

MANUFACTURE OF SMOKING TOBACCO.

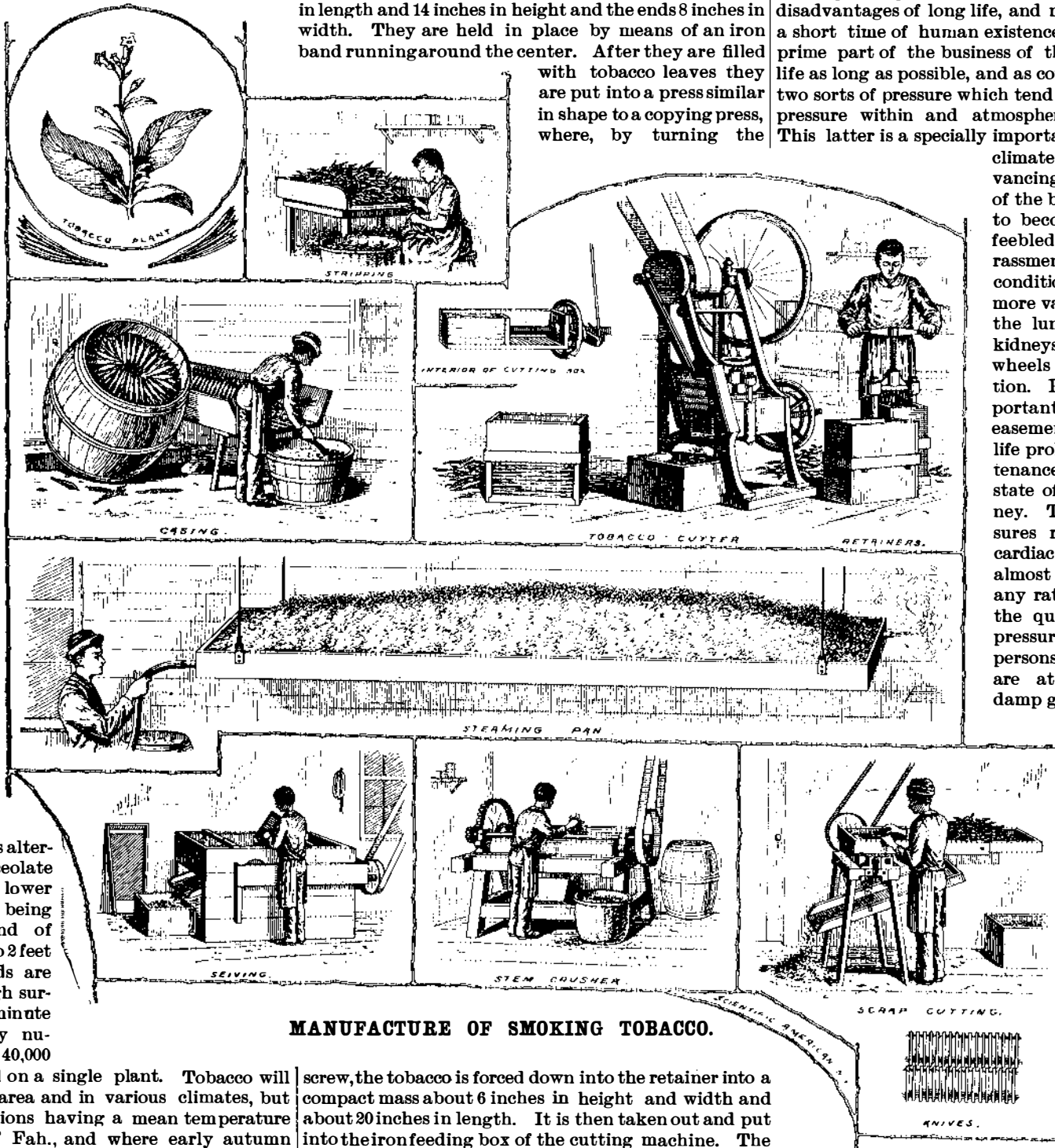
Tobacco consists of the leaves of several species of Nicotiana variously prepared for use as a narcotic. While it is principally manufactured for smoking, a large amount is also prepared for chewing and to a more limited extent is taken in the form of snuff. Although the fact has been controverted, there cannot be a doubt that the knowledge of tobacco and its uses came to the rest of the world from America. In November, 1492, a party sent out by Columbus to explore the island of Cuba brought back the information that they had seen people who carried a lighted fire brand to kindle fire and perfumed themselves with certain herbs which they carried along with them. As the continent of America was opened and explored, it became evident that the consumption of tobacco, especially that of smoking, was a universal and immemorial usage, in many cases bound up with the most significant and solemn tribal ceremonies. The tobacco plant was first introduced into Europe in 1558. Jean Nicot, the French ambassador to Portugal, sent seeds to the Queen, Catherine de Medici. The services rendered by Nicot in spreading knowledge of the plant have been commemorated in the scientific name of the genus Nicotiana. The chief tobacco States in the United States are Kentucky, Virginia, Pennsylvania, Tennessee, North Carolina, Maryland, Connecticut, Missouri, and Wisconsin. The area sown with tobacco in 1880 was about 638,841 acres. The crop, 472,661,157 pounds Smoking tobacco is made principally from the Kentucky and Virginia plants. It is a coarse, rank-growing annual, with a simple unbranched cylindrical stem, which attains a height of 6 feet and upward, terminating in a panicle of pink flowers. It has alternate oblong lanceolate leaves, those at the lower part of the stem being slightly stalked and of large size, reaching to 2 feet in length. The seeds are brown, with a rough surface. They are of a minute size and exceedingly numerous, as many as 40,000

