

insanitary conditions we meet, the more prevalent is the malaria, and the more virulent is its type. If we improve the ventilation of native houses, the less anopheles will we find in them. If we relieve the overcrowding in the houses of our native cities, the fewer victims will the mosquito find. If we improve the surface drainage of towns, the fewer opportunities for their development will there be. The essential principles lie in sanitation, backed up by some special knowledge of the mosquito, and a few exceptional precautions. Nuttall has shown that anopheles mosquitos are by no means extinct in England, and it is more than probable that malaria has become extinct in England very largely from the improved sanitary conditions of our towns and villages, and also the better housing of the poorer classes. And it is because the sanitary surroundings of people living in Indian towns and villages is still so far from perfect, that the death-rates from malaria are still so high.

The impossibility of quinining the whole community, the presence of rice fields, the abundance of anopheles pools are facts which need not daunt us. Much has already been done by Italian sanitarians, and Ross reports that he has met with considerable success in Sierra Leone. If anyone doubts the utility or ultimate value of our efforts, we can already point to these results. It is time in India that we too tried something definite. It wants, I think, not only that all medical men should be in earnest about it, but that they should persuade all local authorities and residents to be in earnest too. That we should convince them that it is no longer a theory at which they can scoff, but definite facts in the causation of a disease which saps the strength and wealth of our Indian Empire.

COCAINE AS AN INTOXICANT AND ITS DEMORALIZING EFFECTS.

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BESIDES the use of cocaine hydrochlorate as a therapeutic agent, its consumption as a drug for intoxication is so great in the Calcutta market, that unless stringent measures be forthwith adopted to control its sales, I have reason to fear that its demoralizing effects will soon spread amongst the juvenile members of respectable families, and in no distant date special asylums will be required for the safety and treatment of cocaine inebriates.

Fortunately, however, the cocaine habit is at present confined to a class of people who are more or less addicted to opium, ganja or alcohol, but we occasionally come across cases where the victims have contracted the habit from the very beginning. We do not know how the people of Calcutta have derived their knowledge of the intoxicating property of a costly drug which has hitherto been only handled by medical men, but facts collected tend to show that they have got it from their Bhagalpore brethren where cocaine has become a social necessity amongst the less thoughtful class of men. The inebriates say that the hilarity it produces is almost instantaneous and is followed by no deleterious results. The noviciates, as a rule, take it quite secretly during the early hours of the night, whilst confirmed and veteran eaters take it during all hours of the day. It is generally taken

in the form of tabloids or powder and chewed with betel leaves (*pan*, piper betel), and slaked lime.

Unlike ganja or bhang it requires no special preparation. The habit once acquired cannot be easily given up. I took special interest in the treatment of a penitent who brought ruin upon himself and his family by contracting cocaine habit. The symptoms watched and recorded in this case as well as the reports of other cases given below, will, I trust, be of some interest to the members of our profession. The first symptom experienced by the victim after he has taken a dose of cocaine is loss of sensation in the tongue and lips, followed by dryness of the mouth and fauces. A thermometer placed under the tongue does not indicate any abnormal rise of temperature. The approach of the so-called hilarity is announced by a feeling of heaviness of the head, throbbing of arteries of the neck and palpitation of the heart. Pulse becomes slightly full and quick, but never exceeds 110. At this stage the inebriate would like to be left alone, he would firmly close his lips and avoid talking to friends, lest in his attempt to do so, the saliva flowed out of his mouth. His ears become hot and red, whilst his cheeks become pale, the tip of the nose becomes cold. Perspiration soon breaks out on the forehead and neck, and the indication of the maximum amount of hilarity is marked by the coldness of the finger ends and dilatation of the pupils. This stage lasts from 30 to 45 minutes, after which the victim longs for a fresh dose, and unless he gets it then and there he feels lifeless and dejected. This depression of spirits is more imaginary than real, for I have not noticed any fall of temperature or slowness of the pulse, but the respiration becomes slightly hurried. The tongue and lips now become moist again, and perspiration on the forehead ceases altogether, but the pupils remain dilated. The physiological effects of cocaine are most marked upon the noviciates. The teeth and tongue of the confirmed cocaine eaters turn jet black, and this is probably due to the chemical change produced by the action of lime and saliva upon cocaine.

