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In *Bhabishya Puran* it is stated that "on the 13th moon of Chaitra (March and April) one who wishes to see the number of his sons and grandsons increased must worship *Kama* (Cupid) in the hemp plant, etc."

450. In summing up their conclusions on this chapter, the Commission would first remark that charas, which is a comparatively new article of consumption, has not been shown to be in any way connected with religious observance. As regards Northern India, the Commission are of opinion that the use of bhang is more or less common everywhere in connection with the social and religious customs of the people. As regards ganja, they find that there are certain classes in all parts, except the Punjab, who use the drug in connection with their social and religious observances. The Commission are also of opinion in regard to bhang that its use is considered essential in some religious observances by a large section of the community, and in regard to ganja that those who consider it essential are comparatively very few. The Commission have little doubt that interference with the use of hemp in connection with the customs and observances above referred to would be regarded by the consumers as an interference with long established usage and as an encroachment upon their religious liberty. And this feeling would, especially in the case of bhang, undoubtedly be shared to some extent by the people at large. Regarding Southern India, the same remarks apply with this reservation, that the difference between ganja and bhang as materials for smoking and drinking respectively is much less marked there, and the distinction between the two forms of the drug is much less clearly recognised, although by the term "bhanga" is generally meant the drug as used for drinking, and by "ganja" the drug as used for smoking.

CHAPTER X.

EFFECTS—GENERAL OBSERVATIONS.

451. There has been some difficulty in obtaining definite information regarding the effects of hemp drugs. This difficulty has not arisen from any unwillingness on the part of witnesses to tell what they know. The Rev. Thomas Evans (North-Western Provinces witness No. 229) has stated that "native officials (and even barristers and pleaders) are afraid to give evidence lest they should thereby give offence to the Government." The Commission have had no experience of this kind, and a perusal of the evidence will show that this alleged hesitation on the part of certain persons to give evidence must have been very exceptional. Witnesses are found among all classes, not excluding even drug vendors themselves, who have made strong statements against the drugs. The difficulty has arisen from the general ignorance of the subject which has not hitherto attracted special attention. One result of the labours of the Commission has been to show how much ignorance prevails regarding the consumption of these drugs and their effects. This ignorance is not confined to Europeans. It extends to a large number of native witnesses. It is not confined to those who live apart from the common people. It extends to many whose duties are believed to bring them into close and constant contact with the people. Not a few persons who were asked to give evidence declined to do so, and others did so somewhat reluctantly, on the ground that they had little or no experience of the consumption of the drugs. To quote a non-official witness on this point, the Rev. George Pittendrigh (Madras witness No. 160) says: "I have been in India for nine years. I had hardly heard the name of ganja. I had heard it occasionally in connection with bandymen and coachmen, and so on, but I had (so far as I know) seen none of its effects. I had heard that they were similar to opium—a narcotic or intoxicant. That was all I knew. It was not till after I heard of the Commission that I made any special enquiry into the matter. I enquired first of Europeans and respectable natives, students and others, graduates and other men of some standing. No one seemed to know anything about it. The ordinary caste native seemed only to know in a general way that it was used by Muhammadans, bairagis, loafers, and ruffians. Europeans seemed to know nothing of its use." The above is by no means an exceptional statement. Much the same evidence is given by officials as well as non-officials, and by natives as well as Europeans. It is not confined to one province, but is given all over India. This state of things is not difficult to explain. As a matter of fact, it is not usual for those who use the drugs, especially those who smoke them, to do so in the presence of others. It is usually only the dissipated who make a practice of publicly using intoxicants. The moderate consumer is generally known only to those who have occasion to join him at his meals or at the times when he takes his regular dose. In this country there is this additional fact to be considered, that custom is distinctly against smoking in the presence of any one who is in any sense superior or entitled to respect. Thus it would be only rarely that a man would smoke in the presence of a neighbour who had not specially come to join him. As to the casual smoker on the street or elsewhere, the passer-by would probably not know that he was consuming hemp drugs; for he smokes the drug as a rule in the same manner as he would smoke tobacco, and also mixed with tobacco, which to a certain extent

conceals the smell. On the whole, then, it is easily intelligible that respectable persons should have a very limited knowledge of the consumption of hemp drugs, and especially of the smoking of ganja and charas, except by dissipated or excessive consumers. As might have been anticipated from a careful consideration of the circumstances, the experience of a large number of witnesses, even of those who have seen something of the use of the drugs, is found to be confined to having seen palki-bearers or boatmen smoke in the midst of hard work, or to occasionally seeing a friend indulge. Some other witnesses have only known the habit as practised by such persons as fakirs or by dissipated persons who consume to excess. Some have only seen the drug used when they have gone in the way of duty, or, in pursuance of this inquiry, to shops or other places where smokers resort. The witnesses are very few who have any extensive and accurate acquaintance with consumption. Witnesses were specially warned to confine themselves to what they actually knew, and efforts were made, wherever the evidence seemed to require it, to ascertain whether they had done so.

452. In estimating the value of the evidence as to effects, this generally very limited acquaintance with the subject on the part of the witnesses has had to be borne constantly in mind. It has been necessary to decline to accept strong or dogmatic statements on one side or the other without taking pains to ascertain on what basis of fact and actual experience they have been founded. This careful inquiry into the actual basis of statements made has been found necessary also in consideration of the different points of view from which such a question as this may be regarded. Some witnesses know only the medicinal use of the drugs, and are prepared to say nothing but good of them, being really ignorant of their use as intoxicants. They know only the use of the drugs as remedial agents, carefully prescribed when necessity arises, or used as a domestic remedy in certain minor ailments. This use is sometimes confounded with the use of the drugs as stimulants or intoxicants. These uses ought to be very carefully discriminated. There are also witnesses who do know the use of the drugs as intoxicants, but know only the moderate use. These have nothing stronger to say of the drugs than would be said of alcohol by the man who only had seen a glass of wine taken at his own table or at the table of a friend. He knows nothing of the effects of excess. Others again have only experience of excessive consumption. The moderate consumer has not attracted their attention. The ruin wrought in certain cases by excess has alone attracted their notice. They feel towards these drugs as that man feels towards alcohol whose experience has been mainly gained among the social wrecks of the lowest parts of a great city. In view of all this, the Commission were careful to do what they could to ascertain the basis of the opinions and closely to examine the facts laid before them. Striking statements made by some of the most careful and intelligent witnesses as to the change in their views when they became aware of the great extent of the moderate consumption of these drugs, the effects of which they had only seen in cases of deplorable excess, will be referred to later on in dealing with insanity and other effects. This ignorance of the effects of hemp drugs on the part of some able, intelligent, and benevolent men, however it may be explained with reference to the above considerations, must still be regarded as indicating that the injury caused by the drugs is comparatively trifling. It must have attracted more attention had evil effects been at all common in comparison with the extent of consumption.

