

GEN. 7.—CANNABIS.*

Sp. Cannabis sativa or *C. Indica*. Hemp.

Vern. See the sequel.

Off. Resin and leaves.

The narcotic effects of hemp are popularly known in the south of Africa, South America, Turkey, Egypt, Asia Minor, India, and the adjacent territories of the Malays, Burmese, and Siamese. In all these countries hemp is used in various forms, by the dissipated and depraved, as the ready

* This article prepared for this work expressly has been published in a separate *brochure* dated 1839, in order to collect information on the subject.

agent of a pleasing intoxication. In the popular medicine of these nations, we find it extensively employed for a multitude of affections. But in western Europe its use either as a stimulant or as a remedy, is equally unknown. With the exception of the trial, as a frolic, of the Egyptian "Hasheesh," by a few youths in Marseilles, and of the clinical use of the wine of hemp by Hahneman, as shewn in a subsequent extract, we have been unable to trace any notice of the employment of this drug in Europe.

Much difference of opinion exists on the question, whether the hemp so abundant in Europe, even in high northern latitudes, is identical in specific characters with the plant of Asia Minor and India. The extraordinary symptoms produced by the latter depend on a resinous secretion with which it abounds, and which seems totally absent in the European kind. Still as the closest physical resemblance or even identity exists between both plants, difference of climate seems to us more than sufficient to account for the absence of the resinous secretion, and consequent want of narcotic power in that indigenous in colder countries.

In the subsequent article we first endeavour to present an adequate view of what has been recorded of the early history, the popular uses, and employment in medicine of this powerful and valuable substance; we then proceed to notice several experiments which we have instituted on animals, with the view to ascertain its effects on the healthy system; and, lastly, we submit an abstract of the clinical details of the treatment of several patients afflicted with hydrophobia, tetanus, and other convulsive disorders, in which a preparation of hemp was employed, with results, which seem to us to warrant our anticipating from its more extensive and impartial use no inconsiderable addition to the resources of the physician.

Botanical characters—Chemical Properties—Production.

BOTANICAL DESCRIPTION.—Assuming with Roxburgh and Hamilton and other eminent writers that the *Cannabis sativa* and *indica* are identical, we find that the plant is dicæcious, annual, about three feet high, covered over with a fine pubescence; the stem is erect, branched, bright green, angular; leaves alternate or opposite, on long weak petioles; digitate, scabrous, with linear, lanceolate, sharply serrated leaflets, tapering into a long smooth entire point; stipules subulate; clusters of flowers axillary with subulate bracts; males lax and drooping, branched and leafless at base; females erect, simple and leafy at the base. ♂ Calyx downy, five-parted, imbricated. Stamens five; anthers large and pendulous.

♀ Calyx covered with brown glands. Ovary roundish with pendulous ovule, and two long filiform glandular stigmas; achenium ovate, one-seeded.—*v. Lindley's Flora Medica*, p. 299.

The fibres of the stems are long, and extremely tenacious, so as to afford the best tissue for cordage, thus constituting the material for one of the most important branches of European manufactures.

The seed is simply albuminous and oily, and is devoid of all narcotic properties.

CHEMICAL PROPERTIES.—In certain seasons and in warm countries a resinous juice exudes and concretes on the leaves, slender stems, and flowers;—the mode of removing this juice will be subsequently detailed. Separated and in masses it constitutes the *Churrus** of Nipal and Hindostan, and to this, the type or basis of all the hemp preparations, are the powers of these drugs attributable.

The pure resin of the hemp is very soluble in alcohol and ether; partially soluble in alkaline, insoluble in acid solutions; when pure, of a blackish grey colour; hard at 90°; softens at higher temperatures, and fuses readily;—soluble in the fixed and in several volatile oils. Its odour is fragrant and narcotic; taste slightly warm, bitterish, and acrid.

The dried hemp plant which has flowered, and *from which the resin has not been removed*, is called *Gunjah*. It sells for twelve annas to one rupee the seer in the Calcutta bazars, and yields to alcohol twenty per 100 of resinous extract, composed of the resin (*Churrus*), and green colouring matter (*chlorophylle*.) Distilled with a large quantity of water, traces of essential oil pass over, and the distilled liquor has the powerful narcotic odour of the plant. The *Gunjah* is sold for smoking chiefly. The bundles of *Gunjah* are about two feet long and three inches in diameter, and contain twenty-four plants. The colour is dusky green—the odour agreeably narcotic—the whole plant resinous, and adhesive to the touch.

The larger leaves and capsules without the stalks, are called "*Bang, Subjee, or Sidhee*." They are used for making an intoxicating drink, for smoking, and in the conserve or confection termed *Majoon*. *Bang* is cheaper than *Gunjah*, and though less powerful, is sold at such a low price that for one pice enough can be purchased to intoxicate an "habituated" person.

According to Mr. McCann's notes, the *Gunjah* consumed

* For very fine specimens of *Churrus*, the Editor has to express his thanks to Dr. Campbell, late Assistant Resident at Nipal, also to Col. Stacy, now at Quetta.

in Bengal is chiefly brought from Mirzapúr and Ghazee-púr, being extensively cultivated near Gwalior and in Tirhoot. The natives cut the plant when in flower, allow it to dry for three days, and then lay it in bundles averaging one seer weight each, which are distributed to the licensed dealers. The best kinds are brought from Gwalior and Bhurtpore, and it is also cultivated, of good quality, in a few gardens round Calcutta. In Jessore, we are informed, the drug is produced of excellent quality, and to a very considerable extent of cultivation.

In Central India and the Saugor territory and in Nipal, *Churrus* is collected during the hot season in the following singular manner:—men clad in leathern dresses run through the hemp-fields brushing through the plant with all possible violence; the soft resin adheres to the leather, and is subsequently scraped off and kneaded into balls, which sell from five to six rupees the seer. A still finer kind, the *Momeea* or waxen *Churrus*, is collected by the hand in Nipal, and sells for nearly double the price of the ordinary kind. In Nipal, Dr. McKinnon informs us, the leathern attire is dispensed with, and the resin is gathered on the skins of naked coolies. In Persia, it is stated by Mirza Abdul Russac, that the *Churrus* is prepared by pressing the resinous plant on coarse cloths, and then scraping it from these and melting it in a pot with a little warm water. He considers the *Churrus* of Herat as the best and most powerful of all the varieties of the drug.

Popular uses.

The preparations of hemp are used for the purpose of intoxication as follows:—

Sidhee, *Subjee*, and *Bang* (synonymous) are used with water as a drink, which is thus prepared:—About three tola weight (540 troy grains) are well washed with cold water, then rubbed to powder, mixed with black pepper, cucumber, and melon seeds, sugar, half a pint of milk, and an equal quantity of water. This is considered sufficient to intoxicate an habituated person. Half the quantity is enough for a novice. This composition is chiefly used by the Mahomedans of the better classes.