The tendency for increasing the dose of the daily ration becomes irresistibly great, and the penitent whose history I have just given told me that he increased his dose from one to twelve grains within the short space of a month. Unlike opium, it brings on insomnia and anorexia, soon followed by dyspepsia and diarrhoea. The dyspepsia of a cocaine inebriate is very obstinate and does not readily yield to treatment. Its prolonged use brings on deafness, and the confirmed cocaine inebriates are slightly deaf. The quantity of urine is diminished, but in none of my cases albumen was detected. Delusions and hallucinations often disturb the mental tranquility of the inebriates and gradually make them most miserable. In some cases cocaine brings on acute mania, which is not amenable to treat-

ment. Amongst numerous other cases I select the following few where the deleterious effects of cocaine upon the system were most marked.

Case No. 1.—Lal Behary Misser, promising young boy *et. 20*, very respectably connected, resident of Cross Street, fell into bad company and contracted the habit of taking opium and bhang in their various forms. His friends remonstrated with his conduct, and he gave up his opium habit altogether and took a fancy to try the mirth-giving effect of cocaine. A hospitable friend of his offered him a grain, and its effect, as the young man said, was simply pleasant.

The next day he called at his friend's place and asked for another grain. His obliging friend complied with his request forthwith, and further advised him gratuitously to take it daily until he picked up flesh and strength, which he, as he looked by his appearance, wanted badly. The foolish boy began to take two grains twice daily, and he went on increasing the dose until it was raised to thirty grains a day. The demoralizing effect of the drug was soon marked upon him; he would now studiously avoid society and try to keep himself confined to a room. He was honest and truthful before, but now he became a liar and a pilferer. He was fair and strong, but he soon became weak and dark. He suffered very badly from insomnia, and hypnotics failed to give him rest and sleep. He would take nothing for his food except milk in very small quantities. His heart-beat was strong, but his hands and feet were cold and clammy. His pupils were dilated, and the conjunctivæ looked pale and bloodless; his tongue and teeth were black. Obstinate diarrhoea supervened and carried him off. He had convulsions before death.

Case No. 2.—Saccoram Bhut, *et. 45*, a Sanscrit scholar and versed in Hindoo philosophy and an inmate of premises in Burtolla Street, consulted me for insomnia, the result of cocaine habit. As a priest, he said, he had to fast at least three days in a week. About a year ago he had an occasion to go to Bhagalpore, where he met a learned pundit, who advised him to take cocaine, which possessed remarkable power of sustaining vigour and life without food and enduring fatigue of all kinds. This induced him to take cocaine. At the commencement he derived benefit from its use. Thinking he might further improve his health, he raised the dose from one to three grains.

He felt weak and giddy and consulted another cocaine eater, who advised him to take it twice daily, and in pretty large doses. He raised the dose to five grains, which he took regularly for three months when the unpleasant symptoms began to make their appearance one after another. He soon felt himself dispirited and miserable, he suffered from anorexia and obstinate insomnia, he lost his retentive power, and became dull and stupid. I took up his case, and strongly advised him to give up his cocaine habit altogether. He promised to abide by my instructions. After a few weeks he returned to me again and asked for a harmless drug which would act as a substitute for cocaine as he regretted he could not resist the temptation of using cocaine, although, he knew well he was poisoning himself. I noted down the following symptoms—

Temperature 97F.
Pulse 110 soft and compressible.
Heart sounds feeble, regular, no bruit.
Tongue and teeth jet black.
Sight impaired, lachrymation, photophobia, pupils dilated, but respond to light.
Considerable wasting of the muscles of the body.

I gave him twenty grains of sulphonal to take with milk at bedtime. The next day he came and reported that he slept a little and felt easy. I gave him another dose, and the effect was delightful. Now I hear he takes sulphonal daily and has kept up his usual dose of cocaine. He has given up his pastoral duties and mixes freely with low-class people. He lives entirely upon the charity of his neighbours.