453. Before proceeding to discuss the evidence regarding the effects produced by the drugs, it will be well to notice briefly one or two preliminary questions. One of these is the different effects of the different forms of hemp drugs. Witnesses were requested to compare the effects of ganja and charas, and there is a considerable body of evidence on this subject. Inasmuch as charas is theoretically the pure resin extracted from the hemp plant, and the resin is the active principle in all varieties of the drug, it might be expected that this would be everywhere the strongest form in which the drug is found. But the evidence is not all to this effect. Charas is but little known in Bombay, Madras, Assam, and Burma; and ganja is but little known in the Punjab. In these five provinces, therefore, but few witnesses institute any comparison; and though there are some who have seen the effects of these drugs in different parts of India, yet the views of the majority of witnesses from these provinces who do institute the comparison must of necessity have but little weight. In the North-Western Provinces, the Central Provinces, and Sind, where both drugs are more or less known, the great majority (six to one) of those who make any distinction in strength between these two forms declare that charas is the stronger. In Bengal, on the other hand, a majority (two to one) of those who discriminate regard ganja as the stronger. Even in these provinces, however, the evidence cannot be accepted with confidence, for it is not usual for ganja and charas to be smoked by the same person. The evidence shows clearly enough that there is no essential difference between charas and ganja, but that the former takes in the Punjab and in parts of the North-Western Provinces the place among intoxicants which is taken by ganja in other parts of India. The only difference in regard to their effects apparent from the evidence is that some witnesses assert one form to be stronger than the other. There are, however, differences of opinion among the witnesses as to which is the stronger. The importance of these differences of opinion perhaps lies mainly in the necessity for explaining them. There are two general reasons why some of the witnesses might erroneously regard charas as weaker than ganja—*viz.*, (*a*) that the effect of each smoke depends on the amount of the drug used, and difference of experience as to this has admittedly led to difference of view regarding the drugs; and (*b*) that the consumers of charas in Bengal are of the higher class, and would naturally speak in favour of their own drug. There are also two reasons why charas may actually compare less favourably with ganja in Bengal than elsewhere—*viz.*, (*a*) that charas undoubtedly deteriorates by keeping, and also appears to be largely adulterated for the market; and (*b*) that the Bengal ganja, being more highly cultivated and more carefully prepared, reaches the market a better article than the ganja of any other province. There is no evidence of any other difference between these two forms of hemp drugs except one of degree; and this difference of degree does not appear to be at all a certainty everywhere. The experiments conducted by Dr. Evans and Mr. Hooper are reported in Vol. III Appendices. They indicate that charas from various sources may contain from 44·5 to 18·45 per cent. of resin soluble in alcohol, while Bengal round ganja affords 21·6 per cent. The physiological value of the alcoholic extracts is not, however, the same in all samples of charas compared with that obtained from Bengal ganja. In only one sample of charas were the effects produced comparable to those produced by a similar dose of the alcoholic extract of the "standard" ganja. The resin extracted from the other samples of charas was much weaker, doses varying

from $\frac{1}{100,000}$ to $\frac{1}{5,000}$ part of the body weight being required to produce certain physiological effects, while in three samples of Nepal charas doses equal to $\frac{1}{2,500}$ part of the body weight were inactive. These startling figures seem to indicate not only natural deterioration, but also extensive adulteration of charas.

454. The evidence recorded regarding the effect of the three preparations of ganja (round, flat, and chur) shows clearly that Flat, round, and chur ganja. if their effects differ (which is doubtful), the difference is not in kind, but only in degree. There is no difference whatever in kind, and the difference in degree is trifling. Round ganja is practically unknown except in Bengal. There the great majority of the witnesses say that there is no difference even of degree between round and flat ganja. Only forty-one witnesses draw any distinction, and these are pretty equally divided. Some, indeed, think that the manner in which the round ganja is rolled retards deterioration; others that the close packing of the flat ganja has the same effect. The truth seems to be that the preference for one or other of these two preparations is purely a matter of habit and varies in different districts, and that there is little real difference between the effects of these preparations. This is borne out by the experiments conducted by Dr. Prain (*vide* his report on the cultivation of ganja submitted to the Bengal Government in 1893) and by those of Mr. Hooper, though these two sets of experiments differ somewhat in result. Dr. Prain gave the average percentages of resin extracts from Bengal round and flat ganja for the seasons 1889 to 1893 as 22.27 and 22.13 respectively. His specimens had been reduced to the state of chur. Mr. Hooper found chur to afford 25.90 per cent. of resin extract compared with 23.8, 22.6, and 21.8 for small flat, large flat, and round ganja respectively.

In respect to chur the evidence is very much divided and uncertain in tone. So far as it goes, it tends to show that Bengal is the only province where chur is regarded as at least as strong as the unbroken ganja. The explanation of this diversity of opinions is simple. Chur is broken ganja; and ganja may be broken either purposely or accidentally. In many parts and by many witnesses chur is regarded as the broken or refuse ganja which becomes separated in the process of preparation or transport, and which "even the poor will not buy." A second class of witnesses know chur as the best parts of the ganja heads, separated carefully from the woody matter or stalks, and therefore stronger, bulk for bulk, than the ordinary article. A third set of witnesses point out that before being smoked ganja must be broken; it must become chur before being used. These insist, therefore, that there is no real difference between chur and other ganja. It may be noted, however, that there seems good ground to believe that chur as packed at present deteriorates more rapidly than the unbroken ganja, and is therefore less popular in at least the more distant markets.

455. The question as to whether the smoking of hemp is more injurious than drinking or eating the drug is of importance mainly Smoking and drinking or eating. in connection with the difference between ganja or charas and bhang. The form in which the question was put by the Commission raised two comparisons—*vis.*, (a) between the smoking and eating or drinking of the same preparation, and (b) between smoking one preparation and eating or drinking another. But unfortunately there has been some confusion in the answers, some witnesses having manifestly and others presumably overlooked

this distinction. At the same time it cannot be said that the evidence is practically clear and decided. Many witnesses feel themselves unable to deal with the matter. A few decline to discriminate between the effects of smoking and those of the other modes of consumption. Well over four hundred witnesses, however, institute a clear comparison. Of these there are over a hundred medical men trained more or less thoroughly according to European methods, of whom four-fifths regard smoking as the most injurious form of consumption. There are over forty practitioners trained after native methods, of whom nearly three-fourths hold the same opinion. There are nearly three hundred non-medical witnesses who are similarly divided. These figures show that the decided majority of such witnesses as have given an opinion regard smoking as the most injurious form of consumption, and this is found to be the case both for all classes of witnesses and for all provinces. The majority is least in Bengal, being precisely two to one in each of the two classes of medical, and rather less than that among the non-medical, witnesses who have recognised any difference. It has also to be borne in mind that among the minority there are some who clearly state that though ganja smoking may be less deleterious than drinking or eating ganja, it is more deleterious than drinking bhang. And there are probably others who hold this view, though they have not thought of stating it.

