

INDIAN HEMP.

How It Is Grown and Prepared for Use in Medicine and As a Stimulant.

BY WILLIAM MATR.

Hemp is a holy plant of the Hindus. A guardian lives in the leaf of the "bhāng," as it is named in the Sanskrit, just as the wife of Vishnu lives in the hysteria-curing "tulsi," or Holy Basil, and as Shiva dwells in the dysentery-scarer bael (the B. P., 1898, notwithstanding). Oaths are taken on the bhāng leaf, and to one who forswears himself the bhāng oath is death. And yet, in some parts the phrase, "may hemp be sown in thy house," is one of the commonest of abusive imprecations, inasmuch as in many districts its cultivation is considered disreputable. The same plant that yields hemp fibre in Ireland produces narcotics in India; the same plant grown in Europe affords the familiar hemp seed that is given to cage birds. The resin-yielding hemp grows wild throughout the Himalayas from westmost Kashmir to the extreme east of Assam, throughout an area of 1,500 miles. It reaches down the southern slopes of the mountains into the Punjab and Gangetic plains, and occurs at altitudes as high as 10,000 feet.

The Indian hemp of commerce is not, however, produced from the plant in its wild condition, and it hardly occurs spontaneously in the districts of Bengal and Bombay, whence the drug, as it comes to London, is exported. Cultivation is confined in the first-named Presidency to a compact tract having a radius of about sixteen miles, under close excise supervision, and embracing about 1,200 acres, and about 5 per cent. of the produce, about 80,000 pounds annually, finds its way by sea to London. Rather over 1,000 acres are cultivated in the Bombay Presidency; about 30 per cent. of the crop, about 120,000 pounds, is exported to Aden, Arabia, Africa and Europe. The remainder is consumed in the country. Smaller areas are cultivated in Madras, and in some other provinces and States, chiefly for local consumption. It may be well to define clearly the three narcotic products of the plant:

1. "Ganja," which is cannabis indica, B. P., "the dried (unfertilized) flowering or fruiting" tops of the (cultivated) female plant of Cannabis sativa, grown in India, from which the resin has not been removed," or which have become coated with resin in consequence of having been unable to set seeds freely.
2. "Charas" is the name applied to the resinous matter, when collected separately, which exudes naturally on the leaves, stem and fruit, and which contains, or is intimately associated with, the active principle. (It usually contains leaf dust, seeds, and other impurities picked up in the process of manufacture.) The "Pharmacographia" calls it "a foul and crude drug, the use of which is properly excluded from civilized medicine."
3. "Bhāng" or "Siddhi," different names which are applied to the dried leaves of the hemp-plant, whether male or female and whether cultivated or uncultivated, and without any preparation other than drying. (It not infrequently finds its way into the markets as an inferior grade of the drug and as an adulterant of it.)

In the course of cultivation the plants are most carefully tended, and the males eliminated in order to prevent, as far as possible, the fertilization of the female, and by retarding the development of seed to increase the secretion of resin. In Bengal the natives talk of the ganja-bearing plant as the male, and the weaker, pollen-bearing plant, as the female. An expert or professional "poddar" is engaged for the operation, which takes place before the flowers have fully developed, and which requires some skill to distinguish the differences involved. The hemp doctor breaks over the plants which he decides to be male, and the cultivator plucks them out, filling the blank spaces with other plants. The male plant begins to flower in November, and the female in the beginning of January, at which time the cultivator is on the lookout for abnormal male flowers on the female plants, or "hermaphrodites," as they are sometimes called. The ganja begins to ripen about the middle of February, when it assumes a brownish color and sheds all the larger leaves, and is ready for harvesting. It is then that the name "sivajata" (cluster of hair of the god Siva) is given to the agglutinated flowers and leaves.

The finest ganja is undoubtedly that of Bengal. It is usually understood that the "compressed, rough, dusky-

green masses, consisting of the branched upper part of the stem, bearing leaves and pistillate flowers or fruits, matted together by a resinous secretion," is intended to refer to the form of the drug as prepared in Bombay, as distinguished from the more active form of the drug produced in Bengal, in more cylindrical, not flattened pieces. Three forms are made in Bengal—"flat," including "flat, small twig" and "flat, large twig"; "round" and "chur."

