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ON THE PREPARATIONS OF THE INDIAN HEMP, OR GUNJAH,*

(Cannabis Indica)

Their Effects on the Animal System in Health, and their Utility in the Treatment of Tetanus and other Convulsive Diseases.

By W. B. O'Shaughnessy, M.D., Bengal Army,
Late Professor of Chemistry and Materia Medica in the Medical College of Calcutta.

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Experiments by the Author—Inferences as to the Action of the Drug on Animals and Man.

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 medicinal applications of this extraordinary agent.

There was sufficient to show that hemp possesses, 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 shown 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 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 forty-eight 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.

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 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, and 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 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. Catalepsy produced by one grain.

The first cases selected were two of acute rheumatism and one of that disease in the chronic form, occurring among the patients in the Clinical Hospital of the Medical College. In the two former but little relief had been derived from a fair trial of antiphlogistic measures, and of 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 two, p.m., to each of these three patients.

At four, 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 six, p.m., I received a report to the same effect, but stating that the first patient was now falling asleep.

At eight, 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 formi-

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dable. 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 which 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. This case was witnessed by Dr. Silver, Mr. G. Mills, and several other professional friends. In both these cases the cataleptic state was established in full perfection, and in both the paroxysm 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 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; 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 labored.

The second patient had meanwhile been roused by the noise in the ward, and seemed vastly amused at the strange aspect and 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 incontrollable. 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 represented himself to be perfectly well and excessively hungry.

The first patient continued cataleptic till one, a.m., when consciousness and voluntary motion quickly returned, and by two, 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 it gave me much pleasure to find 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 cooley, 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 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 none was headache or sickness of stomach a sequel 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 eight, 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 forearm.

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 ladies 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 three, p.m., of the fifth day he sunk into a profound stupor, the breathing slightly stertorous; in this state he continued, and without further struggle death terminated his sufferings at four, a.m., on the 27th of 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 a quarter of a grain the pulse was increased in fulness 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 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 Rajah giving orders to his courtiers; he could recognise 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 suddenly 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.

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 every instance checked, and the stimulating effects 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 con-

tinued 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 due attention of the practitioner.

Since this passage was written in 1838, the tincture of hemp has been used in a great number of cases, both European and native, in the hospital of the Medical College. I know no remedy equal to it as a general and steady stimulant when given to *Europeans* in half drachm doses during the tractable stage of this disease. I 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 cholera symptoms. The cheering effect on the patient's spirits is not the least benefit this remedy confers.

In *native* cases much less advantage was obtained; nearly all this class of patients were old gunjah smokers.

Use in Tetanus.

I now proceed to notice a class of most important cases, in 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 agonising of the whole catalogue of human maladies.

The first case of this disease treated by hemp was that of Ramjan Khan, aged thirty, 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 cauterised 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 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, I obtained Mr. Egerton's permission to subject the poor man to the trial of the hemp resin. Two grains were first given at half past two, p.m., dissolved in a little spirit. In half an hour the patient felt giddy; at five, 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.

28. Improved; is lethargic but intelligent; spasms occasionally occur, but at much longer intervals, and in less severity.

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

30. Much intoxicated; continues to improve.

January 1, 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*.

2. Morning report: Had passed a good night, and seems much better. Evening report: Doing remarkably well.

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

6. Five, 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.

7. Six, 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 leeched; sore dressed with water. At noon there was slight rigidity of abdominal muscles. Hemp resumed. At three, 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, to our infinite regret, he died of exhaustion on the night of the 23rd of 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 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 of 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 of November. He consumed in all 134 grains of the resin, and left the hospital cured on the 28th of December.

Third case.—Huroo, a female, aged twenty-five, admitted to the Native Hospital on the 16th of 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. Tur-

pentine 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. 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 occured in the practice of my cousin, Mr. Richard O'Shaughnessy. The patient was a Jew, aged thirty, 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.

Beside the preceding cases I have heard of two of puerperal trismus 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 120° of Fahrenheit's scale.