There are some witnesses whose experience is that drinking bhang is a habit which is more likely to go to excess than smoking, because more seductive and more sociable. But there are many others whose experience is precisely the reverse. There are one or two witnesses who think smoking less harmful than drinking hemp, because the latter form of consumption lends itself in their opinion more readily to deleterious mixtures. But there is a great deal of evidence to a precisely opposite effect. There are also some witnesses who emphasise the injurious effects of the excessive use of bhang on the digestive system. But the preponderance of opinion is that excessive smoking of charas or ganja has still more injurious effects on the system.

Common experience then as indicated in the evidence of all classes of witnesses seems to teach that smoking ganja or charas is more injurious than taking bhang. There seems no reason to decline to accept this view. The following reasons seem to support it: (a) there is much less of the resin in what is properly known as bhang than in ganja or charas; (b) the products of the destructive distillation of the resin appear to be capable of doing injury, especially if used to excess, and to be carried to the lungs and readily absorbed by the inhalation which is the invariable method of smoking. At the same time no one can read the evidence or observe the facts without realising that the use of bhang, at all events if carried beyond moderation, may also be distinctly injurious.

456. In considering the effects of hemp drugs, it is necessary not to forget the admixtures used more or less frequently with them.

Admixtures. These are discussed more fully in other parts of the report. There are certain of them, such as the spices used to render bhang a more palatable drink and also perhaps less irritating to the digestive system, or the almonds used to emulsify the resinous matter in the bhang, or the tobacco used as the most pleasant vehicle and diluent of charas or ganja when smoked, which need not be discussed here. Their effects are unimportant.

But there are certain admixtures which are taken with the hemp drugs, at least ostensibly, with the express purpose of intensifying their effects. Thus opium is sometimes smoked with ganja. This is probably sheer vice, a dissipated desire to mix intoxicants. Cantharides and nux vomica are sometimes used in bhang. The object of this is apparently to produce aphrodisiac effects. But nux vomica is also perhaps used thus as a tonic. This drug is apparently sometimes smoked, when its effect would be nullified. Arsenic is similarly used in bhang, probably from a belief in its prophylactic and tonic properties. It is also stated to be smoked with charas or ganja. In this form it would be very poisonous, but the evidence seems to show that it is smoked ostentatiously by jogis and fakirs; and probably it is not really inhaled. It is also sometimes stated that aconite is occasionally smoked. All these admixtures, as well as others of a more exceptional and extraordinary character, appear to be rarely used. More common than any of them is dhatura. It is generally the seeds, but occasionally the leaves, that are used. This drug is used by those debauchees or other excessive consumers who either cannot afford sufficient ganja or bhang, or who desire a stronger form of intoxication than either can supply. There is also some little evidence of the occasional use by those who supply the drink of an infusion of dhatura to strengthen bhang, perhaps sometimes without the knowledge of the consumers. There is a good deal of evidence both generally of the use of this drug by excessive consumers, and also in particular cases of the gradual formation of the dhatura habit when ganja or bhang has failed to satisfy. Dhatura is clearly more strongly intoxicant than the hemp drugs, and there can be little doubt that the evidence which represents it as decidedly more injurious may be accepted as in accordance with fact. There is a strong popular prejudice against this drug, and it is not used by moderate smokers at all. It does not seem likely that it would ever replace hemp drugs any more than it now supplements them among moderate consumers, but only among persons who deliberately desire intoxication and are indifferent in their choice of intoxicant. At the same time the use of *Hyoscyamus muticus* (or "Hill bhang of the Western frontier"), already referred to, does indicate the possibility of more general resort to dhatura if ganja were not available. The active principle of this drug is closely allied to that of dhatura in its physiological effects. There are also many witnesses who believe that consumers of the hemp drugs (especially, but not exclusively, excessive consumers) would take to dhatura if they could not obtain the drugs to which they are accustomed, and this opinion is entitled to considerable weight.

457. Dhatura belongs to the same natural order as hyoscyamus and belladonna. The active principle of dhatura is hyoscyamine with small quantities of atropine and hyoscyne : the active principle of belladonna is atropine with some hyoscyamine. These three alkaloids are all closely allied in their physiological action. The action of atropine has been fully studied. It is unnecessary, therefore, to say more of the physiological action of dhatura. The leaves, and in even higher degree the seeds, form a very powerful intoxicant; and the delirium which ensues from the use of the drug is well known. The effects of dhatura as introduced into the system through the stomach have hitherto chiefly received attention, but the effects of smoking have also been observed. There have, however, been hitherto no physiological experiments to ascertain the effects produced by the prolonged inhalation of

dhatura smoke. The Commission requested Dr. D. D. Cunningham to conduct such experiments. His report is contained in Vol. III Appendices. The following extract is of interest: "The subject of experiment, as in the case of that on the effects of the inhalation of the smoke of ganja, was a fair-sized specimen of *Macacus rhesus*. The treatment was initiated on the 1st June and continued until 11th July, so that the experiment lasted for a period of about six weeks. In its conduct the same inhalation apparatus was employed as in the first experiment. At the outset the seeds of dhatura were made use of as the source of smoke; but as they appeared to be undesirably potent, leaves were presently substituted for them, and were persistently employed throughout the rest of the experiment.

"The symptoms attending the treatment were not invariably quite uniform in character. On some occasions indications of a certain amount of cerebral excitement were present for some time; but, as a rule, drowsiness and gradually increasing intoxication manifested themselves from the outset, either alone or associated with symptoms of irritation of the respiratory apparatus as indicated by coughing.

"The animal was killed by means of prolonged administration of chloroform on the morning of the 14th July, and a *post-mortem* examination conducted at once with the following results:—

"The lungs were not adherent to thoracic walls, but were both deeply congested almost everywhere, and especially towards their apices, in which numerous tubercular nodules and small cavities were present. Such phenomena were, of course, very frequent in the lungs of monkeys in confinement, but it remains possible that the general pulmonary congestion may have been partially due to irritation incident on the inhalation of the smoke. The visceral pericardium was almost devoid of fat, and was somewhat thickened and opaque, especially over the region of the right auricle. The omentum and mesentery were also very free from fat. The spleen appeared to be rather anæmic, and was somewhat fibroid in texture. The liver, pancreas, stomach, large and small intestines, and kidneys presented no abnormal appearances.

"On opening the cranium the dura-mater was found to be somewhat thickened, and especially in the neighbourhood of the superior longitudinal sinus very conspicuously congested. In this region, too, the membrane in the occipital region was fixed to the cranial walls by soft, very vascular adhesions. The pia-mater was thickened and so highly injected throughout that the cerebral surface had a generally diffused pink tint. The cerebral substance was everywhere abnormally soft and so friable as to render any immediate removal of the membranes impossible without the occurrence of much destruction of the nervous tissue. Like the surface, although in minor degree, it was of a pinkish tinge owing to abnormal accumulation of blood. Conditions of this kind appeared to be universally diffused throughout the whole of the cerebral centres, the texture of the hemispheres, of the cerebellum, and of the basal ganglia being alike soft, and the evidences of abnormal congestion universally distributed. In spite of this, however, the spinal cord and its membranes were to all appearance perfectly healthy.

