk all round, which should never touch the leaves, but only touch each other. When the heaps have been thus made, they should be covered with dry plantain leaves, or palm skins, and, in front, by palm leaves.

"Tobacco should not be packed thus when it is too damp, because a very strong fermentation would ensue, which, if kept up longer than necessary, would pass to putrefaction. The tobacco only requires to be soft, or flexible, before packing, so as to produce a certain degree of heat, neither is it convenient to pack tobacco when too dry, for then it would not ferment at all, nor would

any beneficial results be produced. When it has been packed sufficiently soft, it undergoes after the second or third day a degree of heat of 110° to 120° F. in the centre of the heap, and if it does not acquire this degree of heat it is because it has been packed too dry.

"We have already said that reaping or cutting tobacco should be performed in three distinct sections, preserving always a distinction, consequently the crown leaves should form one heap, or one set of heaps; the second and third pairs another, or others; the fourths and the fifths others; and lastly, the *capaduras* (second shoots from the same plants) others. This system, besides having the advantages which we have in another place described, greatly facilitates the sorting of the leaves, as the different qualities are from the first kept apart, and scarcely any other work remains to be done than that of taking out the broken leaves. Tobacco should be kept for at least 30 days in heaps, after which, sorting and choosing the leaves may commence, beginning first with the heaps of the inferior qualities."

Stripping.—Stripping may be performed at any time, provided the leaves, after being once properly dried, have again become pliable. For stripping, such a number of plants as will furnish work for several days are taken down on a morning, when the plants have absorbed some moisture, and have become elastic; they are put in a heap, and properly covered, to check evaporation. If, however, the night air should be so very dry that the leaves cannot absorb sufficient moisture to become pliable, a moist atmosphere can be created either by steam, or by pouring water on the floor, or by keeping vessels with

water in the shed. If this cannot be done, the tobacco must remain hanging until there is damp weather. Under no condition should the tobacco be stripped when not pliant, that is if the leaves are so brittle that they would break when bent or rolled. The best arrangement is to keep the drying-shed and stripping-room separate, since the latter requires to be more moist than the former. A cellar under the drying-shed is best suited for stripping. It should be large enough to admit of the erection of a scaffold to receive the tobacco.

Pursley looks upon stripping as being labour suited to damp weather. He says, "the lugs, shipping, and manufacturing, which are worst, medium, and best qualities, should be separated at stripping. The 'lugs,' or worst quality, are found at the bottom of the plant; they are chaffy and light leaves, and should be stripped from the stalk and tied in bundles by themselves with all of the ragged, black, and injured leaves. The second quality, or 'shipping tobacco,' is a grade above the lugs; it is the red or brown tobacco; this should also be tied in separate bundles. The best, or 'manufacturing,' is the finest and brightest leaves, and should be put in bundles by itself. In stripping, the stems of the leaves should be broken off as close as possible to the stalk; this adds to the weight of the tobacco. In forming a bundle, the butts of the leaves should be placed evenly, and closely together, and pressed tightly in the hand; then a leaf should be folded to form a wrapper 2 inches in width; then wrap it tightly and smoothly around the butts of the leaves, winding it from the end down, about $2\frac{1}{2}$ inches, then open the bundle in the middle, and tuck

the wrapper-leaf through the opening, and draw it snug, so that when the opening is closed the wrapper-leaf will remain; this forms a bundle which we call a 'hand of tobacco.' The hands should be strung on sticks, and hoisted up in the barn on the tier-poles; 18–20 hands may be put on each stick, at equal distances apart."

Libhart expresses his opinions on stripping in the following words. "At the setting in of a warm, drizzling, wet, foggy spell of weather, the shed must be opened on all sides to allow the damp atmosphere to pervade the whole interior; after the dry leaves have become damp enough to allow handling in any degree without breaking, the stalks must be taken off the lath or pulled down and laid in heaps about 18 inches or 2 feet high, and any desired length; if it is not intended to strip it immediately, it should be conveyed to a cellar or other apartment, where it will remain damp; it should not, however, be suffered to remain longer than 2 or 3 days in heaps, without examination, as there is sometimes sufficient moisture remaining in the stalks or frozen leaves to create heat and rot the good tobacco. If found to be heating, it should be changed about and aired and be stripped immediately. If found to be drying out, further evaporation may be checked by covering the heaps with damp straw or corn-fodder. Tobacco is usually stripped into two qualities, 'ground-leaf,' or 'fillers,' and 'wrappers'; the leaves that lie next the ground, generally from 2 to 4, are always more or less damaged by sand beaten on by the rain and other causes, hence they only command about half the price of the good tobacco or 'wrappers.' The ground-leaves are taken off first and