Another recipe is as follows:—

The same quantity of *Sidhee* is washed and ground, mixed with black pepper, and a quart of cold water added. This is drunk at one sitting. This is the favourite beverage of the Hindus who practice this vice, especially the Birjobassies and many of the Rajpootana soldiery.

From either of these beverages intoxication will ensue in half an hour. Almost invariably the inebriation is of the most cheerful kind, causing the person to sing and dance, to eat food with great relish, and to seek aphrodisiac enjoyments. In persons of a quarrelsome disposition it occasions, as might be expected, an exasperation of their natural tendency. The intoxication lasts about three hours, when sleep supervenes. No nausea or sickness of stomach succeeds, nor are the bowels at all affected; next day there is slight giddiness and vascularity of the eyes, but no other symptom worth recording.

Gunjah is used for smoking alone—one rupee weight, (180 grains) and a little dried tobacco are rubbed together in the palm of the hand with a few drops of water. This suffices for three persons. A little tobacco is placed in the pipe first, then a layer of the prepared *Gunjah*, then more tobacco, and the fire above all.

Four or five persons usually join in this debauch. The hookah is passed round, and each person takes a single draught. Intoxication ensues almost instantly; and from one draught to the unaccustomed, within half an hour; and after four or five inspirations to those more practised in the vice. The effects differ from those occasioned by the *Sidhee*. Heaviness, laziness, and agreeable reveries ensue, but the person can be readily roused, and is able to discharge routine occupations, such as pulling the punkah, waiting at table, &c.

The *Majoon*, or hemp confection, is a compound of sugar, butter, flour, milk, and *Sidhee* or *Bang*. The process has been repeatedly performed before us by Ameer, the proprietor of a celebrated place of resort for hemp devotees in Calcutta, and who is considered the best artist in his profession. Four ounces of *Sidhee* and an equal quantity of *ghee* are placed in an earthen or well-tinned vessel, a pint of water added, and the whole warmed over a charcoal fire. The mixture is constantly stirred until the water all boils away, which is known by the crackling noise of the melted butter on the sides of the vessel; the mixture is then removed from the fire, squeezed through cloth while hot—by which an oleaginous solution of the active principles and colouring matter of the hemp is obtained—and the leaves, fibres, &c., remaining on the cloth are thrown away.

The green oily solution soon concretes into a buttery mass, and is then well washed by the hand with soft water so long as the water becomes coloured. The colouring matter and an extractive substance are thus removed, and a

very pale green mass, of the consistence of simple ointment, remains. The washings are thrown away;—Ameer says that these are intoxicating, and produce constriction of the throat, great pain, and very disagreeable and dangerous symptoms.

The operator then takes two pounds of sugar, and adding a little water, places it in a pipkin over the fire. When the sugar dissolves and froths, two ounces of milk are added; a thick scum rises and is removed—more milk and a little water are added from time to time, and the boiling continued about an hour, the solution being carefully stirred until it becomes an adhesive clear syrup, ready to solidify on a cold surface; four ounces of tyre (new milk dried before the sun) in fine powder are now stirred in, and lastly the prepared butter of hemp is introduced, brisk stirring being continued for a few minutes. A few drops of utter of roses are then quickly sprinkled in, and the mixture poured from the pipkin on a flat cold dish or slab. The mass concretes immediately into a thin cake, which is divided into small lozenge-shaped pieces. A seer thus prepared sells for four rupees: one drachm by weight will intoxicate a beginner; three drachms one experienced in its use. The taste is sweet, and the odour very agreeable.

Ameer states that there are seven or eight *Majoon* makers in Calcutta;—that sometimes by special order of customers he introduces stramonium seeds, but never nux-vomica;—that all classes of persons, including the lower Portuguese, or “Kala Feringhees,” and especially their females, consume the drug;—that it is most fascinating in its effects, producing extatic happiness, a persuasion of high rank, a sensation of flying, voracious appetite, and intense aphrodisiac desire. He denies that its continued use leads to madness, impotence, or to the numerous evil consequences described by the Arabic and Persian physicians. Although we disbelieve Ameer’s statements on this point, his description of the immediate effects of *Majoon* is strictly and accurately correct.

Most carnivorous animals eat it greedily, and very soon experience its narcotic effects, becoming ludicrously drunk, but seldom suffering any worse consequences.

Historical details—Notices of Hemp, and its popular uses, by the Sanscrit, Arabic, and Persian writers.

The preceding notice suffices to explain the subsequent historical and medicinal details. We premise the historical, in order to shew the exact state of our knowledge of the subject, when we attempted its investigation.

Although the most eminent of the Arabic and Persian authors concur in referring the origin of the practice of hemp intoxication to the natives of Hindoostan, it is remarkable that few traces can be detected of the prevalence of the vice at any early period in India.

The Pandit Moodoosudun Gooptu finds that the "Rajniguntu," a standard treatise on Materia Medica, which he estimates vaguely at 600 years date, gives a clear account of this agent. Its synonymes are "*Bijoya*," "*Ujoya*," and "*Joya*,"—names which mean, promoters of success; "*Brijputta*," or the strengthener, or the strong-leaved; "*Chapola*," the causer of a reeling gait; "*Ununda*," or the laughter-moving; "*Hursini*," the exciter of sexual desire. Its effects on man are described as excitant, heating, astringent. It is added, that it "destroys phlegm, expels flatulence, induces costiveness, sharpens the memory, increases eloquence, excites the appetite, and acts as a general tonic."

The "*Rajbulubha*," a Sanscrit treatise of rather later date, alludes to the use of hemp in gonorrhœa, and repeats the statements of the "Rajniguntu." In the Hindu Tantra, a religious treatise, teaching peculiar and mystical formulæ and rites for the worship of the deities, it is said, moreover, that *Sidhee* is more intoxicating than the wine.

In the celebrated "*Susruta*," which is perhaps the most ancient of all Hindu medical works, it is written, that persons labouring under catarrh should, with other remedies, use internally the *Bijoya* or *Sidhee*. The effects, however, are not described.

The learned Kamalakantha Vidyalanka has traced a notice of hemp in the fifth chapter of *Menu*, where Brahmans are prohibited to use the following substances—*Palandoo* or onions, *Gunjara* or *Gunjah*, and such condiments as have strong and pungent scents.

The Arabic and Persian writers are however far more voluminous and precise in their accounts of these fascinating preparations. In the first vol. of De Sacy's "*Crestomathie Arabe*" we find an extremely interesting summary of the writings of Takim Eddin Makrizi on this subject. Lane has noticed it too with his usual ability in his admirable work "*the Modern Egyptians*." From these two sources, the MS. notes of the Syed Keramut Ali and Mr. DaCosta, and a curious paper communicated by our friend Mirza Abdul Russac, a very intelligent Persian physician, the following epitome is compiled.

