

on the Preparations of the Indian Hemp, or Gunjah

By W.B. O'SHAUGHNESSY

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 agent of 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 Mahneman, as shewn in a subsequent extract, I 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 Hemp of Asia Minor and Hindostan. 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. As the closest physical resemblance or even identity exists between both plants, difference of climate seems to me 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 I 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. I then proceed to notice several experiments which I have instituted on animals, with the view to ascertain its effects on the healthy system; and, lastly, I 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 me to warrant our anticipating from its more extensive and impartial use no inconsiderable addition to the resources of the physician.

In the historical and statistical department of the subject, I owe my cordial thanks for most valuable assistance to the distinguished traveller, the Syed Keramut Ali, Mootawulee of the Hooghly Imambarrah, and also the the **Hakim** Mirza Abdul Rhazes of Teheran, who have furnished me with interesting details regarding the consumption of Hemp in Caudahar, Cabul, and the countries between the Indus and **Herat**. The Pundit Moodsudun Goopto has favoured me with notices of the remarks on these drugs in the early **Sanscrit** authors on *Materia Medica*;-to the celebrated **Kamalanantha** Vidyadanka, the Pundit of the Asiatic Society, I have also to record my acknowledgments;-Mr. **DaCosta** has obligingly supplied me with copious notes from the '**Mukzunul-Udwieh**,' and other Persian and Hindee systems of *Materia Medica*. For information relative to the varieties of the drug, and its consumption in Bengal, Mr. McCann, the Deputy Superintendent of Police, deserves my thanks;-and lastly, to Dr. **Goodeve**, to Mr. Richard **O'Shaughnessy**, to the late Dr. Bain, to Mr. O'Brien of the Native Hospital, and **Nobinchunder** Mitter, one of my clinical clerks, I am indebted for the clinical details with which they have enriched the subject.

Botanical characters, chemical properties, production. **Botanical** Description-Assuming with Lindley and other eminent writers that the *Cannabis sativa* and *Indica* are identical, we find that the plant is dioecious, 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 bractes; 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 stem, 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 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 *Gunjab*. It sells from twelve annas to one rupee seer, in the Calcutta bazars, and yields to alcohol twenty per 100 of resinous extract, composed of the resin (*churrus*) and green colouring matter (*Chloro-phille*). 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 *gunjab* is sold for smoking chiefly. The bundles of *gunjab* are about two feet long, and three inches in diameter, and contain 24 to 36 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

* For very fine specimens of chuwus, I have to express my thanks to Dr. Campbell, late assistant Resident at Nipal.

'*Bangh 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 experienced person.

According to Mr. McCann's notes, the *gunjah* consumed in Bengal is chiefly brought from Mirzapur and Ghazeepore, being extensively cultivated near Gwalior and in Tirboot. 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 kind are brought from Gwalior and Bhurtpore, and it is also cultivated of good quality in a few gardens around Calcutta. In Jessore, I am 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, 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 me, the leathern attire is dispensed with, and the resin is gathered on the skins of naked coolies. In Persia, it is stated by Mirza Abdool Rhazes that the *churrus* is prepared by pressing the resinous plants on coarse cloths, and then scraping it from these, and melting it in a pot with a little warm water. He considers the *chums* 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 follow:

Sidbee, 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 drank at one sitting. This is the favorite 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 see aphrodisiac enjoyments. In persons of 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. *Gunjab* 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 *gunjab*, 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 punkab, 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 me 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 2 lbs. 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 attur 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 nuxvomica; 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 I disbelieve Ameer's statements on this point, his description of the immediate effect 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.

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

Although the most eminent of the Arabic and Persian authors concur in referring the origin of the practice of Hemp intoxications 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 Pundit Mодоosudun Gooptu finds that 'Tajni guntu,' a standard treatise on *Materia Medica*, which he estimates vaguely at 600 years' date, gives a clear account of this agent. Its synonyms 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 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 gonorrhoea, and repeats the statements of the '*Rajniguntu*.' In the Hindu *Tantra*, or a religious treatise, teaching peculiar and mystical formulae and rites for the worship of the deities, it is said moreover, that *sidhee* is more intoxicating than 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 Vidyalknka has traced notice of Hemp in the 5th chapter of *Menu*, where Brahmins are

**Historical details—
Notice of Hemp,
and its popular
uses by the
Sanskrit, Arabic,
and Persian
writers.**

prohibited to use the following substances, *plandoo* or onions; *gunjara* or *gunjab*; and such condiments as have strong and pungent scents.