"In so far as a single experiment goes, the results in this case would then seem to show that the habitual inhalation of the smoke of dhatura, even when

only practised for a relatively brief period, is sufficient to establish serious morbid changes in the cerebral nervous centres, and that it therein differs from the habitual inhalation of the smoke of ganja extending over a much more prolonged period. This clearly indicates the necessity of distinguishing between cases in which ganja alone is employed from those in which a mixture of ganja and dhatura is substituted for it, as otherwise certain prejudicial effects which are really due to the use of the latter drug may be erroneously credited to the former one."

458. Turning now to the effects of hemp drugs, it seems expedient to take up first their medicinal use. This is not confined to

Medicinal use.

their use as prescribed by physicians, but extends also to their use as popular or domestic remedial agents. Out of a total of 1,193 European and Native witnesses before the Commission, little less than two-thirds refer to the use of hemp drugs by the Vedanti and Yunani schools of native physicians and native doctors generally, while the rest afford no information on the subject or reply in the negative. About one-sixth of the former refer specially to the use of ganja, one-third to bhang, and the remainder state that both forms of the drug are prescribed, several of the witnesses in the North-Western Provinces and Punjab particularising charas as a remedial agent. If the number of witnesses who speak of this use in each province may be taken as approximately indicating its extent, then it would appear that the medicinal use is well known throughout India.

459. Before alluding to the use of hemp drugs by native physicians in the present day, the Commission consider that it will perhaps

Ancient literature.

be of interest to give a brief *résumé* of the medicinal properties assigned to hemp by some of the ancient writers. Mr. George A. Grierson, I.C.S., informed the Commission that having searched through all the Sanskrit and Hindi books accessible, he found the first mention of *bhanga* as a medicine in the work of Suçruta, written before the eighth century A.D. *Bhanga* is recommended with a number of other drugs as an antiphlegmatic. In the same work Mr. Grierson points out that *vijaya* is mentioned as a remedy for catarrh accompanied by diarrhoea, and as an ingredient in a prescription for fever arising from an excess of bile and phlegm. In these two passages, however, *vijaya* is probably an equivalent of *haritaki*, the yellow myrobolan, and does not mean hemp; and Dr. Hærnle informed Mr. Grierson that in the oldest medical works the word *vijaya* is explained by commentators as referring to the yellow myrobolan. The use of bhang between the fifth and twelfth century is frequently mentioned in dictionaries, and the names used would seem to show that its use as an intoxicant was then known. In the Rajanighantu of Narahari Pandita, A.D. 1300, the effects of hemp on man are described as excitant, heating, astringent: it destroys phlegm, expels flatulence, induces costiveness, sharpens the memory, and excites appetite. In the Carngadharasamhita, a medical work, the date of which is unknown, but which must have been compiled during the Muhammadan period of Indian history, bhang is specially mentioned as an excitant. In the Dhurtasamagama, or "Rogues' Congress," A.D. 1500, the following passage occurs: "Ganja, which is soporific and corrects derangements of the humours, which produces a healthy appetite, sharpens the wits, and acts as an aphrodisiac." In the Bhavaprakāṣa, written about A.D. 1600, bhang is described as being "antiphlegmatic, pungent, astringent, digestive, easy of digestion, and bile-affecting, and increases infatua-

tion, intoxication, the power of the voice, and the digestive faculty." In the *Rajarallabha*, a *materia medica* of rather later date, *ganja* is described as "Indra's food," is acid, produces infatuation, and destroys leprosy. It "creates energy, the mental powers, and internal heat, corrects irregularities of the phlegmatic humour, and is an elixir vitæ."

In the *Makhzan-el-Adwiya*, hemp seeds are said to be "a compound of opposite qualities, cold and dry in the third degree, *i.e.*, stimulant and sedative, imparting at first a gentle reviving heat, and then a considerable refrigerant effect." The qualities of the plant are stimulant and sedative. "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 and insects. It checks diarrhœa, is useful in gonorrhœa, restrains the 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 roots 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." Rumphius in the *Herbarium Amboinense*, A.D. 1695, states that the Muhammadans in his neighbourhood frequently sought for the male plant from his garden to give to persons afflicted with virulent gonorrhœa or with asthma, and the affection which is popularly called "stitches in the side." He also adds that the powdered leaves check diarrhœa, are stomachic, cure the malady named *pitao*, and moderate excessive secretion of bile. He mentions the use of hemp smoke as an enema in strangulated hernia, and of the leaves as an antidote in poisoning by orpiment.

460. The use of hemp drugs by native physicians, as evidenced from replies of witnesses received by the Commission, may be considered under two main heads—(a) as specifics in the treatment of diseases, and (b) in their general therapeutic applications; while a few uses of the drugs which do not fall within these divisions are also occasionally mentioned. It is hardly necessary to premise that the use of hemp drugs by hakims, etc., is wholly empirical, the drugs being used apparently haphazard for the most diverse diseases. It is interesting, however, to note that while the drugs appear now to be frequently used for precisely the same purposes and in the same manner as was recommended centuries ago, many uses of these drugs by native doctors are in accord with their application in modern European therapeutics. *Cannabis indica* must be looked upon as one of the most important drugs of Indian *Materia Medica*.

In connection with the pharmacy of the drug, the preparations of the hemp plant used by native doctors are *bhanga*, *ganja*, and sometimes *charas*: the seeds appear to be very rarely used. *Bhang* is generally prescribed as a cold infusion prepared from the powdered and well-triturated leaves, or as a confection or "moduks," especially in the treatment of nervous debility: into all these preparations a large number of other ingredients usually enter. The admixture of saccharine matter with *bhanga* is popularly supposed to render it more potent as an intoxicant. *Bhang* is also used as a local application in the form of poultice, and sometimes the finely-powdered leaves are used as a snuff. When *ganja* and *charas* are prescribed for inhalation, the drugs are smoked mixed with tobacco;

when ganja is used for local fumigation, the smoke from the unmixed drug is employed. These two drugs appear to be rarely used for internal administration. Occasionally an oil prepared with ganja and other ingredients is used as a rubefacient. The expressed oil from the seeds is also used for a similar purpose.