Makrizi treats of the hemp in his glowing description of the celebrated Canton de la Timbaliere, or ancient pleasure

grounds, in the vicinity of Cairo. This quarter, after many vicissitudes, is now a heap of ruins. In it was situated a cultivated valley named Djoneina, which we are informed was the theatre of all conceivable abominations. It was famous above all for the sale of the *Hasheeha*, which is still greedily consumed by the dregs of the populace, and from the consumption of which sprung the excesses which led to the name of "Assassin" being given to the Saracens in the Holy Wars. The history of the drug the author treats of thus:—The oldest work in which hemp is noticed is a treatise by Hassan, who states that in the year 658, M. E. the Sheikh Djafar Shirazi, a monk of the order of Haider, learned from his master the history of the discovery of hemp. Haider, the chief of ascetics and self-chasteners, lived in rigid privation on a mountain between Nishabor and Rama, where he established a monastery of Fakirs. Ten years he had spent in this retreat without leaving it for a moment, till one burning summer's day when he departed alone to the fields. On his return an air of joy and gaiety was imprinted on his countenance; he received the visits of his brethren, and encouraged their conversation. On being questioned, he stated that struck by the aspect of a plant which danced in the heat as if with joy, while all the rest of the vegetable creation was torpid, he had gathered and eaten of its leaves. He led his companions to the spot,—all ate and all were similarly excited. A tincture of the hemp leaf in wine or spirit seems to have been the favourite formula in which the Sheikh Haider indulged himself. An Arab poet sings of Haider's *emerald cup*—an evident allusion to the rich green colour of the tincture of the drug. The Sheikh survived the discovery ten years, and subsisted chiefly on this herb, and on his death his disciples by his desire planted it in an arbour round his tomb. From this saintly sepulchre the knowledge of the effects of hemp is stated to have spread into Khorasan. In Chaldea it was unknown until 728 M. E. during the reign of the Khalif Mostansir Billah: the kings of Ormus and Bahrein then introduced it into Chaldea, Syria, Egypt, and Turkey.

In Khorasan, however, it seems that the date of the use of hemp is considered to be far prior to Haider's era. Biraslan, an Indian pilgrim, the contemporary of Cosrões,* is believed to have introduced and diffused the custom through

* By this term is probably meant the first of the Sassanian dynasty, to whom the epithet "of Khusrow," or Cosrões, equivalent to Káiser, Cæsar, or Czar, has been applied in many generations. This dynasty endured from A. D. 202 to A. D. 636—*Vide note 50 to Lane's translation of the Arabian Nights, vol. ii. p. 226.*

Khorasan and Yemen. In proof of the great antiquity of the practice, certain passages in the works of Hippocrates may be cited, in which some of its properties are clearly described—but the difficulty of deciding whether the passages be spurious or genuine, renders the fact of little value. Dioscorides (lib. ii. cap. 169,) describes hemp, but merely notices the emollient properties of its seeds—its intoxicating effects must consequently be regarded as unknown to the Greeks prior to his era, which is generally agreed to be about the second century of the Christian epoch, and somewhat subsequent to the lifetime of Pliny.

In the narrative of Makrizi we also learn that oxymel and acids are the most powerful antidotes to the effects of this narcotic; next to these, emetics, cold bathing, and sleep; and we are further told that it possesses diuretic, astringent, and especially aphrodisiac properties. Ibn Beitar was the first to record its tendency to produce mental derangement, and he even states that it occasionally proves fatal.

In 780 M. E. very severe ordinances were passed in Egypt against the practice: the Djoneina garden was rooted up, and all those convicted of the use of the drug were subjected to the extraction of their teeth; but in 799 M. E. the custom re-established itself with more than original vigour. Makrizi draws an expressive picture of the evils this vice then inflicted on its votaries—"As its consequence, general corruption of sentiments and manners ensued, modesty disappeared, every base and evil passion was openly indulged in, and nobility of external form alone remained to these infatuated beings."

Medicinal properties assigned to Hemp by the ancient Arabian and Persian writers, and by modern European authors.

In the preceding notice of Makrizi's writings on this subject we have confined ourselves chiefly to historical details, excluding descriptions of supposed medicinal effects. The Mukzun-ul-Udwieh and the Persian MS. in our possession, inform us as to the properties which the ancient physicians attributed to this powerful narcotic.

In Mr. DaCosta's MS. version of the chapter on Hemp in the Mukzun-ul-Udwieh, *Churrus*, we are informed, if smoked through a pipe causes torpor and intoxication, and often proves fatal to the smoker. Three kinds are noticed, the *garden*, *wild*, and *mountain*, of which the last is deemed the strongest;—the seeds are called *sheadana* or *shaldaneh* in Persia. These are said to be "a compound of opposite

qualities, cold and dry in the third degree, that is to say, stimulant and sedative, imparting at first a gentle reviving heat, and then a considerable refrigerant effect."

The contrary qualities of the plant, its stimulant and sedative effects, are prominently dwelt on. "They at first exhilarate the spirits, cause cheerfulness, give colour to the complexion, bring on intoxication, excite the imagination into the most rapturous ideas, produce thirst, increase appetite, excite concupiscence. Afterwards the sedative effects begin to preside, the spirits sink, the vision darkens and weakens; and madness, melancholy, fearfulness, dropsy, and such like distempers, are the sequel—while the seminal secretions dry up. These effects are increased by sweets, and combated by acids."

The author of the *Mukzun-ul-Udwieh* further informs us— "The leaves make a good snuff for deterring the brain; the juice of the leaves applied to the head as a wash, removes dandriff and vermin; drops of the juice thrown into the ear allay pain and destroy worms or insects. It checks diarrhœa, is useful in gonorrhœa, restrains seminal secretions, and is diuretic. The bark has a similar effect."

"The powder is recommended as an external application to fresh wounds and sores, and for causing granulations; a poultice of the boiled root and leaves for discussing inflammations and cure of erysipelas, and for allaying neuralgic pains. The dried leaves bruised and spread on a castor oil leaf cure hydrocele and swelled testes. The *dose* internally is one *diram*, or 48 grains. The antidotes are emetics, cow's milk, hot water, and sorrel wine."

Alluding to its popular uses, the author dwells on the eventual evil consequences of the indulgence; weakness of the digestive organs first ensues, followed by flatulency, indigestion, swelling of the limbs and face, change of complexion, diminution of sexual vigour, loss of teeth, heaviness, cowardice, depraved and wicked ideas, scepticism in religious tenets;—licentiousness and ungodliness are also enumerated in the catalogue of deplorable results.