A curious coincidental proof of the use of hemp in these cases has very recently come to my notice. In the appendix to Sir James Murray's "Medical Essays," p. 16, dated Dublin 1837, occurs the following passage:—"Having written the substance of these pages (Sir James's work) to my brother, then assistant-surgeon of the 60th Rifles, at the Cape of Good Hope, he mentioned that a plant called *dyka*, or wild hemp, which grows on the eastern coast of Africa, is used by the natives for this purpose (the relief of puerperal convulsions), and that they all, male and female, smoke it to bring on perfect relaxation and relief from pain and spasm of any kind during its relaxing influence."

The preceding facts are offered to the professional reader with unfeigned diffidence as to the inferences I feel disposed to derive from their consideration. To me they seem unequivocally to show 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.

Messrs. Hughes and Templar, eminent veterinary surgeons of Calcutta, have used the hemp resin in five cases of horses suffering from tetanus; of these three have recovered. Dr. Sawyers, of the medical board, has cured a pony similarly affected.

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, and for which the removal of the organ had been decided on. In the "London Medical Gazette" Mr. Lewis gives a case of tetanus in which the hemp was used with great relief to the symptoms, although it did not effect a cure.

Case of Infantile Convulsions.

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.

A female infant, forty days old, the child of Mr. and Mrs. J. L., of Calcutta, on the 10th of 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 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, 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 ten, 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 four, p.m., when she awoke, screamed for food, *took the breast freely*, and fell asleep again. At nine, a.m., 1st of 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 4. At one, 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.

5. Paroxysms continued during the night. At eleven, a.m., it was found that the tincture in use during the preceding days had been kept by the servant in a

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

small bottle with a paper stopper; that the spirit had evaporated and the whole of the resin had settled on the sides of the phial. The infant had in fact been taking drops of mere 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. Nicholson 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 two, p.m., a tetanic spasm set in, which lasted without intermission till half-past six, p.m. A cold bath was tried without solution of the spasm; the hemp was, therefore, again resorted to, and a dose of thirty drops, equal to one and a-half 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 peculiar influence of the drug.

On the 8th October, at four, a.m., there was a severe fit, and from this hour to ten at night twenty-five fits occurred, and 130 drops of the tincture were given in thirty drop doses, It was now manifestly a struggle between the disease and the remedy; but at ten, 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 hemp resin were voided, which gave effectual relief. The child is now (December 17) 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 ascendency 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.

Use in Delirium Tremens.

I have given the tincture of hemp an 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. I have no hesitation in saying, that 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 state of cheerfulness, often of boisterous mirth, and soon sinks into a happy sleep. Of course there are many cases in which this, or any other, narcotic should not be employed.

Delirium occasioned by continued Hemp Inebriation.

Before quitting this subject, it is desirable to notice the singular form of delirium which the incautious use of the hemp preparation often occasions, especially among young men who try it for the first time. Several such cases have presented themselves to my 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 delirium with which I am acquainted.

This state is at once recognised 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 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 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.

Conclusion.

The preceding cases constitute an abstract of my experience on this subject, and constitute the grounds of my 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 mere 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 these 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 them to prosecute and decide on the subject of discussion, such seems to me the fittest mode of attempting to explore the medicinal resources which an untried materia medica may contain.

It may be useful to add a formula for making the preparations 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 by distillation, or 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 spirit of 835° density.

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*, thirty drops of the tincture every half hour will be often found to check

the vomiting and purging, and bring back warmth to the surface. My experience would here lead me to prefer *small* doses of the remedy in cholera in order to excite rather than narcotise the patient.

I have only further to add, that since the substance of the preceding memoir was first published, numerous cases have come to my knowledge in which the *churrus*, or resin prepared by the natives for smoking. has been used with little effect. This was the case in some experiments made by Dr. Pereira with *churrus* which I sent him myself. Age and adulteration have been probably both concerned in rendering this substance inactive. But with the alcoholic extract made from the tops in the way I recommend, the practitioner has only to feel his way, and increase the dose till he produces intoxication as the test of the remedy having taken effect.

Of all powerful narcotics it is the safest to use with boldness and decision.

I have given Mr. Squire, of Oxford-street, a large supply of the gunjah, and that gentleman has kindly promised me to place a sufficient quantity of the extract at the disposal of any hospital physician or surgeon who may desire to employ the remedy. My object is to have it extensively and exactly tested without favor or prejudice, for the experience of four years has established the conviction in my mind, that we possess no remedy at all equal to this in anti-convulsive and anti-neuralgic power.