461. In discussing the diseases treated, we may take first diseases of the nervous system. Witnesses refer to the use of the drugs in the treatment of "brain fever," cramps, convulsions of children, headache, hysteria, neuralgia, sciatica, and tetanus. In certain of these diseases, *e.g.*, convulsions of children, neuralgia, and tetanus, the use of hemp preparations has also been advocated by European practitioners. The late Sir W. B. O'Shaughnessy, of Calcutta, appears to have been the first to use hemp resin in tetanus. He found that in many cases it effectually arrested the progress of the disease, but in the hands of others equally good results were not always obtained. O'Shaughnessy explains this by the fact that the use of hemp is so universal among the lower classes, that it is only in those patients who are not habituated to it that beneficial effects are likely to ensue when the drug is administered medicinally. The treatment of tetanus by the inhalation of ganja smoke has also been recommended. In the class of specific infectious diseases, hemp drugs are stated to be used in hydrophobia, ague, remittent fever, cholera, "to relieve burning symptoms in phthisis," dysentery, erysipelas, and gonorrhœa. O'Shaughnessy more than 50 years ago used hemp resin with more or less success in hydrophobia and cholera. In the treatment of dysentery the resin has been found of much value by many European doctors, and excellent results have been obtained with it. In addition to the medicinal use of the drug for the treatment of cholera during epidemics, hemp drugs appear occasionally to be used as prophylactics, and for a similar purpose the use of the drugs is recommended in malarial areas to counteract the effects of "bad air and water." In both cases hemp drugs probably act as indirect prophylactics, stimulating the nervous system and allaying depression, thus serving much the same purpose as the popular use of alcoholic beverages by the lower classes in European countries during the prevalence of epidemics. But, on the other hand, it must be remembered that when ganja is smoked as a prophylactic, it is always mixed with tobacco, and yields members of the aromatic series of hydrocarbons, the lower members of which are known to possess both *antiseptic* and *antipyretic* powers. In the treatment of diseases of the respiratory organs, hemp drugs are stated to be used in hay-fever, asthma, bronchitis, and coughs, inhalation of ganja smoke being the usual mode of exhibiting the drug. Pounded bhang leaves are stated to be sometimes used as a snuff in catarrh and "diseases of the nose and head." In several diseases of the organs of digestion hemp drugs are prescribed, flatulence, diarrhœa, dyspepsia, piles, and prolapsus ani being the chief. Bhang has also been prescribed to check salivation. In diseases of the urinary organs hemp preparations are used in diabetes, impotency, stricture, spermatorrhœa, hydrocele, incontinence of urine, and swellings of the testicles. In orchitis a warm bhang poultice applied on a warm fig leaf is recommended to be bandaged over the testicles, and in hydrocele a similar poultice is spread on a castor-oil leaf. In impotency and nervous debility the drug is doubtless used on account of its supposed aphrodisiac power. Hemp drugs are also stated to be prescribed in diseases of the heart, brain, spleen, in rheumatism, gout, and delirium tremens, and they are also used in the treatment of scabies, guinea-worm, and boils. An oil prepared

from bhang and other ingredients is prescribed in white leprosy, and bhang smoking is stated to be used against the poisons of fish and scorpions.

462. In connection with the therapeutics of hemp drugs, one of the commonest uses is for the relief of pain, the drugs being used either as local or general anodynes. Thus bhang poultices are frequently mentioned as soothing local applications to painful parts; and poultices are used for inflamed piles and over the seat of pain in liver and bowel diseases, and to check inflammation and erysipelas. Fumigation with the smoke from burning ganja or bhang is also used as a local sedative in piles. A small fragment of charas is placed in a carious tooth to relieve toothache. And the use of the drugs is also referred to for the relief of protracted labour pains, dysmenorrhœa, pain in the stomach, cramps, and neuralgia. One witness states that hemp drugs are used as a substitute for opium. In cases of circumcision the drugs are used as anæsthetics, and a witness mentions that native doctors on rare occasions substitute ganja for chloroform in operations. The tincture of *Cannabis* has been used as a local anæsthetic in extracting teeth (British Journal of Dental Science).

463. In asthma and bronchitis inhalation of ganja smoke appears to be very frequently prescribed; while, on the other hand, there is evidence which tends to indicate that both affections may be induced by charas or ganja smoking indulged in as a habit. The inhalation of ganja smoke may very possibly first act as a pulmonary sedative, diminishing the secretion of mucus, and after long continuance as an irritant increasing mucus secretion, and giving rise to a chronic bronchitis. In considering the therapeutic action of ganja and charas smoke in these affections, it must be remembered that the drugs are as a rule smoked admixed with tobacco from a *chillum*, and the smoke inhaled into the lungs in a similar manner as sometimes in cigarette smoking. In ganja smoking, however, the inspiratory act is far greater and more prolonged, a larger volume of smoke entering the lungs than in cigarette smoking. In smoking ordinary tobacco the composition of the smoke will vary according to the amount of air admitted during combustion, oxidation being thus more perfect in cigar than in pipe smoking. In smoking tobacco from a pipe, pyridine is one of the chief aromatic bases produced. In smoking a mixture of ganja or charas and tobacco, aromatic hydrocarbons must also be formed: pyridine and others from the tobacco, and aromatic hydrocarbons also from the hemp drug, though at present we are not in a position to indicate the precise nature of the hydrocarbons afforded by its dry distillation. The base pyridine which is found in pipe smoke possesses the power, according to Germain Sée (Comptes Rend. Ac. Science, 1886), of diminishing the reflex activity of the respiratory centre, and may thus act as a pulmonary sedative; and, according to Lauder Brunton, the inhalation of the vapour of pyridine has been used in asthma with beneficial effect. Tobacco smoking has also been recommended in the treatment of asthma. Irrespective, therefore, of the products afforded by the hemp drugs, the tobacco smoke may be thus of value in both bronchitis and asthma. But long-continued smoking, whether of ganja or of any other substance, doubtless results in the deposition of finely divided carbonaceous matter in the lung tissues, and the presence of other irritating substances in the smoke ultimately causes local irritation of the

bronchial mucous membrane, leading to increased secretion, and resulting in the condition which is described as chronic bronchitis in ganja smokers. Whether true asthma can be induced by hemp drug smoking, the Commission consider open to much doubt. It appears to them highly probable that the drugs are smoked in the first instance for the relief of that disease. On the other hand, it is well known that frequent asthmatic seizures result in emphysema of the lungs and attendant bronchitis; and possibly most cases of hemp drug bronchitis are associated with emphysema, induced partly by the strain mechanically thrown on the lungs in smoking, and partly as a result of the chronic bronchitis. So that in considering the ætiology of associated asthma and bronchitis in ganja smokers, they are inclined to the view that in the vast majority of cases the drug is not the cause. In many of the statements of witnesses regarding alleged experience there is no satisfactory evidence of even the co-existence of these diseases with the habit of using hemp drugs. And when that co-existence is reasonably established, there is often no good ground for accepting the relation of cause and effect. The drugs may have been used in many cases owing to the popular notion that they alleviate these diseases. At the same time there is some evidence that the drugs may cause bronchitis or bronchial catarrh as above described. There is no satisfactory evidence that they ever cause asthma.