The medicinal properties of hemp, in various forms, are the subject of some interesting notes by Mirza Abdul Russac. "It produces a ravenous appetite and constipation, arrests the secretions except that of the liver, excites wild imagining, a sensation of ascending, forgetfulness of all that happens during its use, and such mental exaltation, that *the beholders attribute it to supernatural inspiration.*"

Mirza Abdul considers hemp to be a powerful exciter of the flow of bile, and relates cases of its efficacy in restoring

appetite—of its utility as an external application as a poultice with milk, in relieving hæmorrhoids—and internally in gonorrhœa, to the extent of a quarter drachm of *bangh*. He states also that the habitual smokers of *Gunjah* generally die of diseases of the lungs, dropsy, and anasarca—“so do the eaters of *Majoon* and smokers of *Sidhee*, but at a later period. The inexperienced on first taking it are often senseless for a day, some go mad, others are known to die.”

In the 35th chapter of the 5th volume of Rumphius' *Herbarium Amboinense*, p. 208, Ed. Amsterd. A. D. 1695, we find a long and very good account of this drug, illustrated by two excellent plates. The subjoined is an epitome of Rumphius' article.

Rumphius first describes botanically the male and female hemp plants, of which he gives two admirable drawings. He assigns the upper provinces of India as its *habitat*, and states it to be cultivated in Java and Amboyna. He then notices very briefly the exciting effects ascribed to the leaf, and to mixtures thereof with spices, camphor, and opium. He alludes doubtingly to its alleged aphrodisiac powers, and states that the kind of mental excitement it produces depends on the temperament of the consumer. He quotes a passage from Galen, lib. i. (*de aliment, facult*) in which it is asserted that in that great writer's time it was customary to give hemp seed to the guests at banquets, as a promoter of hilarity and enjoyment. Rumphius adds, that the Mahomedans in his neighbourhood frequently sought for the male plant from his garden to be given to persons afflicted with virulent gonorrhœa or with asthma, and the affection which is popularly called “stitches in the side.” He tells us, moreover, that the powdered leaves check diarrhœa, are stomachic, cure the malady named *pitao*, and moderate excessive secretion of bile. He mentions the use of hemp smoke as an enema in strangulated hernia, and of the leaves as an antidote to poisoning by orpiment. Lastly, he notices in the two subsequent chapters varieties of hemp which he terms the *Gunjah sativa* and *Gunjah agrestis*.

In the *Hortus Malabaricus*, Rheede's article on the Hemp is a mere outline of Rumphius' statements.

Among modern European writers the only information we could trace on the medicinal use of Hemp in *Europe*, is in the recent work of Nees v. Esenbeck, from which the following is an extract kindly supplied by Dr. Wallich:—

“The fresh herb of the hemp has a very powerful and unpleasant narcotic smell, and is used in the East in combination with opium, in the preparation of intoxicating po-

tions, &c. It is probable that the *nepenthe* of the ancients was prepared from the leaves of this plant. Many physicians, Hahnemann among them, prescribe the vinous extract in various nervous disorders, where opium and hyoscyamus used to be employed, being less heating and devoid of bitterness.*

No information as to the medicinal effects of hemp exists in the standard works on *Materia Medica*, to which we have access. Soubeiran, Feé, Merat, and De Lens in their admirable dictionary; Chevallier and Richard, Roques (*Phytographie Medicale*); Ratier and Henry (*Pharmacopée Française*); and the *Dictionnaire des Sciences Medicales*—are all equally silent on the subject.

In the *Journal de Pharmacie*, the most complete Magazine in existence on all pharmaceutical subjects, we find hemp noticed in several volumes. In the *Bulletin de Pharmacie* t. v. A. 1810, p. 400, we find it briefly described by M. Rouyer, apothecary to Napoleon, and member of the Egyptian scientific commission, in a paper on the popular remedies of Egypt. With the leaves and tops, he tells us, collected before ripening, the Egyptians prepare a conserve, which serves as the base of the *berch*, the *diasmouk*, and the *bernaouy*. Hemp leaves reduced to powder and incorporated with honey, or stirred with water, constitute the *berch* of the poor classes.

The same work also (*Bulletin*, vol. i. p. 523, A. D. 1809,) contains a very brief notice on the intoxicating preparations of hemp, read by M. De Sacy before the Institute of France in July, 1809. M. De Sacy's subsequent analysis of Makrizi, of which we have given an outline, is however much richer in details than the article in the *Bulletin*.

In *Ainslie's Materia Indica*, 2nd vol. we find three notices of the plant and its preparations.

At page 39 "*Banghie*," (*Tamul*) with the Persian and Hindee synonymes of "*Beng*" and "*Subjee*," is described as an intoxicating liquor prepared with the leaves of the *Gunjah*, or hemp plant.

Under the head *Gunjah*, Ainslie gives numerous synonymes, and tells us that the leaves are sometimes prescribed in cases of diarrhœa; and in conjunction with turmeric, onions, and warm gingilie oil are made into an unction for painful protruded piles. Dr. Ainslie also gives a brief view of the popular uses and botanical peculiarities of the plant.

* *Handbuch der medicinisch-pharmaceutischen Botanik*, von Dr. Th. Fr. Nees von Esenbeck and Dr. Carl Ebermaier, vol. i. p. 338.

Majoon, lastly, is described by Dr. Ainslie, page 176, as a preparation of sugar, milk, ghee, poppy seeds, the seeds of the *datura*, powder of *nux-vomica*, and sugar. The true *Majoon*, however, as prepared in Bengal, contains neither *datura* nor *nux-vomica*. We have already described the process by which it has been manufactured before us.*

Experiments by the Editor—inferences as to the action of the drug on animals and man.

Such was the amount of preliminary information before us, by which we were guided in our subsequent attempts to gain more accurate knowledge of the action, powers, and possible medicinal applications of this extraordinary agent.

There was sufficient to shew that hemp possessed in small doses an extraordinary power of stimulating the digestive organs, exciting the cerebral system, of acting also on the generative apparatus. Larger doses, again, were shewn by the historical statements to induce insensibility, or to act as a powerful sedative. The influence of the drug in allaying pain was equally manifest in all the memoirs referred to. As to the evil sequelæ so unanimously dwelt on by all writers, these did not appear to us so numerous, so immediate, or so formidable, as many which may be clearly traced to over-indulgence in other powerful stimulants or narcotics, viz. alcohol, opium, or tobacco.

The dose in which the hemp preparations might be administered, constituted of course one of the first objects of inquiry. Ibn Beitar had mentioned a *direm*, or 48 grains of *Churrus*, but this dose seemed to us so enormous, that we deemed it expedient to proceed with much smaller quantities. How fortunate was this caution, the sequel will sufficiently denote.

An extensive series of experiments on animals was in the first place undertaken, among which the following may be cited:—

Expt. 1.—Ten grains of Nipalese *Churrus*, dissolved in spirit were given to a middling sized dog. In half an hour he became stupid and sleepy, dozing at intervals, starting up, wagging his tail as if extremely contented, he ate some food greedily, on being called to he staggered to and fro, and his face assumed a look of utter and helpless drunkenness. These symptoms lasted about two hours, and then

* Royle in his "*Illustrations*," p. 334, gives a very brief notice of the synonyms and epithets of the hemp resin, and he mentions also its intoxicating properties.

gradually passed away; in six hours he was perfectly well and lively.