The Persian and Arabic writers are however far more voluminous and precise in their accounts of these fascinating preparations. In the 1st 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 Abdool Rhazes, a most 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*, a drug 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 Hasan, who states that in the year 658 (Mahometan era), the Sheikh Djafar Shirazi, a monk of the order of Haider, learnt 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 Romah, 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 favorite 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, subsisting chiefly on this herb, and on his death his disciples by his desire planted it in an arbour about his tomb.

From this saintly sepulcher the knowledge of the effects of Hemp is stated to have spread into Khorasan. In Chaldea it was unknown until 728, during the reign of the Khaif Mostansir **Billah**: the kings of Drmus 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 **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. ij. 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 life time of Pliny.

In the narrative of Makrizi we also learn that oxymel and acids are the most powerful antidotes to the effect of this narcotic; next to these, emetics, cold bathing, and sleep; and we are further told that it possesses diuretic, astringent, and specially 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

* By this term is probably meant the first of the Sassanian dynasty, to whom the epithet of 'Khusrow' or Cosroes, equivalent to Kaiser, Caesar, or Czar, has been applied in many generations. This dynasty endured from A.D. 202 to A.D. 635—*vide note 50 to Lane's translation of the Arabian Nights, vol. ii, p. 226.*

the extraction of their teeth; but in 799 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 Mukzunul-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 *sheaduna* 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—and the seminal secretions dry up. These effects are increased by sweets, and combatted 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 dandruff and vermin; drops of the juice thrown into the ear allay pain, and destroy worms or insects. It checks diarrhoea; is useful in gonorrhoea; 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 *direrem* 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 tenet; 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 Abdool Rhazes. 'It produces a ravenous appetite and constipation, arrests the secretions, except that of the liver, excites wild imagining, especially a sensation of ascending, forgetfulness of all that happened during its use, and such mental exaltation, that the *beholders attribute it to supernatural inspiration,*'

Mirza Abdool 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 haemorrhoids—and internally in gonorrhoea 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 vol. 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 sub-joined 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 doubtfully *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. occult.) 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 promoters 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 gonorrhoea, and with asthma, or the infection, what is popularly called, 'stitches in the side.'

He tells us, moreover, that the powdered leaves check diarrhoea, 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 *gunja sativa* and *gunja agrestis*. In the *Hortus Malabaricus* Rheede's article on the Hemp is a mere outline of Rumphius's statements.

Among modern European writers, the only information we could trace on the medicinal use of Hemp *in Europe*, is the recent work of Ness 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 potions, &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 effect of Hemp exists in the standard work on *Materia Medica*, to which I have access. Soubeiran, Fee, Merat and de Lens in their admirable

* *Handbuch der Medicin. und Pharmac. Botanik*, von. F. Nees von. Estabeck et Dr. Carl Ebermaier, vol. 1, p. 338.

dictionary; Chevalier and Richard, Roques (Phytopharmacie Medicale); Ratier and Henry (Pharmacopée Française); and the Dictionnaire des Sciences Médicales—are all equally silent on the subject.

In *Ainslie's Materia Indica*, 2d 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 that the leaves are sometimes prescribed in cases of diarrhoea; 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.

Majoon lastly is described by Dr. Ainslie, page 176, as a preparation of sugar, milk, ghee, poppy seeds, flowers of the datura, powder of nux-vomica, and sugar. The true *majoon* however, as prepared in Bengal, contains neither datura, or nux-vomica. I have already described the process-by which it has been manufactured before me.

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. 1. p. 523, x. 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 I have given an outline, is however much more rich in details than the article in the Bulletin.

Such was the amount of preliminary information before me, by which I was guided in my subsequent attempts to gain more accurate knowledge of the action, powers, and possible medical applications of this extraordinary agent.