464. The diuretic action of bhang is mentioned in connection with the treatment of gonorrhœa. The diuresis which is popularly supposed to be induced by administration of an infusion of bhang is in accord with Dr. Russell's experiments (Bengal witness No. 105) which are appended to his paper. In these experiments Dr. Russell found that the leaves both from mature and immature plants, whether fresh or dry, and used as a drink or smoked with tobacco, produced diuresis; but Dr. Russell does not appear to have noticed diuresis following the smoking of ganja. These experiments were made in 1883. Subsequently some supplementary experiments were conducted by Dr. Russell, which are embodied in Dr. Prain's Report on the "Cultivation and use of ganja." In the précis of his experiments, Dr. Russell states: "The only marked effect was diuresis from drinking infusions of fresh (not dried) leaves and stems." In his oral examination before the Commission, Dr. Russell repeated that the dried leaves had no marked diuretic effect. The diuresis was the most marked effect of the fresh leaves. The difference in the action of the fresh and dry leaves is no doubt due, as suggested by Dr. Russell, to the escape of a volatile principle, this volatile principle being, no doubt, a volatile oil. Many volatile oils are well known to possess diuretic properties. It is to the presence of the volatile oil of juniper that that well-known domestic diuretic gin owes its properties. The higher the temperature at which the leaves are dried, the smaller would be the amount of retained essential oil; but the practical point is the desirableness of using only fresh leaves when the diuretic effect of the drug is required. The flowering tops are known to contain a volatile oil, and the diuresis which follows the exhibition of the extract which is prepared from ganja has been specially noted by Prof. C. H. Wood. The volatile oil present in the flowers is probably a mixture of low and high boiling point oils; in preparing the extract the low boiling point oil escapes, the peculiar odour of the finished extract being due to the retention more or less of the high boiling point fraction. Some witnesses refer to the febrile properties of hemp drugs; and it is stated that bhang used as a drink cuts

short the cold stage in fever. There appears to be but little doubt that when bhang is used by natives in fever, the benefit accrues on account of its diuretic action, and not because it possesses any real febrifuge properties. It is not known to possess the latter.

465. The tonic, digestive, stimulant, antispasmodic, astringent, and alterative

effects of the drugs are mentioned by some witnesses.
Tonic and other effects.

It is probably on account of the supposed hæmostatic effect that powdered charas is used as an application to cuts to check bleeding and induce healing, and possibly the use of the drugs in menorrhagia is based on similar reasoning. In this connection, however, it is interesting to note that Dr. R. L. Dey, a medical officer of the Eastern Bengal State Railway, in 1866 reported the successful treatment of a number of cases of obstinate menorrhagia with tincture of Indian hemp and liquid extract of ergot, although he could obtain no benefit from the use of ergot administered with sulphuric and gallic acids and other hæmostatics. The use of the drug as an ecboic is also mentioned. According to Stillé and Maisch (National Dispensatory), there is evidence to show that *Cannabis* appears capable, directly or indirectly, of causing uterine contraction, as in many cases of uterine hæmorrhage, and it is also said to cause contraction in the pregnant uterus with as much energy as ergot, but with less persistent action. Some witnesses refer to the purgative action; it is quite possible that a *chillum* of ganja may act in the same way as the morning pipe does with many Europeans.

466. The use of the drug in cases of impotency is, no doubt, based on its supposed aphrodisiac effects. The experiments of

Aphrodisiac action.

Prof. Wood indicate that the drug does not possess any aphrodisiac power; and Lauder Brunton remarks ("Text-book of Pharmacy, Therapeutics, and Pharmacology"): "*Cannabis indica* has been regarded as an aphrodisiac, but the trials of it made in this country seem to show that it does not, itself at least, have any such action, and merely induces a condition of partial delirium in which Easterns may possibly have visions of a sexual nature, and indeed they try to give a sexual direction to the mental disturbance which the *Cannabis* produces by mixing with it musk, ambergris, or cantharides." O'Shaughnessy, on the other hand, speaks of the drug acting on the "generative apparatus," and in experiments, which he tried on some of his pupils, he states that, "with scarcely any exception, great aphrodisia was experienced" from administration of the extract. Physiologically the active principle of hemp drugs has, so far as is known, no aphrodisiac power whatever; and, as a matter of fact, they are used by ascetics in this country with the ostensible object of destroying sexual appetite. But taken as a stimulant to assist in the execution of a specific purpose, its indirect effect is perfectly intelligible. Like alcohol it gives strength and free course to the predominant desires of the animal nature. This effect will be considered more fully later. Meanwhile it is enough to say that the alleged aphrodisiac action seems to be merely the indirect effect of the drug as a stimulant. This effect explains the use of these drugs in the houses of prostitutes, regarding which there is a good deal of evidence, just as alcohol in one form or another is used in similar houses in Europe.

The following are some of the minor cases to which ganja is applied. Occasionally the drug is burnt as a disinfectant and used in lieu of carbolic acid. It is also applied to sores for healing, and ganja ash is used to stop ulceration. By

singers the drugs are used to clear the throat; and they are also alleged to possess vermicide properties.

467. Regarding the use of hemp drugs in the treatment of cattle-disease, out of a total of 1,193 witnesses, one-half give no information; and of the rest rather over one-half speak to the use of bhang alone, while the remainder speak generally of the use of both ganja and bhang. A few witnesses speak only of the use of ganja, but that is mainly where bhang is not available. This use of the drugs is in evidence in all provinces, though naturally to a less extent in Bombay and Madras than elsewhere, and least of all in Burma. Among the diseases for which hemp drugs are prescribed in native veterinary practice for cattle, horses, sheep, and occasionally elephants may be mentioned colic, bowel-complaints, diarrhoea, sprains, constipation, cow-pox, foot-and-mouth diseases, hoof disease, pneumonia, affections of the throat, colds and coughs, quinsy, and rinderpest. Ganja is used to extract worms in foot-sore diseases of cattle and to remove intestinal worms, and is also burnt to disinfect sheepfolds. A very common use of the drugs is as a tonic to produce condition, to make oxen fleet of foot, to relieve fatigue, and to give staying power. Bhang is sometimes used to increase the flow of milk in cows, and also to stupefy them when they refuse to be milked. The drug is occasionally given to mares shortly before being covered, and it is also used after delivery. Bhang mixed with salt is given to cattle as preventive against purging, to which they are generally subject from feeding on the young shoots of grass sprouting during the early part of the monsoon. Hemp drugs when used for cattle disease are usually administered raw, but always admixed with other ingredients, spices, salt, or gur. Occasionally bhang is first cooked in a metal pot, then mixed with gur, when animals eat it readily, or it is forced down the throat mixed with salt.

The use of hemp drugs for the treatment of cattle-diseases appears to be nearly equally prevalent throughout Northern India. Mr. Driberg, Excise Commissioner, Assam, in his oral evidence before the Commission said: "I have no feeling that the Circular No. 28 of 1882 was necessary. I think it was issued on insufficient information. I never push it forward. I have never seen the stuff used for cattle; nor have I heard of its being used, except when the use is thus pleaded in excuse." The Commission, while recognizing the necessity of the popular use of the hemp drugs in veterinary practice, do not find in the evidence any reason for thinking that the practice is more common in Assam than elsewhere in the north of India.

The Commission have said all that it is necessary to say regarding the strictly medicinal use of hemp drugs in the alleviation of human suffering and disease. This is to be carefully distinguished from the popular use of the drugs by the ordinary consumer, which it is now proposed to discuss. It is true that there are points where the two uses can hardly be separated by a hard-and-fast line. The medicinal use seems to merge sometimes into the popular use, where the drugs are used, ostensibly at least, for purposes akin to medical. The popular impression of the drugs also must be influenced by their uses in medicine.