Expt. 2.—One drachm of *Majoon* was given to a small sized dog, he ate it with great delight, and in twenty minutes was ridiculously drunk; in four hours his symptoms passed away, also without harm.

Expts. 3, 4, & 5.—Three kids had ten grains each of the alcoholic extract of *Gunjah*. In one no effect was produced; in the second there was much heaviness, and some inability to move; in the third a marked alteration of countenance was conspicuous, but no further effect.

Expt. 6.—Twenty grains were given, dissolved in a little spirit, to a dog of very small size. In a quarter of an hour he was intoxicated, in half an hour he had great difficulty of movement; in an hour he had lost all power over the hinder extremities, which were rather stiff but flexible; sensibility did not seem to be impaired, and the circulation was natural. He readily acknowledged calls by an attempt to rise up. In four hours he was quite well.

In none of these or several other experiments was there the least indication of pain, or any degree of convulsive movement observed.

It seems needless to dwell on the details of each experiment; suffice it to say that they led to one remarkable result—That while carnivorous animals and fish, dogs, cats, swine, vultures, crows, and adjutants, invariably and speedily exhibited the intoxicating influence of the drug, the graminivorous, such as the horse, deer, monkey, goat, sheep, and cow, experienced but trivial effects from any dose we administered.

Encouraged by these results, no hesitation could be felt as to the perfect safety of giving the resin of hemp an extensive trial in the cases in which its apparent powers promised the greatest degree of utility.

Cases of Rheumatism treated by Hemp.

The first cases selected were two of acute rheumatism, and one of that disease in the chronic form. In the two former but little relief had been derived from a fair trial of antiphlogistic measures, and Dover's powder with antimonials—In the last case, sarsaparilla at first, and subsequently the *Hemidesmus Indicus* with warm baths had been tried without advantage.

On the 6th November, 1838, one grain of the resin of Hemp was administered in solution, at 2 P. M. to each of these three patients.

At 4 P. M. it was reported that one was becoming very talkative, was singing songs, calling loudly for an extra supply of food, and declaring himself in perfect health. The other two patients remained unaffected.

At 6 P. M. received a report to the same effect, but stating that the first patient was now falling asleep.

At 8 P. M.—alarmed by an emergent note from Nobinchunder Mitter, the clinical clerk on duty, describing the patient's symptoms as very peculiar and formidable; went to the Hospital without delay, and found him lying on his cot quite insensible, but breathing with perfect regularity, his pulse and skin natural, and the pupils freely contractile on the approach of light.

On examining the other patients—found one asleep, the third awake, intelligent, and free from any symptoms of intoxication or alarm.

Returning then to the first, an emetic was directed to be prepared, and while waiting for it, on lifting up the patient's arm, the professional reader will judge of our astonishment, when we found that it remained in the posture in which we placed it. It required but a very brief examination of the limbs to find that the patient had by the influence of this narcotic been thrown into that strange and most extraordinary of all nervous conditions, into that state which so few have seen, and the existence of which so many still discredit—the genuine *cataplexy* of the nosologist.

To return to our patient, we raised him to a sitting posture, and placed his arms and limbs in every imaginable attitude. A waxen figure could not be more pliant or more stationary in each position, no matter how contrary to the natural influence of gravity on the part.

To all impressions he was meanwhile almost insensible; he made no sign of understanding questions, and could not be aroused. A sinapism to the epigastrium caused no evidence of pain. The pharynx and its coadjutor muscles acted freely in the deglutition of the stimulant remedies which we thought it advisable to administer, although the manifest cataleptic state had freed us altogether of the anxiety under which we before laboured.

The second patient had meanwhile been roused by the noise in the ward, and seemed vastly amused at the strange aspect of the statue-like attitudes in which the first patient had been placed, when on a sudden he uttered a loud peal of laughter, and exclaimed that four spirits were springing with his bed into the air. In vain we attempted to pacify him; his laughter became momentarily more and more in-

controllable. We now observed that the limbs were rather rigid, and in a few minutes more his arms or legs could be bent, and would remain in any desired position. A strong stimulant drink was immediately given, and a sinapism applied. Of the latter he made no complaint, but his intoxication led him to such noisy exclamations, that we had to remove him to a separate room; here he soon became tranquil, his limbs in less than an hour gained their natural condition, and in two hours he said he was perfectly well and very hungry.

The first patient continued cataleptic till 1 A. M., when consciousness and voluntary motion quickly returned, and by 2 A.M. he was exactly in the same state as the second patient.

The third man experienced no effect whatever, and on further inquiry it was found that he was habituated to the use of *Gunjah* in the pipe.

On the following day we found with much pleasure that both the individuals above-mentioned were not only uninjured by the narcotic, but much relieved of their rheumatism; they were discharged quite cured in three days after.

The fourth case of trial was an old muscular cooly, a rheumatic malingerer, and to him half a grain of hemp resin was given in a little spirit. The first day's report will suffice for all.—In two hours the old gentleman became talkative and musical, told several stories, and sang songs to a circle of highly delighted auditors, ate the dinners of two persons subscribed for him in the ward, sought also for other luxuries we can scarcely venture to allude to, and finally fell soundly asleep, and so continued till the following morning. On the noon-day visit, he expressed himself free from headache or any other unpleasant sequel, and begged hard for a repetition of the medicine; in this he was indulged for a few days, and then discharged.

In several cases of acute and chronic rheumatism admitted about this time, half-grain doses of the resin were given, with closely analogous effects;—alleviation of pain in most—remarkable increase of appetite in all—unequivocal aphrodisia, and great mental cheerfulness. The disposition developed was uniform in all, and in none was headache or sickness of stomach a sequel of the excitement.

Case of Hydrophobia.

The following case is given as originally published in the Editor's Essay on this subject.

“ On the 22nd November at 8 A.M. a note in English was handed to me by my servant, entreating my assistance for

the Hakim Abdullah, then at my gate, who had been bitten by a rabid dog three weeks before, and who feared that the miserable consequences of the bite already had commenced. I found the poor man in a carriage ; he was perfectly composed, though quite convinced of the desperate nature of his case. He told me that the evening before, on passing near a tank he started in alarm, and since then was unable to swallow liquid. His eye was restless, suspicious, and wild, his features anxious, his pulse 125, the skin bedewed with cold moisture ; he stated nevertheless that he wished for food, and felt well;—a small red and painful cicatrix existed on the left fore-arm.

“He was immediately removed to the Hospital, where I accompanied him. By his own desire water was brought in a metallic vessel, which he grasped and brought near his lips ;—never can I forget the indescribable horrors of the paroxysm which ensued. It abated in about three minutes, and morbid thirst still goading the unhappy man, he besought his servant to apply a moistened cloth to his lips. Intelligent and brave, he determinately awaited the contact of the cloth, and for a few seconds, though in appalling agony, permitted some drops to trickle on his tongue,—but then ensued a second struggle, which, with a due share of the callousness of my profession, I could not stand by to contemplate.