There was sufficient to show 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 sequelae so unanimously dwelt on by all writers; these did not appear to me 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 me so enormous, that I deemed it expedient to proceed with much smaller quantities. How fortunate was this caution, the sequel will sufficiently denote.

Experiments of
the author—
Inferences as to
the action of the
drug on animals
and man.

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

Expt. Z.-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 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.

Expt. 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 **grami**-nivorous, 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.

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 **anti**-phlogistic measures, and Dover's powder with antimonials.-In the last case sarsaparilla at first, and subsequently the Hemides-mus **Indicus**, with warm baths, had been tried without advantage.

**Cases of
Rheumatism
treated by**

On the 6th of 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. I received a report to the same effect, but stating that the first patient was now falling asleep.

At 8 P.M. I was alarmed by an emergent note from Nobinchunder Mitter, the clinical clerk on duty, desiring my immediate attendance at the Hospital, as the patient's symptoms were very peculiar and formidable. I 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.

Alarmed and pained beyond description at such a state of things, I hurried to 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, I chanced to lift up the patient's arm. The professional reader will judge of my astonishment, when I found that it remained in the posture in which I 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 what so few have seen, and the existence of which so many still discredit—the genuine catalepsy of the nosologist.

It had been my good fortune years before to have witnessed two unequivocal cases of this disorder. One occurred in the female clinical ward in Edinburgh, under Dr. Duncan's treatment, and was reported by myself for the *Lancet* in 1828. The second took place in 1831, in a family with whom I resided in London. The case was witnessed by Dr. Silver, Mr. George Mills, and several other professional friends. In both these cases the cataleptic state was established in full perfection, and in both the paroxysm ran on each occasion a regular course, and terminated suddenly without any evil consequence.

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 stationery 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; could not be aroused. A sinapism to the epigastrium caused no sign of

pain. The pharynx and its coadjutor muscles acted freely in the deglutition of the stimulant remedies which I thought it advisable to administer, although the manifest cataleptic state had freed me altogether of the anxiety under which I 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 uncontrollable. 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 experienced himself perfectly well, and excessively hungry.

The first patient continued cataleptic till 1 P.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 *ofgunjah* in the pipe.

On the following day it gave me much pleasure to find that both 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 noonday visit, he expressed himself free from headache, or any other unpleasant sequel, and begged hard for a repetition

of the medicine, in which 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. In no one case did these effects proceed to delirium, or was there any tendency to quarrelling. The disposition developed was uniform in all, and in one was the headache or sickness of stomach a *sequela* of the excitement.

**Case of
Hydrophobia.**

A case now occurred in which the influence of a narcotic, capable either of cheering or of inducing harmless insensibility, would be fraught with blessings to the wretched patient.

On the 22nd November, at 9 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, his 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 hours' 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 *zenana* 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. of 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 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 flower,' 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, after an average interval of one hour, the pulse was increased in fuiness 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 very quiet habits, ten drops of the tincture, equal to a grain of the resin, induced in twenty minutes the most amusing effects I ever witnessed. A shout of 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 couriers; he could recognize none of his fellow-students or acquaintances; all to his mind seemed 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, reasoning, 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 inter-

esting it would be difficult to imagine. It terminated nearly as rapidly as it commenced, and no headache, sickness, or other unpleasant symptom followed the innocent excess.

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.

An epidemic cholera prevailing at this period, two of the **Use in Cholera.** 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 favourable. The diarrhoea was in every instance checked, and the stimulating effect of the drug clearly manifested. The Durwan of the College, an athletic Rajpoot, was attacked, and came under my 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. I admit the cases to be inconclusive, but I conceive them to be promising, and that they deserve the close attention of the practitioner.

I now proceed to notice a class of most important uses, in **Use in Tetanus.** which the results obtained are of the character which warrants me in regarding the powers of the remedy as satisfactorily and incontrovertibly established. I allude to its use in the treatment of traumatic tetanus, or lock-jaw, next to hydrophobia, perhaps the most intractable and agonizing of the whole catalogue of human maladies.