468. It is natural that the people generally should associate certain beneficial results with the use of hemp drugs, and that this recognition should tend to encourage, and should be urged in justification of, their moderate use. At the same time it is necessary to

Is moderate use beneficial?

consider the popular use and its effects apart from the medicinal use. A drug may be a useful medicine, but a bad thing to allow into the market freely for general consumption. The evidence regarding the popular use has now to be considered. There are only about fifty witnesses who assert that no benefit whatever can be derived by consumers from the moderate use of any form of these drugs. The vast majority assert that in some one or other of their forms they may produce at least temporarily beneficial effects. Many even of those who regard the use of the drugs as on the whole baneful admit such temporary benefits. It is to be noted, however, that, with the very rarest exceptions, the evidence points to the use of the drugs by males only. Women would therefore appear either not to require or to be denied the benefits ascribed to the drugs.

469. Among the beneficial effects attributed to the drugs is their effect as a food accessory or digestive. This effect is more generally attributed to bhang than to the other two forms. But there are a large number of witnesses who attribute it also to the smoking of ganja. The "cooling and refreshing" cup of bhang taken by the well-to-do, especially in the hot weather, to stimulate their energies and to create an appetite for food is frequently in evidence. There would seem to be a very general use of bhang in moderation as a stimulant and digestive by the middle classes, especially in advancing years. Some of the most intelligent and enterprising classes of the community are among those who thus use bhang. This use is generally spoken of without any marked condemnation, and often even with approval; for it is the practice of the respectable classes. But after all there seems quite equally good ground for believing that the *chillum* of ganja taken by the labouring man after his food with the object of allaying weariness and assisting digestion is no more harmful; and there are many witnesses whose evidence is in this sense. The use of bhang in the one case is sometimes compared to the glass of wine taken at meals by a moderate consumer of alcohol, and the use of ganja in the other case to the labouring man's glass of beer or even to his pipe of tobacco. It is possible also that the effects of hemp drugs in this respect may be to a certain extent comparable with those of tea. In connection with the most recent experiments on the subject, the action of tea is thus described by Dr. Edward Smith: "It increases the assimilation of food both of the flesh and heat forming kind, and with abundance of food must promote nutrition, whilst in the absence of sufficient food it increases the waste of the body." If there is anything in this comparison, Dr. Smith's remarks regarding tea may throw some light on the statements frequently found in the evidence regarding the necessity for sufficient or nourishing food to prevent injury to the constitution from the prolonged use of hemp drugs.

470. The use of these drugs to give staying-power under severe exertion or exposure or to alleviate fatigue is very largely in evidence. Here it is ganja especially which is credited with these beneficial effects. For ganja is far more extensively used than bhang by the labouring classes. The latter is mainly used by persons like the Chaubes of Mathra, who are very frequently referred to, and professional wrestlers. Gymnasts, wrestlers and musicians, palki-bearers and porters, divers and postal runners, are examples of the classes who use the hemp drugs on occasions of especially severe exertion. Fishermen and boatmen, *singhara* cultivators

working in tanks, dhobis and night watchmen, mendicants and pilgrims, are named as among those who use them under severe exposure. All classes of labourers, especially such as blacksmiths, miners, and coolies, are said more or less generally to use the drugs as a rule in moderation to alleviate fatigue. In this connection a reference to Dr. Cunningham's experiment described in Vol. III Appendices is interesting.

471. There is also a large body of evidence showing that hemp drugs, both as smoked and as drunk, are used as a febrifuge or preventive of the diseases common in malarious tracts or arising from the use of bad water. This is the justification alleged for the habitual use of these drugs in certain localities. Here, of course, the experience of the witnesses is more limited; but the evidence is very considerable. Labourers in malarious tracts and cultivators of wet and marshy lands, jungle tribes, and those who have to work or reside in jungle tracts, are among those who are said to use the drugs for these purposes. It is impossible also to shut the eyes to the evidence which often comes up unexpectedly, showing that respectable and intelligent people going on duty to such tracts, and sepoys sent on foreign service or garrisoning comparatively unhealthy districts, often take to these drugs for these purposes.

472. There are a few other effects of a beneficial character which are referred to by certain witnesses. They are, however, of a less important character and less generally contemplated than those which have been already considered. Thus the drugs are said to be used sometimes to prevent insomnia and to relieve anxiety, as the consumer of alcohol sometimes takes a "night cap before going to bed" or a glass of wine when he is of heavy heart. The drugs are said to be cheering in their effects, and to be prized by many on this account. An interesting illustration of this may perhaps be found in the popular belief existing in many parts that these drugs protect against cholera and other epidemic diseases. One very intelligent witness, who has seen much of this use, explains it as due to the stimulating and inspiring nature of the drugs. The drugs are said to be used to produce concentration of attention not only by fakirs, but also by such tradesmen as jewellers doing very fine work. They are said to be used by the poor and on occasion by others to alleviate hunger when sufficient food is not obtainable. The alleged occasional use in this way by sepoys, who for any reason cannot devote a sufficient amount of their pay to procuring food, is interesting. One witness (Mr. E. J. Ebdon, Collector of Ahmednagar) thus refers to this: "I am told on good authority that native soldiers who have gambled away their pay employ the ganja pipe as a cheap substitute for food until in funds again." Want of money from other causes might lead to the same practice; and the evidence shows that the practice is not confined to sepoys. It is especially found among wandering mendicants, and no doubt exists among other classes. The practice cannot result in permanent advantage, but the temporary relief is not to be overlooked.

473. There are a few witnesses who stigmatize all such allegations of beneficial results as mere excuses made for a vicious indulgence. As some opium consumers attribute all manner of good effects to opium, liquor drinkers to alcohol, and tobacco smokers to tobacco, so do consumers of hemp attribute these beneficial effects to their

favourite drug. It is, no doubt, true that there is a tendency to find excuse for an unnecessary indulgence. But the medicinal uses of these drugs lend at least some measure of support to the popular belief among consumers that some beneficial effects do follow from the moderate use. There are one or two witnesses who assert that the use of these drugs, far from being a protection against malaria, makes the consumer more liable to its influence. This may be true of the excessive use, which may injure the constitution and predispose to noxious influences. There is, however, no sufficient ground for believing that it is true of the moderate use. Other witnesses assert that the effect in alleviating fatigue is merely temporary, and results in the end in greater exhaustion. So far as the moderate use is concerned, this view would appear to be mainly theoretical; for, as has been already pointed out, there are very few witnesses who even profess to have any experience of evil effects resulting from moderate consumption. There are also a number of witnesses who attribute these good effects to bhang only, while some limit them to the occasional use of the drugs. These statements may perhaps be taken for practical purposes together. The occasional use of ganja or charas must be rare compared with the occasional use of bhang; for the smoking habit is more difficult to acquire, and there are therefore few who can with comfort indulge in it only occasionally.