“Two grains of hemp resin in a soft pillular mass were ordered every hour ; after the third dose he stated that he felt commencing intoxication—he now chatted cheerfully on his case, and displayed great intelligence and experience in the treatment of the very disease with which he was visited. He talked calmly of drinking, but said it was in vain to try—but he could suck an orange ; this was brought to him, and he succeeded in swallowing the juice without any difficulty.

“The hemp was continued till the sixth dose, when he fell asleep, and had some rest. Early the ensuing morning, however, Mr. Siddons, my assistant, was called up to him, and found him in a state of tumultuous agony and excitement ; tortured by thirst he attempted to drink,—but I will spare the reader the details of the horrors which ensued.

“The hemp was again repeated, and again by the third dose the cheering alleviation of the previous day was witnessed. He ate a piece of sugar-cane, and again swallowed the juice—he partook freely of some moistened rice, and permitted a purgative enema to be administered. His pulse was nearly natural, the skin natural in every respect. His

countenance was happy. On *one* subject only was he incoherent, and even here was manifested the powerful and peculiar influence of the narcotic. He spoke in raptures of the inmates of his *senana*, and his anxiety to be with them. We ascertained however that he had no such establishment.

“ Four days thus passed away, the doses of hemp being continued. When he fell asleep, on waking the paroxysms returned, but were again almost immediately assuaged as at first. Meanwhile purgative enemata were employed, and he partook freely of solid food, and once drank water without the least suffering. But about 3 P. M. of the fifth day he sunk into profound stupor, the breathing slightly stertorous; in this state he continued, and without further struggle death terminated his sufferings at 4 A. M. on the 27th November.

“ Reviewing the preceding summary of this interesting case, it seems evident that at least one advantage was gained from the use of the remedy—the awful malady was stripped of its horrors;—if not less fatal than before, it was reduced to less than the scale of suffering which precedes death from most ordinary diseases. It must be remembered too, that in this the first case ever so treated, I possessed no data to guide me as to the dose or manner of administration of the drug. The remarkable cases of tetanus detailed in the sequel, throw light on these important points, and will lead in future cases to the unhesitating administration of much larger quantities than at first I ventured to employ. I am not however rash enough to indulge the hope which involuntarily forces itself upon me, that we will ever from this narcotic derive an effectual remedy, for even a solitary case of this disease—but next to cure, the physician will perhaps esteem the means which enable him ‘to strew the path to the tomb with flowers,’ and to divest of its *specific* terrors the most dreadful malady to which mankind is exposed.”

While the preceding case was under treatment, and exciting the utmost interest in the school, several pupils commenced experiments on themselves, to ascertain the effects of the drug. In all, the state of the pulse was noted before taking a dose, and subsequently the effects were observed by two pupils of much intelligence. The result of several trials was, that in as small doses as the quarter of a grain, the pulse was increased in fullness and frequency; the surface of the body glowed; the appetite became extraordinary; vivid ideas crowded the mind; unusual loquacity occurred;

and with scarcely any exception great aphrodisia was experienced.

In one pupil, Dinonath Dhur, a retiring lad of excellent habits, ten drops of the tincture, equal to a quarter of a grain of the resin, induced in twenty minutes the most amusing effects.

A shout of loud and prolonged laughter ushered in the symptoms, and a transitory state of cataleptic rigidity occurred for two or three minutes. Summoned to witness the effects, we found him enacting the part of a Raja giving orders to his courtiers; he could recognize none of his fellow students or acquaintances; all to his mind seemed as altered as his own condition; he spoke of many years having passed since his student's days; described his teachers and friends with a piquancy which a dramatist would envy; detailed the adventures of an imaginary series of years, his travels, his attainment of wealth and power. He entered on discussions on religious, scientific, and political topics, with astonishing eloquence, and disclosed an extent of knowledge, reading, and a ready apposite wit, which those who knew him best were altogether unprepared for. For three hours and upwards he maintained the character he at first assumed, and with a degree of ease and dignity perfectly becoming his high situation. A scene more interesting it would be difficult to imagine. It terminated nearly as abruptly as it commenced, and no headache, sickness, or other unpleasant symptom followed the innocent excess.

Dr. Goodeve and more than thirty students were present at this occurrence.

In the symptoms above described, we are unavoidably led to trace a close resemblance to the effects produced by the reputed inspiration of the Delphic Oracles—perhaps it would not be very erroneous to conclude, that it was referable to the same kind of excitement.

Use in Cholera.

An epidemic cholera prevailing at this period, two of the students administered the tincture of hemp in several cases of that disease, and cures were daily reported by its alleged efficacy. Dr. Goodeve was thus led to try it in several cases, and his report was in the highest degree favorable. The diarrhœa was in most instances checked, and the stimulating effects of the drug clearly manifested. The Durwan of the College, an athletic Rajpoot, was attacked, and came under our treatment after he had been ill seven hours; he was

pulseless, cold, and in a state of imminent danger, the characteristic evacuations streaming from him without effort—half a grain of the hemp resin was given, and in twenty minutes the pulse returned, the skin became warm, the purging ceased, and he fell asleep. In an hour he was cataleptic, and continued so for several hours. In the morning he was perfectly well and at his duty as usual.

It is but fair to state, however, that the character of the epidemic was not at the time malignant. We admit the cases to be inconclusive, but we conceive them to be promising, and that they deserve the due attention of practitioners.*

Use in Tetanus.

The first case of this disease treated by hemp was that of Ramjan Khan, æt: 30, admitted to the College Hospital on the 13th December 1838, for a sloughing ulcer on the back of the left hand. Five days previously a native empiric had applied a red hot *gool* (the mixture of charcoal and tobacco used in the hookah) to the back of the left wrist, as a remedy for chronic dysentery and spleen. The patient's brother was similarly cauterized on the same day. In both sloughing took place down to the tendons. Symptoms of tetanus occurred on the 24th December. The brother who had refused to avail himself of European aid, had been seized with tetanus at his own home four days previously, and died after three days illness. On the 26th of December spasms set in, and recurred at intervals of a few minutes; the muscles of the abdomen, neck, and jaws, became firmly and permanently contracted. Large doses of opium with calomel having been administered for some hours, without the least alleviation of symptoms, and his case having on consultation been pronounced completely hopeless, we obtained Mr. Egerton's permission to subject the poor man to the trial of the hemp resin. Two grains were first given at 2½ P. M., dissolved in a little spirit. In half an hour the patient felt

* Since this passage was written in 1839, the tincture of hemp has been used in a great number of cases, both European and Native, in the Hospital of the Medical College. We know no remedy equal to it, as a general and steady stimulant when given to Europeans, in the dose of half a drachm, during the *tractable* stage of this disease. We have known the pulse and heat return, and the purging checked by a single dose. It allays vomiting much more certainly than the opium preparations, and is not more likely than these to lead to cerebral congestion on the cessation of the cholera symptoms. The cheering effect on the patient's spirits is not the least benefit the remedy confers. Of course in every serious epidemic, especially at the commencement, many cases will occur, which seem, as Majendie expressed it, "to begin by death," and in which all remedies are alike ineffectual.