The first case of this disease treated by Hemp was that of Ramjan Khan, aet. 30, admitted to the College Hospital on the 13th of 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 of 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 December, spasms set in and recurred at intervals of a few minutes; the muscles of the abdomen, neck, and jaw, 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, I obtained Dr. 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 giddy; at 5 P.M. his eyes were closed, he felt 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.

30.—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; 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 5th hour.

6th, 5 A.M. Feverish; skin hot; pulse quick; all tetanic

symptoms gone; passing mucous and bloody stools; leeches to abdomen; starch and opium enema, with three grains 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 foetid; 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 to our infinite regret, 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 favourable 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 possesses 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 aged 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 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 eight 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 my cousin, Mr. Richard O'Shaughnessy. The patient was a Jew, aged 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 details of this case are given as a companion article to this paper.

Besides the preceding cases I have heard of two of puerperal trismus thus treated in native females. Both terminated fatally, an event which cannot discredit the remedy, when it is remembered that the Hindoo native females of all ranks are placed during, and subsequent to their confinement, in a cell within which large logs of wood are kept constantly ignited. The temperature of these dens I have found to exceed 130 of Fahrenheit's scale.

The preceding facts are offered to the professional reader with unfeigned diffidence, and to the inferences I feel disposed to derive from the consideration. To me they seem unequivocally to shew, that when given *boldly*, and in large doses, the resin of Hemp is capable of arresting effectually the progress of this formidable disease, and in a large proportion of cases of effecting a perfect cure.

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.

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 paper.

Case of Infantile Convulsions.

A female infant, 40 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 purgative, warm baths, and a few doses of calomel and chalk were given without effect. On the 23rd the convulsive paroxysms became very severe and the bowels being but little deranged, 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 more-over completely lost appetite, and was emaciating rapidly.*

I had by this 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 spiritous 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 con-

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

tinued 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 servants 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 **6** P.M. A cold bath was given without solution of the spasm—the Hemp was therefore again resorted to, and the dose of 30 drops, equal to 1% 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 ten at night 25 fits occurred and 130 drops of the tincture were given in 80 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 narcotized, 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 (**23rd** November) 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 narcoticism; 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.

Before quitting this subject, it is desirable to notice the singular form of delirium which the incautious use of the Hemp preparations often occasions, especially among young men first commencing the practice. Several such cases have presented themselves to my notice. They are as peculiar as the 'delirium tremens,' which succeeds the prolonged abuse of spiritous liquors, but are quite distinct from any other species of delirium with which I am acquainted.

Delirium
occasioned by
continued Hemp
inebriation.

This state is at once recognized by the strange balancing gait of the patient's; a constant rubbing of the hands; perpetual giggling; and a propensity to caress and chafe the feet of all bystanders 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 I 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 perfectly 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 I have met with, and have restored the patient to perfect health.

The preceding cases constitute an abstract of my experience on this subject, and which has led me to the belief that in Hemp the profession has gained an anti-convulsive remedy of the greatest value. Entertaining this conviction, be it true

or false, I deem it my duty to publish it without any avoidable delay in order that the most extensive and the speediest trial may be given to the proposed remedy. I repeat what I have already stated in a previous paper—that were individual reputation my object, I would let years pass by, and hundreds of cases accumulate before publication, and in publishing I would enter into every kind of elaborate detail. But the object I have proposed to myself in the inquiries is of a very different kind. To gather together a few strong facts, to ascertain the limits which cannot be passed without danger, and then pointing out these to the profession, to leave their body to prosecute and decide on the subject of discussion, such seems to me the fittest mode of attempting to explore the medical resources which an untried *Materia Medica* may contain.

It may be useful to add a formula for making the preparation which I have employed.

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 3 grains of the extract in one drachm of proof spirit.

Doses, &c.—In *Tetanus* a drachm of the tincture every half hour until the paroxysms cease, or catalepsy is induced. In *Hydrophobia* I 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* ten drops of the tincture every half hour will be often found to check the vomiting and purging, and bring back the warmth of the surface;—my experience would lead me to prefer *small* doses of the remedy in order to excite rather than narcotise the patient.