The truth seems to be that while, no doubt, these drugs are more commonly consumed merely as stimulants than from any clearly defined idea of their beneficial results, yet they are popularly believed to have (if moderately used) some such beneficial results as have been above described. Moderate consumers believe this, and would feel a sense of deprivation if they were unable to obtain what they regard as a beneficial stimulant. This deprivation would be more felt among the poorer classes than among the wealthier, whose tastes lead them to more expensive luxuries. It is the poorer people and the labouring classes who as a rule use these drugs for the purposes indicated. They are admittedly as a rule moderate consumers. They do not seem to exceed in the use of hemp so frequently as in the use of liquor. Those who seem, according to the statements of many witnesses, really to derive no benefit but only harm from the use of these drugs are those who, leading sedentary or idle lives, take the drugs from a merely vicious desire of nervous excitement, and have a strong tendency to excess.

474. The fact that certain beneficial effects result from the moderate use under certain circumstances is not, however, necessarily inconsistent with the view that even the moderate use is on the whole injurious. Witnesses were therefore invited to consider separately the question if the moderate use of these drugs is on the whole harmless. About eight hundred and fifty witnesses (*i.e.*, considerably more than two-thirds of the whole) record their opinion. Of these, over sixty declare that the moderate use cannot be regarded as harmless simply on the ground that it is apt to develop into excess. The remainder (about eight hundred) answer the question clearly in the affirmative or negative for each of the forms of the drugs with which they are acquainted. Nearly three hundred witnesses deal with charas, and their opinion is as four to three against that drug. It is in the Punjab, Sind, and the North-Western Provinces that opinion is strongest in this direction. It is in these provinces that charas is best known, and elsewhere

Is moderate use harmless?

Charas.

the drug is probably weaker from deterioration. So that opinion in these provinces is probably entitled to more weight than elsewhere. On the whole, then, there is apparently a more unfavourable opinion of charas than of the other forms of hemp drugs.

475. In regard to ganja, opinion is about seven to five in favour of the moderate use being harmless. In every province, except Ganja. the North-Western Provinces and Sind, the majority take this view. In Sind the drug is known to but few witnesses, and a large proportion of these few fail to discriminate between the moderate and excessive use. In the North-Western Provinces the drug is well known, and the witnesses are divided as three to two against the drug—almost, indeed, in the same ratio as in regard to charas. Here, however, a careful examination of the papers shows that at least one-fifth of these witnesses against ganja have not discriminated between the moderate and excessive use. In other provinces the majority believe the moderate use of ganja to be harmless. In Bengal, where the drug is best known, and most carefully cultivated, this majority is about two to one.

476. Bhang is regarded with more general favour than other preparations of hemp. The witnesses who declare it harmless are Bhang. nearly as three to one as compared with those who think otherwise. This majority is found in pretty nearly this ratio in all provinces. This may, therefore, be accepted as the prevailing opinion.

477. There is a large number of witnesses who either do not know enough, or do not feel strongly enough, regarding the effects Silent witnesses. to say anything about them. There is also a large proportion of the other witnesses who declare the moderate use of the drugs to be harmless. Finally, there is manifestly a tendency in many of the witnesses against the drug to base their unfavourable opinion on their experience of excessive consumption. In view of all this, there can be little doubt that there is a very large amount of moderate consumption of all these drugs, the evil effects of which are inappreciable, even if this moderate consumption is not quite harmless. There is a good deal of justification of the failure of many witnesses to discriminate between moderate and excessive consumption. That which is moderate and harmless to one man may be too much for another. And the moderate habit may undoubtedly develop into excess in some cases where excess might not have been looked for. It is so with all intoxicants; but moderation and excess ought to be distinguished. And on the whole the weight of evidence is to the effect that moderation in the use of hemp drugs is not injurious.

478. The great majority of the witnesses are of opinion that the habit of consuming these drugs is easily formed. As a rule these Formation of the habit. witnesses speak from experience of consumption among the upper and middle classes. There is no doubt that there are some difficulties in the way of a lad learning the habit apart from the deterrent opinion (where it exists) of parents or of society. It is necessary to know how to prepare the drug, though most of the methods of preparation when learned are simple enough. This fact, together with the force of example, explains the very general statement that the habit is acquired in the com-

pany of smokers. The first effects produced in the novice by the drug, especially if smoked, are also far from pleasant, and must tend to make the habit somewhat difficult to acquire. The first effects of bhang need not be unpleasant if the consumer is careful to begin with very small doses. But it is otherwise with hemp smoking. To produce any effect, the smoke has to be taken into the lungs by strong inhalation. The effect of this is often unpleasant and distressing, especially to those who are not accustomed to smoke tobacco in this particular way. It is doubtful, however, whether these first effects are ever more deterrent in character than those which European lads experience on their first acquaintance with tobacco, and it cannot be said that they present any real difficulty in the way of those who from any motive desire to consume these drugs. Once these initial difficulties are past, the habit is easily formed. As in the case of every other intoxicant, consumption tends to become habitual.

479. The pretty general belief is that the habit is not easily broken off when once formed ; but the difficulty is not believed to be
Strength of habit. so great as in the case of either alcohol or opium.

It is apparently greater than in the case of tobacco. The experience of our jails seems clearly to confirm the general opinion that the opium habit takes a much stronger hold than the ganja habit, and that no injurious physical effects follow the compulsory cessation of the latter. But even the moderate habitual consumer looks for the effect which he associates with the drug, and finds it a considerable effort to give up the habit—an effort which demands considerable strength of mind in cases where the necessity for abandoning the habit may have arisen. In case of habitual excess the difficulty is greatly increased. The weakness of mind at once displayed and intensified by this excess renders it sometimes impossible to give up the habit without restraint. But even in cases of excessive consumption, the difficulty appears to be less with ganja than with alcohol or opium.

480. It is a general belief that there is a tendency for the moderate habit to develop into the excessive. This belief is based on
Moderation and excess. the general view that such a tendency must exist more or less in the case of all intoxicants, on the fact that as the system becomes accustomed to the use of a drug a larger dose appears to be required to produce the same effect, and on the undoubted fact that there are some excessive consumers who had begun and continued for some time the use of these drugs in moderation. It is, however, a matter of ordinary experience that in the case of a moderate consumer of alcohol, for example, who is in normal health, the effect which he wishes to produce by his moderate use is regularly produced by the same dose without any necessity for increasing it. And the fact that there is comparatively so little of excess in the use of hemp drugs, and that so many consumers, especially of bhang among the middle classes and of ganja among working people, retain their moderate habit and regularly have their accustomed dose twice or thrice a day, seems to show that this tendency is certainly not stronger in their case. While individual differences in strength of mind must always lead to difference in results, and hereditary mental instability is in certain cases a factor which must not be overlooked, the fact seems generally to be that excess is found (as in the case of alcohol) to be mainly confined to idle and dissipated persons, and to be often due to the force of example and foolish emulation in bad company. The man who takes these drugs regularly as a food