In native cases, much less advantage was obtained, a circumstance which without doubt depends on the class of patients we had to treat; being almost universally *gunjah* smokers by long habit.—EDITOR.

giddy, at 5 P. M. his eyes were closed, he was sleepy, and expressed himself much intoxicated.

He slept at intervals during the night, but on waking had convulsive attacks.

On the 27th, two grains were given every third hour, (a purgative enema was also administered, which operated three times) the stiffness of the muscles became much less towards evening, but the spasms returned at intervals as before. Pulse and skin natural.

28th.—Improved; is lethargic but intelligent. Spasms occasionally recur, but at much longer intervals, and in less severity.

29th.—Dose of hemp increased to three grains every second hour. Symptoms moderating.

30th.—Much intoxicated, continues to improve.

1st January, 1839.—A hemp cataplasm applied to the ulcer, and internal use of remedy continued; towards evening was much improved; spasms trivial, no permanent rigidity; had passed two *dysenteric stools*.

2nd.—*Morning report*. Has passed a good night, and seems much better. Hemp continued. *Evening report*. Doing remarkably well.

3rd, 4th, and 5th.—Continues to improve. Hemp resin in two grain doses every fifth hour.

6th.—5 P. M. Feverish, skin hot, pulse quick, all tetanic symptoms gone, passing mucous and bloody stools; leeches to abdomen, a starch and opium enema with three grains of acetate of lead, every second hour; tepid sponging to the body. Hemp omitted.

7th.—6 A. M. Still feverish, stools frequent, mucous; abdomen tender on pressure. No appetite. The ulcer sloughy, ragged, and offensive. Opium and acetate of lead continued. Abdomen leeches. Sore dressed with water. At noon there was slight rigidity of abdominal muscles. Hemp resumed. At 3 P. M. became intoxicated and hungry, ulcer extremely dry, foul, and abominably fœtid—towards evening rigidity ceased. Hemp discontinued.

From this day the tetanus may be considered to have ceased altogether, but the dysenteric symptoms continued, despite of the use of opium and acetate of lead; the ulcer too proved utterly intractable. Some improvement in the dysenteric symptoms occurred from the 10th to the 15th, when natural stools were passed. He seemed gaining strength, but the wound was in no wise improved, the slough on the contrary threatened to spread, and two metacarpal bones lay loose in the centre of the sore; on consultation it

was agreed to amputate the arm, but to this the patient peremptorily objected. The mortification now spread rapidly, and he died of exhaustion on the night of the 23rd January.

An unprejudiced review of the preceding details exhibits the sedative powers of the remedy in the most favorable light; and although the patient died, it must be remembered that it was of a different disease, over which it is not presumed that the hemp possessed the least power.

The *second* case was that of Chunoo Syce, (treated by Mr. O'Brien at the Native Hospital,) in whom tetanus supervened on the 11th December, after an injury from the kick of a horse. After an ineffectual trial of turpentine and castor oil in large doses, two grain doses of hemp resin were given on the 26th November. He consumed in all 134 grains of the resin, and left the Hospital cured on the 28th December.

Third case, Huroo, a female, æt: 25, admitted to the Native Hospital on 16th December, had tetanus for the three previous days, the sequel of a cut on the left elbow received a fortnight before. Symptoms violent on admission. Turpentine and castor oil given repeatedly without effect; on the 16th and 17th, three grains of hemp resin were given at bed-time. On the morning of the 18th she was found in a state of complete catalepsy, and remained so until evening, when she became sensible, and a tetanic paroxysm recurred. Hemp resumed, and continued in two grain doses every fourth hour. From this time till the third hour tetanic symptoms returned. She subsequently took a grain twice daily till the 8th of February, when she left the Hospital apparently quite well.

Mr. O'Brien has since used the hemp resin in five cases, of which four were admitted in a perfectly hopeless state. He employed the remedy in *ten grain doses* dissolved in spirit. The effect he describes as almost immediate relaxation of the muscles, and interruption of the convulsive tendency. Of Mr. O'Brien's seven cases, four have recovered.

In the Police Hospital of Calcutta, the late Dr. Bain has used the remedy in three cases of traumatic tetanus, of these one has died and two recovered.

A very remarkable case has recently occurred in the practice of Mr. Richard O'Shaughnessy of Calcutta. The patient was a Jew, æt: 30, attacked with tetanus during the progress of a sloughing sore of the scrotum, the sequel of a neglected hydrocele. Three grain doses were used every second hour, with the effect of inducing intoxication and

suspending the symptoms. The patient has recovered perfectly, and now enjoys excellent health.

The preceding facts are offered to the professional reader with unfeigned diffidence, as to the inferences we feel disposed to derive from their consideration. They seem to us unequivocally to shew, that when given boldly and in large doses, the resin of hemp is capable in many cases of arresting effectually the progress of this formidable disease.*

The facts are such at least as justify the hope that the virtues of the drug may be widely and severely tested in the multitudes of these appalling cases which present themselves in all Indian Hospitals.

Case of Infantile Convulsions.

The subjoined details are given as originally published:—

“A very interesting case of this disease has recently occurred in my private practice; the particulars of which I have the permission of the family to insert in this essay.

“A female infant, forty days old, the child of Mr. and Mrs. J. L. of Calcutta, on the 10th September had a slight attack of convulsions, which recurred chiefly at night for about a fortnight, and for which the usual purgatives—warm baths and a few doses of calomel and chalk—were given without effect. On the 23rd the convulsive paroxysms became very severe, and two leeches were applied to the head. Leeches, purgatives, and opiates were alternately resorted to, and without the slightest benefit, up to the 30th of September.

“On that day the attacks were almost unceasing, and amounted to regular tetanic paroxysms. The child had

* While correcting this proof for the press, Mr. Raleigh, the able Professor of Surgery in the Medical College, has favoured us with the details of six cases of tetanus, three idiopathic, and three excited by wounds or injuries. In all, the hemp resin was freely given; but all proved fatal. Mr. Raleigh also states, that in his experience, tetanus is frequently cured by active purgatives, and other ordinary remedial measures.

The Editor's observation during two years, leads him to the conclusion, that the use of hemp is so *universal* among the lower classes of the natives of Bengal, that it is only in a small proportion of cases, among adult males especially, that its use will be found of the least advantage. In two of Mr. Raleigh's cases the patients denied being addicted to the habit; but we know that denial of the vice is as common as the habit itself. Females and children, therefore, afford the fairest subjects for trial of the remedy. Of the four cases Mr. O'Brien treated successfully, three were females. Messrs. Hughes and Templer, the skilful Veterinary Surgeons in Calcutta, have used the hemp resin in five cases of horses suffering from tetanus, and of these three have recovered. Dr. Sawyers has cured a pony under the same circumstances.