The flat Bengal ganja was the original, and has always been the most reliable form, physiologically, of the drug as found on the London market. It was shipped via Bombay, but the generally inferior product of the Western Presidency has largely supplanted it, due chiefly to the fact that it is cheaper, and partly because of the somewhat heavy duty and restrictions imposed by the Government of Bengal on the manufacture of the drug. It was placed on record by the Hemp Drugs Commission (Report, vol. i., p. 96) that "the Khandwa (Bombay) ganja differs from that of Bengal in being green in color, and having a much larger quantity of leaf left in it. The latter is a very special article, and no ganja will be found to compare with it in any province." This variety was adopted by the Hemp Commission as the standard for physiological comparison, and two out of three samples of the drug as grown at Ahmednagar, on the Bombay side, were found to just equal it in physiological activity. So that if the B. P. intends that both should be used, and there seems no reason why the better article should be excluded, it would be well that this should be indicated more clearly; the composition may be taken to be fairly constant, and the preparation is invariably careful. The "round" form of the drug is, of course, more active, and a superior product, containing, as it does, and as will be explained, much less useless and inert matter than the flat.

The following is a description of the principal details of the elaborate and technical process followed in the manufacture of cannabis indica at Naogaon, the centre of hemp cultivation in Bengal. It involves chiefly pressing, drying and removal of the leaf. Bright, sunny weather is essential to the best manufacture. The plants do not all come to maturity at the same time, and they must be manipulated within three or four days of maturity, or they become useless. The manufacture of flat ganja takes about three days, and is carried out on a piece of ground which has been specially leveled for the purpose. The number of plants handled in each three days' operations is usually about fifty or sixty. The first day the plants are cut in the morning, brought to the manufacturing ground and spread out in the sun till the afternoon. They are then cut up one by one into lengths of about 1 or 2 feet. Those having flower spikes upon them are retained, and the rest is thrown away. The portions selected are spread out in the dew for the night. The work of the second day consists in alternately pressing and drying the crop and getting rid of useless leaf and seed. The branches are piled by bundles of five or ten, flower-spikes inwards and overlapping, in a circular heap about 4 feet in diameter. The workmen tread this down, moving round upon it and supporting one another. A wicker mat is then placed over the heap, and the men sit or place weights upon it. After half an hour of the pressure the pile is unstacked, the bundles are taken off and beaten together over a mat to shake out the seeds and leaf. The heap is again built exactly as before, the upper layers of the previous heap being placed at the bottom of this, and the processes of treading, pressing, unstacking and beating are repeated. The bundles are now laid out side by side on mats and trodden individually, the workman holding the stem ends with one foot while he passes the other foot downwards toward the flower. The bundles have now been reduced in size, and consist of four or five twigs each. They are then laid in a slanting position over the bamboo pole on the ground and left for the night. The whole process is repeated on the third day, and completed by pressing the twigs individually with the feet into flat masses in the way already described. The twigs are now gathered into bundles of two standard sizes, a certain quantity of large twigs in the one and of small in the other, and subsequently into the "robbins," in which the drug is delivered to the wholesale druggist.

The manufacture of round ganja is not complete until

* Fully fertilized seeds are plentifully produced, notwithstanding the precautions taken, subsequently described, to eradicate the male plants.

the fourth day after the plants are cut, and a great deal more of the woody portion is rejected than is the case of the flat variety. A horizontal bar of bamboo is lashed to uprights about 4 feet high, and mats are placed on the ground on each side of it. Bundles of twigs, either tied together by the stem-ends or not, according to the skill of the treader, are set out on the mats; the men range themselves on each side of the bar, and, holding on to it for support, proceed to roll the bundles with their feet. This is repeated, and the twigs subsequently hand pressed, shaken out, and covered up for the night. After further rolling, drying in the sun, and careful manipulation on two succeeding days, and all useless twigs and sticks having been eliminated, the twigs are sorted according to length and tied into bundles of three descriptions—short, medium, and long. "Chur" consists of pieces of the compressed flowerheads accidentally broken off in packing, together with fragments of resin, and it is on this form that the excise tariff imposes the highest duty, because in that state the drug is almost free from inert matter.

In contrast with the care and patience with which the drug is treated at Naogaon, may be given a description of the process of treading at Ahmednagar, Bombay. The preparation is much the same, but the treading-floor is usually prepared like an ordinary Indian threshing-floor with clay and cow-dung. The ganja is spread in squares of 15 or 20 feet wide, and about 6 inches thick, and a line of eight or ten men and women dance upon it to the music of a tom-tom. Treading begins at the outer edge of the heap, and is continued in a spiral until the centre is approached, when the men fall out one by one as the space grows smaller. They follow close on one another, dancing sideways in the leader's footsteps, and the music of the tom-tom keeps them at it.

Charas, which is used for smoking, is only collected in the Himalayas, but we may note here the methods adopted. The Bhutias of Nepal walk through the crop or jungle clothed in leather or with leather leggings on, to which the resin adheres, and from which it is scraped. In other places it is obtained by simply rubbing the young flowering tops between the hands, and in some of the native States by men walking to and fro among the plants clad only in a loincloth and their bodies smeared with oil.