London, January, 1843.

ON IODINE INJECTIONS IN SCROFULOUS DISEASES OF THE JOINTS.

By. M. Bonnet,

Senior Surgeon to the Hotel-Dieu of Lyons.

All who have studied the history of abscess know that those purulent collections which are the result of acute inflammation are cured or open more or less quickly, and that scrofulous abscesses are seldom cured until they have become the seat of this acute inflammation. Hence, I was led to employ irritant injections in cases of scrofulous abscess of the joints, for the purpose of exciting that degree of irritation which is indispensible to their cure.

I shall divide the cases in which this mode of treatment was employed into two classes—viz., those relating to children, and those of adults.

In cases of children I avoided meddling with such as were not accompanied by tumefaction of the cellular tissue and signs of thickening of the synovial membrane, for I felt convinced that the treatment was not suited to cases of this kind. It was restricted to scrofulous abscess of the knee-joint, accompanied by swelling of the joint, evident symptoms of suppuration, and the formation of fungoid or lardaceous tissues in the synovial membranes and neighbouring parts. The following cases illustrate the effects of this mode of treatment:—

Case I.—A. Roux, nine years of age, was admitted into the Hôtel-Dieu on the 15th of March, 1841, with chronic inflammation of the left knee. The child is of feeble constitution and lymphatic temperament, but never had enlarged glands. Two months previous to her admission the knee began to be the seat of dull pain, and swelled considerably; the disease, however, never prevented her from walking or freely bending the limb.

On the 16th of March the tumor was punctured; some pus mixed with blood escaped; alcohol at 32° was then injected into the joint. The pain became acute for about an hour, and the heat and tumefaction were increased.

April 1. The affected limb was placed on a splint, and frictions were made with the iodine ointment; the puncture made by the trochar has closed; no pus ever issued from it. The knee is large, and the soft parts indurated; a deep-seated fluctuation is felt, and the patella is raised up from the condyles. Compression was now employed by means of a bandage.

May 5. No sense of fluctuation; position of the patella natural; no pain in the joint.

June 7. The patient now walks about a little; the use of a moxa has considerably diminished the size of the knee; some fluid, however, has again been effused, and fluctuation is felt at the inner side of the knee.

The tumor was punctured again, and about four drachms of the tincture of iodine injected. This second injection excited but little reaction. The opening made by the trochar continued to furnish pus up to the 20th of June, and then permanently closed.

The patient left the hospital on the 20th of the same month; the knee was then in a satisfactory state; there was no trace of fluid in the joint, and the motions were free and without pain; it was, however, a little stiff and somewhat larger than the healthy knee from tumefaction of the bones.

Case II.—Mary Notas, seven years of age, of lymphatic temperament, was admitted into hospital on the 7th of March, 1841. This child never had any scrofulous affection. The leg is flexed on the thigh; the knee painful, and fluctuation is felt on the inner side of the joint. The disease commenced two months previously without any apparent cause.

March 11. The tumor was punctured, and some thin pus discharged; alcohol at 32° was injected; the reaction was very slight.

15. The tumor was again punctured and alcohol injected as before; the operation was not followed by any unpleasant symptom; the skin of the joint was attacked by slight inflammation. Gentle pressure was now exercised by means of a bandage.

On the 6th of May the patient was discharged in the following state:—The knee is restored to its normal condition; the patella, which previously adhered to the condyles, is now perfectly movable; no sense of fluctuation; flexion and extension unattended by pain and freely executed; the patient walks well, but the knee is a little stiff; a slight discharge of serous fluid still takes place from the last puncture.

Case III.—Mary Godet, seven years of age, of scrofulous temperament, was admitted into hospital on the 19th of April, 1841. For several years a very large tumor has existed on the inner side of the right knee, with fluctuation; the skin is neither hotter nor redder than natural; the cellular tissue and neighbouring soft parts have a doughy feel; the ligaments seem to be intact, but the joint is twisted laterally, the tibia being turned outwards; no treatment had been employed. During a period of three months