Case No. 3.—Ghasy Ahyr, *et. 45*, a resident of Hanspooker Lane, has been using cocaine since the last eighteen months. He was subject to facial neuralgia and had several of his teeth extracted. He was advised by a cocaine eater to chew cocaine with betel leaf, and he did it with excellent results. This induced him to use it daily and acquire a habit. At present he takes eight grains twice daily. He wanted to discontinue its use as he had no further neuralgia, and the process of cure was very expensive, but he could not do it. The following symptoms were recorded:—Pulse 100, intermittent. Respiration 18. Temperature 97°F. Pupils dilated. General weakness of the body; anorexia, insomnia, constipation present; mind clear; occasional vertigo and headache; tongue moist and clear, slightly tinged black; has lost all his virile power.

To ascertain whether the craving of cocaine inebriates was more imaginary than real I gave him eight grains of sulphonal, telling him that it was cocaine of the very best quality and more mirth-giving than the inferior kind of bazar cocaine and did not require any special preparation to produce the desired effect. He called again the next morning and reported that the new drug had no effect upon him and he had to take his bazar cocaine which gave him instant relief and picked him up in no time. Poor fellow! he sells his goods and chattels to procure his daily ration.

Case No. 4.—Sunker Lall Burman, *et. 52*, a resident of Khajoorolla, Upper Chitpore Road, is a confirmed opium eater; used to take 30 grains of crude opium twice daily, but has now reduced his daily ration to ten grains. Has contracted cocaine habit since the last two years; he first took it for relief of pain which he was subject to. From two grains he has increased his daily dose to only a few grains less than two drams. He prefers to take it in crystal form, says he can take in my presence two drams with perfect safety. He gets his supply from a panwalla (betel leaf vendor), whom he pays Rs. 2-8-0 every day. When he cannot procure money by honest means he robs his wife and children of their jewellery. He was stout and strong before, but now looks pale, thin, anæmic. Constantly feels a dull heavy pain on the head, and a sense of heat all over the body; perspires freely and suffers from insomnia, for which he seeks my advice. Whilst giving history of his case he suddenly stood up and looked bewildered, he walked to and fro for a few minutes, and then sat down. He remained seated for about 20 minutes, and then hastened to hide himself behind an almirah which stood near him. His friends who accompanied him stated that they noticed this change in him since a fortnight. I closely watched his attitude and did not allow anybody to disturb his movements. He soon came out and sat quietly on the floor. When questioned he replied that for the last ten or twelve days an evil spirit has taken possession of him, and when he forgets to pay him his due he gets annoyed and tries to kill him. He remained with me for more than an hour and a half and then left the place. His pupils were slightly dilated; pulse 86, good; respiration normal; tongue dark black, pretty moist; cannot distinguish salt from sugar; muscles of the body flabby. Tendon reflexes diminished. His urine was analysed, but nothing abnormal was detected.

Case No. 5.—Bhajan Lal Misser, *et. 33*, resident of 2, Kanulal's Lane, using cocaine in 30-grain doses twice daily since the last twelve months. He gets his supply from one Budree Khotta, from dispensaries, and from one Mohesh Babu of Chorebagan, who keeps a dispensary at No. 50 or 51, Mooktaram Babu's Street. He was stout before, but has now lost his weight; suffers from anorexia; has not taken any food since the last four days; says he can tolerate fatigue very well; no constipation; absolute insomnia; disturbs his neighbours during night; talks too much, although there is link in his conversation. Pulse 100, intermittent and feeble. Respiration normal. Hepatic dulness, slightly increased. Tongue black; pupils normal. He has got his family; has lost all carnal appetite. At the commencement he was

told by his friends that cocaine was a powerful aphrodisiac, but experience has taught him otherwise. He was a broker before, and one time enjoyed the confidence of his constituents. He has now brought ruin upon himself. He takes cocaine daily about Rs. 2, and this amount he candidly confesses he raises by means unfair. He cannot give up the cocaine habit, although he is fully aware of its baneful results.