Deterioration takes place in Indian hemp on keeping, which doubtless largely accounts for the contrasts in physiological activity in galenic preparations of the drug. The common belief in Lower Bengal is that ganja which has been kept for a year has lost its power, and ganja two years old is considered to be worthless, a standard of physiological activity which experiments have proved to be practically justified. Surgeon-Major Prain, Superintendent of the Royal Botanic Gardens, Calcutta, in his most recent communication to the Government embodying his researches on the storage of the drug, has proved that "by careful, 'close storage' (in a deal box with perforated sides) it is possible to preserve, even for three or four seasons, a good deal of the narcotic power of flat ganja, but that stored with the greatest care it seems by the time it is three and a half years old not to possess more than one-fourth the power of fresh ganja." It is believed, however, that this deterioration does not under ordinary conditions take place so rapidly in temperate climates as in that of Bengal. The drug, it was also proved, should not be stored in tins.

Of the pharmacy of Indian hemp there is little to be said until physiological standardization becomes a feature of our national pharmacopœia. No drug demands this more than does cannabis indica, and none presents so much uncertainty in the amount of extractive it will yield to the pharmacist, or in the activity that the extractive will present to the prescriber. Nothing could be more haphazard than the B. P. formula for *extractum cannabis indicæ*, to "exhaust by percolation and evaporate the percolate to the consistence of a soft extract." But it is difficult to better it, according to present B. P. pharmacological standards. That august volume is not strictly correct in stating that "the leaves and bracts bear external oleo-resin glands." The narcotic principle of hemp is not an oil or a resin, nor is it an oleo-resin. All that Dr. Prain could make of it last year was that it appeared to be "a substance that oxidizes into an ordinary resin as a fixed oil does."—Chemist and Druggist.

THE RETAIL PHARMACIST AND HIS SHOW WINDOWS.*

BY R. S. VITT, ST. LOUIS.

How many of my esteemed fellow members here assembled have taken notice of the show windows of the various retail drug stores?

I dare say each one of you has, and what is more, each one has his private opinion of some of them.

Strange, but true, we see some windows always looking the same. The same patent medicine boxes, dye cases, chewing gum signs, or some such are taken out each time the glasses are cleaned and always put right back again. This may be the result of several causes; for instance, some druggists leave the attention of windows entirely with the apprentice, who is constantly trying to break the record of getting through in the shortest time. He cares little, and seldom succeeds, in making them attractive. Again, the boy who really wants to make a display that necessitates a small expense has not at his command the money.

Every druggist should look after or superintend his windows personally, and I can speak from experience that the neighborhood will soon notice whether the windows are always the same or not.

Now, what do show windows indicate? What are they for? Your windows introduce you to your customers. Is it the kind of introduction you would have? Does it vouch for the dignity and character of your establishment?

You are very careful how you address a new customer, but your windows address him first, and more forcibly than your words.

Let your show windows be like eye-glasses made to properly fit you. Through the one you see the world, through the other the world sees you.

How many druggists do not look distrustfully upon this idea of making bright show, and feel that such action is lowering their professional dignity. Never need dignity be sacrificed; on the contrary, unless your window displays are prepared with a scrupulous regard for dignity (as expressed by good taste), you will derive little benefit therefrom. Dignity always; but not overdignity.

In all business, as a rule, men can employ any honest method to make money. To a druggist, none is of greater value than his window displays, when well and tastefully prepared; they will stimulate his general trade as a tonic stimulates appetite. It will bring new customers to his store, and be discussed by the whole neighborhood. There are things to be avoided and things to be carefully provided.

It is very difficult to give a set of rules to be followed in making window displays. However, I will make a few suggestions, which, I hope, may be useful to some.

Before beginning to arrange your windows have them thoroughly cleaned inside and outside.

Devote the entire window to one article only, thus you place emphasis on this one thing that you arouse intense interest.

Choose carefully the article to be displayed. If you can, use local events to illustrate.

Introduce mechanical movement whenever possible; it adds double attraction.

Be ingenious. Study effects. Use your brains and hands to execute.

Avoid every indication of bad taste. Observe proportion, color, grouping and general harmony. Use color freely, but with good judgment.

Use plain signs, never use slang phrases. Be very careful to employ only modest and appropriate expressions.

Do not leave the same display in a window too long; change every week, or, at least, every two weeks.

Much might be added to this, but I believe that every druggist who does take an interest in his windows must carefully compare his surroundings and conditions, and be guided thereby in the displays he makes.

Many druggists seem to find it difficult to choose suitable goods to display. How often do we not see an entire window devoted to some patent medicine with a card announcing price at almost cost.

Can such a window bring satisfactory results? No. Patent medicines are not suitable for any druggist's window, and I hope the time is not far distant when they will not be given such prominent places as by some druggists to-day.

* Read before the Missouri Pharmaceutical Association. (W. D.)