from time to time and rebuilt. the tobacco from the top going to the bottom. In from three to five weeks the fermentation is carried out and the leaves have a uniform brown color. It is then ready for shipping. The tobacco is bought by the manufacturer from the broker and comes packed in casks of about 1,500 pounds weight. The hands of tobacco are packed in the casks in a circular form, the upper end of the leaves pointing to the center. The first operation is casing, which dampens the leaves and prepares them for the stripper. An expert is required for this operation, it being necessary to know by dipping the ends what quantity of water is required to moisten the leaves without injury. After dipping they are placed in an upright position in the casing frame and left to drain about an hour, when they are ready for stripping. The stripping is generally done by girls or boys, and is done by taking the ends of the leaves in one hand and with the other drawing out the stem. An expert stripper can remove the stems of about 150 pounds daily. After stripping, the leaves are packed in retainers. They are made of 2 inch maple material, the sides of which are 20 inches in length and 14 inches in height and the ends 8 inches in width. They are held in place by means of an iron band running around the center. After they are filled with tobacco leaves they are put into a press similar in shape to a copying press, where, by turning the

from the coarse tobacco, the material is passed through a number of brass sieves the meshes of which run from 12 to 22 to the inch. The scraps are cut up into a machine having two grooved rollers with cutting edges facing in opposite directions, forming a large number of rotary shears. About 500 pounds daily can be cut on this machine, it making about 125 revolutions per minute. The stem crusher consists of two 305 pound iron rollers, 2 feet in length and 18 inches in diameter, which revolves at the rate of 100 revolutions per minute, crushing the stems, if dry, into fine particles. The tobacco leaves cost the manufacturer from 4 to 15 cents per pound. The revenue required by the government is 6 cents per pound on manufactured goods. From September 1, 1862, to June 30, 1892, 3,956,862,124 pounds of tobacco were raised in the United States. The revenues collected from the same amounted to the sum of \$573,757,258.53. The sketches were taken from the plant of G. B. Herbst, Jersey City, N. J.

Aids to Longevity.

The philosopher may balance the advantages and disadvantages of long life, and may decide in favor of a short time of human existence. But it is clearly a prime part of the business of the physician to make life as long as possible, and as comfortable. There are two sorts of pressure which tend to shorten life—blood pressure within and atmospheric pressure without. This latter is a specially important factor in a humid climate like our own. In advancing age the circulation of the blood and lymph tends to become slow, and the enfeebled heart finds its embarrassments increased by this condition. Especially do the more vascular organs, such as the lungs, the liver, and the kidneys, put skids on the wheels of the blood circulation. Plainly, then, an important condition of cardiac easement, and therefore of life prolongation, is the maintenance of an uncongested state of lung, liver, and kidney. Thus are internal pressures relieved, and thus is cardiac energy conserved. Of almost equal importance, at any rate in Great Britain, is the question of atmospheric pressure and moisture to aged persons. Situations which are at once low-lying and damp give, of course, a maximum of atmospheric pressure. Such pressure weighs down a single stroke body, mind, and life. The difference to aged persons between living at the sea level and living five hundred feet above it, between living in a moist atmosphere and living in a dry one, is sometimes quite incalculable. Not seldom life may be lengthened by five or even ten years by living in