Drs. Esdaile and Macrae have used the hemp with success, the former in a case of tetanus, the latter in one of convulsions from neuralgia of the testis, which had resisted every other remedy.—In the Medical Gazette for December, a case of tetanus is reported by Mr. Lewis in which the hemp was used with the effect of great relief to the symptoms.—*Editor.*

moreover completely lost appetite, and was emaciating rapidly.*

“I had by this time exhausted all the usual methods of treatment, and the child was apparently in a sinking state.

“Under these circumstances I stated to the parents the results of the experiments I had made with the hemp, and my conviction that it would relieve their infant, if relief could possibly be obtained.

“They gladly consented to the trial, and a single drop of the spirituous tincture, equal to the one-twentieth part of a grain in weight, was placed on the child’s tongue at 10 P. M. No immediate effect was perceptible, and in an hour and a half two drops more were given. The infant fell asleep in a few minutes, and slept soundly till 4 P. M. when she awoke, screamed for food, *took the breast freely*, and fell asleep again. At 9 A. M., 1st October, I found the child fast asleep, but easily roused; the pulse, countenance, and skin perfectly natural. In this drowsy state she continued for four days, totally free from convulsive symptoms in any form. During this time the bowels were frequently spontaneously relieved, and the appetite returned to the natural degree.

“October 4th. At 1 A. M. convulsions returned, and continued at intervals during the day;—five drop doses of the tincture were given hourly. Up to midnight there were thirty fits, and forty-four drops of the tincture of hemp were ineffectually given.

“October 5th. Paroxysms continued during the night. At 11 A. M. it was found that the tincture in use during the preceding days had been kept by the servant in a small bottle with a paper stopper; that the spirit had evaporated, and the whole of the resin settled on the sides of the phial. The infant had in fact been taking drops of “water” during the preceding day.

“A new preparation was given in three drop doses during the 5th and 6th, and increased to eight drops with the effect of diminishing the violence, though not of preventing the return of the paroxysm.

“On the 7th, I met Dr. Nicolson in consultation, and despairing of a cure from the hemp, it was agreed to intermit its use, to apply a mustard poultice to the epigastrium, and to give a dose of castor oil and turpentine. The child, however, rapidly became worse, and at 2 P. M. a tetanic spasm set in which lasted without intermission till 6½ P. M. A cold bath was given without solution of the spasm—the hemp

* The nurse, I should have mentioned, was changed early in the illness, and change of air resorted to on the river, but in vain.

was therefore again resorted to, and a dose of 30 drops, equal to $1\frac{1}{2}$ grains of the resin, given at once.

“Immediately after this dose was given the limbs relaxed, the little patient fell fast asleep, and so continued for thirteen hours. While asleep she was evidently under the narcotic influence of the drug.

“On the 8th October, at 4 A. M. there was a severe fit, and from this hour to 10 at night twenty-five fits occurred, and 130 drops of the tincture were given in 30 drop doses, equal to 15 grains of the resin. It was now manifestly a struggle between the disease and the remedy, but at 10 P. M. she was again narcotised, and from that hour no fit returned.

“On the three following days there was considerable griping, and on administering large doses of almond oil, several small dark green lumps of the hemp resin were voided, which gave effectual relief. The child is now (17th December) in the enjoyment of robust health, and has regained her natural plump and happy appearance.

“In reviewing this case, several very remarkable circumstances present themselves. At first we find three drops, or one-twentieth of a grain, causing profound narcotism, subsequently we find 130 drops daily required to produce the same effect. The severity of the symptoms doubtless must be taken chiefly into account, in endeavouring to explain this circumstance. It was too soon for habit to gain ascendancy over the narcotic powers of the drug. Should the disease ever recur, it will be a matter of much interest to notice the quantity of the tincture requisite to afford relief. The reader will remember, that this infant was but sixty days old when 130 drops were given in one day, of the same preparation of which ten drops had intoxicated the student Dinonath Dhur, who took the drug for experiment. 130 drops are equal again to 15 grains of the resin, one grain of which occasioned profound trance (or catalepsy) in two men labouring under rheumatism.

Use in Delirium Tremens.

We have given the tincture of hemp a very extensive trial in this disease, and have had much reason to be gratified with its effects. In action it resembles opium and wine, but is much more certain than these remedies. In the cases in which the opium treatment is applicable, hemp will be found far more effectual. The changed state of mind it produces is truly wonderful. From the appalling terror which generally predominates, the patient soon passes into a stage of cheerful and often boisterous mirth, and sinks into a

happy sleep. Of course there are many cases in which this or any other narcotic should not be used, and like all other powerful remedies its usefulness must depend on the discrimination with which it is employed.

Insanity occasioned by continued Hemp Inebriation.

Before quitting this subject, it is desirable to notice the singular form of insanity which the incautious use of the hemp preparations often occasions, especially among young men who try it for the first time. Several such cases have presented themselves to our notice. They are as peculiar as the "delirium tremens," which succeeds the prolonged abuse of spirituous liquors, but are quite distinct from any other species of madness with which we are acquainted.

This state is at once recognized by the strange balancing gait of the patient, a constant rubbing of the hands, perpetual giggling, and a propensity to caress and chafe the feet of all by-standers, of whatever rank. The eye wears an expression of cunning and merriment which can scarcely be mistaken. In a few cases, the patients are violent; in many, highly aphrodisiac; in all that we have seen, voraciously hungry. There is no increased heat or frequency of circulation, or any appearance of inflammation or congestion, and the skin and general functions are in a natural state.

A blister to the nape of the neck, leeches to the temples, and nauseating doses of tartar emetic with saline purgatives have rapidly dispelled the symptoms in all the cases we have met with, and have restored the patient to perfect health.

Doses, &c.—In *Tetanus*, a drachm of the tincture every half hour until the paroxysms cease, or catalepsy is induced. In *Hydrophobia* we would recommend the resin in soft pills, to the extent of ten to twenty grains to be chewed by the patient, and repeated according to the effect. In *Cholera*, 30 drops of the tincture every half hour will be often found to check the vomiting and purging, and bring back warmth to the surface. Our experience would lead us to prefer *small* doses of the remedy in order to excite, rather than narcotise, the patient.

The *resinous extract* is prepared by boiling the rich, adhesive tops of the dried *gunjah* in spirit (Sp. gr. 835.) until all the resin is dissolved. The tincture thus obtained is evaporated to dryness in a vessel placed over a pot of boiling water. The extract softens at a gentle heat, and can be made into pills without any addition.

The *tincture* is prepared by dissolving the extract in proof spirit. (See *Pharmacopœia*.)