Case No. 6—Issuf, a Mahomedan boy, *et. 12*, fell into bad company and contracted cocaine habit. He can now take 12 grains during 24 hours. He came to see me because he heard from several people that I would give him a phial of cocaine if he could take 5 rutties (10 grains) of cocaine in my presence. He gets his supply from a panwallah, who has now raised his rates owing to the sale being restricted by Sircar (Government) who ought not to be so hard upon poor people. Has got cocaine in his mouth, and therefore does not like to answer questions. Says he cannot prove himself a fool by allowing the mirth-giving saliva to dribble out of his mouth. Declines to give name of his father and brothers. Pulse excited, intermittent; temperature 99° F. Respiration 20. Complains of severe headache and refuses to take any medicine lest it deteriorates the effects of cocaine. Says one Ibrahim has taught him to take cocaine. Ibrahim is his class mate. Declines to give the name of the school he belongs to.

Case No. 7.—Brojomohun Khettry, *et. 30*, a respectable Hindoo gentleman of 129, Harrison Road, contracted the habit of taking cocaine for the improvement of his virile power. He was an opium eater before, but gave up his opium habit altogether since he became acquainted with the charming effects of cocaine. He gets his supply from his own medical adviser. From a very small dose of two grains he has raised it to 30 grains now, and says he could not resist the temptation of increasing it still further. He consulted me for insomnia, but begged me not to curtail his ration of cocaine. I examined him carefully and noted the following symptoms:—Pulse 100, weak and small. Temperature 97.5 F. Respiration 18. Tongue and teeth black. Pupils slightly dilated. Lungs healthy, heart sounds normal; liver slightly contracted; no jaundice, spleen normal; urine scanty, but nothing abnormal was detected; has lost all his carnal appetite. It took me about 20 minutes to examine him, after which he became restless and asked me to leave him forthwith as further delay would likely prove fatal to him. Saying this he sat up and brought out his cocaine phial and bowl in which he kept his betel leaves and slaked lime and commenced taking his blessed cocaine. He took out one silver director, put its spoon end into his phial and brought out a small quantity, say about one grain, put it on the roof of his tongue, and then with the other end he took out a small quantity of lime, spread it on the betel leaf and putting it in his mouth began to chew it, with cocaine first put into the mouth. He then firmly closed his lips, the upper one lapped the lower lip; he remained silent for about 15 minutes, and then took out another grain of cocaine and strictly followed the process observed before. He went on doing this when I left his room. His aunt said that he would not move from his place where he sat until he had taken his full ration. His father informed me that only another month he had to pay Rs. 90 to his doctor for the supply of cocaine.

Case No. 8.—Kany Lall Tombulee, *et. 22*, a shop-keeper at No. 20, Banstola Street, has been using cocaine as a luxury since the last eight months. The following were the changes noted in his general constitution. He was very healthy before, does not remember suffering from any disease ever since his boyhood. Could work, as he said, like a giant, but ever since he has contracted the habit of taking cocaine he has become dull and almost stupid, vertigo, insomnia of the worst form, has made him peculiarly nervous. He is not half so stout as he was before. He is fully aware of the evil consequences of its nasty habit, but cannot help it. From one grain dose he has increased it to eight grains.

Pulse 106, slightly intermittent, respiration normal, does not take any other narcotic. Tongue moist and perfectly clean; he deals in betel leaves, and is himself a vendor of cocaine. He says he knows the process by which he and his fellow shop-keepers can evade punishment.