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having been counted on a single plant. Tobacco will flourish over a wide area and in various climates, but is best suited for regions having a mean temperature of not less than 40° Fah., and where early autumn frosts do not occur. The plant is generally started in hot beds and transplanted in May. The plants are carefully weeded and the soil frequently stirred with narrow hoes until they show symptoms of flowering. The flowers must not be allowed to form except in the case of a few plants left for seed. To obtain fine and strong leaves the top is broken off the plant. The plants are cut in September, when the leaves have a yellowish tint and droop. They are then hung up on scaffolds in the barns for a few days to wilt and wither in the air, after which they are dried by artificial heat, with a temperature raised gradually up to 170° Fah., the drying being completed in four or five days. The tobacco at this stage is brittle and cannot be handled. The contents of the barn is then left till moist weather occurs, and then, by the admission of atmospheric air, the leaf blades by the moisture become soft and pliant. In this condition the leaves are stripped from the stems and sorted into qualities, such as "lugs," "firsts," and "seconds." These are made up into hands or small bundles of from six to twelve leaves each, and in this condition are ready for fermentation. They are then piled up on the floor to a height of 5 or 6 feet. Within this stack a process of fermentation is set up and the temperature of the mass rises steadily till it reaches about 130° Fah. The pile is taken down

screw, the tobacco is forced down into the retainer into a compact mass about 6 inches in height and width and about 20 inches in length. It is then taken out and put into the iron feeding box of the cutting machine. The machine is self-feeding and can be emptied in from 5 to 10 minutes. The tobacco is forced or pushed through the box to the knife by means of a traveling screw. The screw is pushed forward by a feeding arm and a ratchet wheel which connects to an arm of the fly wheel by means of a circular rod, the upper end of which is attached to a regulation slide. At every revolution of the fly wheel, which makes 150 revolutions per minute, a dog which is connected to the feeding arm drops down in between the teeth of the ratchet wheel, at the same time pushing it forward, causing the screw which passes through the hub of the ratchet wheel to move ahead, which in turn forces the tobacco toward the knife. By shifting the regulating slide the knife can make from 50 to 300 cuts to the inch. The feeding box holds from 16 to 18 pounds. The cutting capacity of the machine is about 1,000 pounds daily. The tobacco, after pressing and cutting, is caked and has to be separated. This is done by steaming. A hollow zinc pan, about 15 feet in length and about 5 feet in width, is suspended from the ceiling, about 150 to 200 pounds of tobacco is then placed upon it, and a steam pipe inserted into one end, the steam passing through and escaping out at the other, the heat of which causes the material to curl and loosen. For flavoring or saucing, sugar, licorice, and saltpeter are used. For separating the fine

an atmosphere which is both light and dry. These physiological considerations are commended to the aged and to the physician of the aged. While physiological explorers are busy in the laboratory, clinicians must not imagine that new discoveries can be applied in practice without constant and intelligent effort on their part. Knowledge, like freedom, "filters slowly down," but there is no objection to a little artificial acceleration of the pace.—Hospital.

The Navies of England, France and Russia.

The seventh yearly edition of the "Aide Memoire de l'Officier de Marine," the compilers being M. Edouard Durassier, Chef de Bureau in the French Ministry of Marine, and M. Charles Valentino, late of the French Navy, and now a sous chef de bureau in the Ministry of Marine, gives the following statistics of the relative naval strength of France, Russia, and Great Britain:

	France.	Russia.	France and Russia.	Great Britain.
Armored ships.....	68	55	121	81
Unarmored ships.....	160	72	232	280
Torpedo boats.....	230	180	410	155
Officers.....	2,227	1,573	3,800	2,808
Seamen.....	41,536	38,000	79,536	42,507