Case No. 9.—A healthy looking young Hindoo girl, *et. 16*, contracted the habit of cocaine under peculiar circumstances. An elderly woman living in the same house, advised her to take cocaine to get rid of dysmenorrhœa which she was subject to. She also cited instances where cocaine proved a sovereign remedy in removing sterility. The foolish girl followed her advice and took cocaine every day clandestinely in one grain dose for six weeks. She then increased the dose of her daily ration, and one day she took ten grains. Half an hour after she had taken the dose she complained of a choking sensation and soon became unconscious. At this stage I was summoned to see her. The patient had all the symptoms of hysteria, and I prescribed for her accordingly. When I was about to leave the place the patient had a fit of convulsions, and the anxious father invited me to notice it. She had twitchings of the muscles of the face and general tremor of the body; the fit lasted for nearly three minutes, and was then followed by another after a pause of about ten minutes. It lasted for about three minutes and then left her altogether. Her pulse 92 pretty good; temperature 99 F; respiration shallow 18; tongue, lips and mouth dry. Pupils slightly dilated. The dryness of the mouth made me a little inquisitive, and I enquired whether she had bhang (leaves of *Cannabis Indica*), and the reply I received was in the negative. My next question was whether she had similar kinds of fit before, and the reply was also in the negative. I examined her pulse again and found it to be soft and quiet. Profuse perspiration soon broke out on the forehead and neck, and then gradually over the trunk and extremities. Her condition did not improve much, and she remained unconscious till the next morning. At about 10 A.M. the following morning marked improvement was noticed in her general condition. She could now understand questions and answer them correctly. Her bladder was full and had to be relieved by catheter. Her pulse and respiration improved, and she appeared a different person altogether. At about 1 o'clock in the afternoon she became very cross and wanted to go to the adjoining room, where she had her box containing betel leaves and spices. As her friends did not allow her to move she became very irritable. At this time the elderly woman came up and offered her a prepared betel which she chewed and became absolutely quiet. During evening she became again irritable, and she herself sent for the old woman who responded to her call and gave her another prepared betel which instantly cooled her down. This roused suspicion in my mind, and next day when she became worse and wanted to see the old woman her movements were closely watched. Her husband under instructions from me received the prepared betel and made it over to me. On opening the folded betel leaf cocaine was discovered, and then on being questioned the girl made a clean breast of the whole thing and further said that there were three more girls under the same roof who were taking cocaine in pretty large doses. The enormity of the mischief which cocaine has done and is likely to do can be better imagined than described. The old woman was turned out, and the young ladies have ultimately recovered, but one of them has become a confirmed opium eater.

Case No. 10.—Johurmali, *et. 21*, a promising young Brahmin boy, living with his relatives in Shamabai's Lane, suffered from spermatorrhœa, and on the advice of a quack contracted cocaine habit. He commenced it from a very small dose and gradually raised it to half a dram. The pernicious effect of the drug was most vividly marked upon his countenance. He was fair and pretty healthy before, but under the influence of cocaine he became dark and greatly emaciated. He suffered from obstinate dyspepsia and

insomnia for which he sought my advice. He confessed, he tried, but failed to reduce his daily ration, and at last became desperate and determined to resign to his fate. His brother who was his guardian confined him to a room in his house and stopped his cocaine altogether. The boy sold off his wearing apparel to corrupt the domestic servants to have his regular supply through their instrumentality. He was ultimately turned out of the house. He lived for some time upon the charity of friends. He lost all his energy and intelligence. He suffered from obstinate diarrhoea which did not yield to medicine. I examined him and was most disagreeably surprised to notice the rapid wasting of his body. He was reduced to a skeleton, his voice was hoarse, pulse soft and quick, heart sounds extremely feeble. Respiration 32, hurried, no rales or rhonchi were detected. Conjunctiva pale, and pupils widely dilated, suffered from vertigo and noises in the ears. Slightly deaf, no inclination for any kind of food. He still takes cocaine and says his generous relatives out of compassion supply him with funds. Every attempt was made to prop him up, but none proved effective. The unfortunate boy eventually died.

Case No. 11.—Hargovind, *et. 29*, resident of Shib Thakoor's Lane, an intelligent man, lost his situation by contracting cocaine habit. He has been addicted to its use since the last five months. Can now take half a dram of cocaine without feeling any inconvenience. Says he can endure fatigue very well, and walk for miles without fatigue or any kind of food or drink. Pulse 100 intermittent, tongue jet black. Says the hilarity of cocaine is only temporary and is not worth the expense and trouble. To quote his own words "to eat cocaine is to court misery" He repents for his folly and cannot resist temptation. He cannot govern his ideas and forgets the link of his conversation. Dread of being chased by police maddens him. Whilst loitering on the streets perchance he finds any white powder sprinkle over them he would carefully pick it up and put over his tongue and then throw it down saying, it is not the thing he wanted. He would pluck flowers from plants and put them on his head. Poor fellow! he now lives entirely upon the charity of others.

Case No. 12.—Doorga, *et. 27*, a healthy Marwaree gentleman, of Bhagalpore, was placed under my treatment for acute mania, the result of cocaine which the patient indulged to excess. From history it was found that previously he was addicted to ganja smoking. By advice of his friends he gave up ganja and took fancy to cocaine, which at one time was considered a luxury amongst the rising men of Bhagalpore. He commenced taking cocaine in 4-grain doses, but soon raised it to a little less than a dram. He now takes daily a phial worth Rs. 2-8-0. His friends say that he cannot curtail his dose as the attempt has on more than one occasion been followed by disastrous results. The patient grew worse and became more violent and furious. A big dose of cocaine given at this stage quietened the symptoms at once. His sense of taste was absolutely dull, and he would not easily distinguish salt from sugar, but it was most acute in detecting the adulteration of cocaine, which was at one time being intentionally done by his friends to curtail the dose. He talks incoherently and becomes violent when contradicted. I stayed with him for nearly an hour, and his attitude towards me was very friendly. His best friends are those who can keep him well supplied with cocaine and betel leaves. He says that the mirth-giving power of cocaine is simply charming. He believes that an evil spirit has taken possession of him, and says that nothing short of sacrificing half a dozen of men would extricate him from his clutches. I advised his friends to keep him under restraint. His pulse was 86 good, respiration normal, pupils widely dilated, temperature normal. I went to see him on the following day and he took about ten grains of cocaine in my presence, and I noticed the following changes. His forehead became hot, tongue and lips dry, temperature 99°F., pulse 86.

He remained absolutely silent, and refused to give answers to questions. He was very irritable before, but became absolutely quiet. His constant and favourite attendant told me that he would remain for nearly half an hour in that attitude and then become incoherent again. As his friends were not prepared to disallow cocaine, I could not take up his case. It is now nearly 12 months since I saw him last, and I am sorry to hear that he is just as bad as before.

On analysing these cases we find that the action of cocaine upon the nerve centres is slight stimulation at the commencement, but the effect is only temporary, lasting from 15 to 20 minutes, and is then followed by a feeling of depression which gradually passes into complete lethargy and inertia. The inhibitory power is gradually lessened. The virile power is lost. Its action upon the heart and vascular system is depressant. In all of my cases irregularity in rhythmic action of the heart was noticed, the circulation becomes languid. Loss of appetite and failure of digestive power were notably marked. Emaciation results from want of nutrition. The craving for increased doses becomes irresistibly great, secretions of urine are greatly lessened, and the effete materials are generally retained. Constant supply of impure blood disturbs the natural functions of the brain causing insomnia and loss of memory. Persistent functional disturbance gradually brings on structural changes, and the inebriates suffer from delusion, hallucination and mental aberration. So long as the inebriate takes cocaine in well regulated doses they do not manifest toxic symptoms. Unlike opium, cocaine-eaters soon become useless members of society, and at times their own lives become a burden.

To attempt to break up cocaine habit by substituting sulphonal or chloral is to induce the inebriates to try the effects of both. The only remedy to bring round the inebriates lies in locking them up in asylums and stopping cocaine altogether. My friend Babo Brojo Lal Dey, Superintendent of the Metropolitan Institution and College, informs me that he knows instances where students of tender age and belonging to private schools have addicted themselves to cocaine, and become so demoralized that they were ultimately expelled the institution. He also mentioned that two brothers, Dhinendra and Gonendra, aged 14 and 18 respectively, and belonging to a very respectable Hindoo family, contracted the cocaine habit and indulged themselves to excess. Both of them became insane; the prudent father locked them up and stopped cocaine altogether. In course of time they recovered and have again joined their class. Information has also reached me that women dealing in fancy goods and who have access into private houses clandestinely carry cocaine and sell it to foolish girls who take it in very small doses with betel leaves. The time has come when measures ought to be taken to put a stop to the illicit sale of cocaine.

THE THERAPEUTICS OF SEMI-CARPUS ANACARDIUM.

(Dhobi's Nut.)

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THE marking-nut tree (Anacardiacee.)

Syn. *Semi-Carpus Latifolius*.

Vernacular Names.—Bhallataka, Arushkara—Sanskrit.

Bhela	... Bengali.
Bhilawan	... Hindi.
Beladin	... Arabic.
Bilader	... Persian.

For a description of this tree and its fruit the reader is referred to Watt's Economic Dictionary, p. 1041.