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accessory, or as a stimulant in hard work, does not seem to be prone to excess. Apparently also the tendency is much less towards that occasional excess which in the case of alcohol so frequently becomes habitual. The working man, for example, does not seem to have the same temptation to a debauch with ganja as with alcohol.

481. Another question of some interest that has arisen in connection with the hemp drug habit, whether moderate or excessive, is the question whether it is hereditary. No evidence of the smallest value is forthcoming to show that it is. There are, no doubt, witnesses who state this as their belief; but the basis of that belief is merely the undoubted fact that in many cases the sons of ganja smokers also themselves smoke ganja. This fact is sufficiently explained in the first instance by the universal tendency of sons to imitate their fathers. It has also to be borne in mind that it is an acknowledged fact that the neurotic diathesis which is hereditary frequently exhibits itself in a tendency to indulge in stimulants. The weakness which may have led the father to indulgence in ganja may be inherited by the son, and produce in him the same tendency to use this drug; but there is no such evidence as would justify the opinion that the indulgence is itself hereditary.

482. In proceeding to deal more directly with the effects induced by the moderate use of the drugs, the Commission consider it desirable to preface the general analysis of information obtained from ordinary witnesses by a *résumé* of the known physiological action of the drugs as determined by competent observers. The earliest experiments of which we possess any record were instituted on animals by Sir William B. O'Shaughnessy. Ten grains of Nepalese charas were given to a middling sized dog; in half an hour the dog was stupid and sleepy, dozing at intervals, starting up, wagging his tail as if extremely contented, and ate food greedily. On being called to, he staggered to and fro, and his face assumed a look of utter and helpless drunkenness. These symptoms lasted two hours and then gradually passed away, and in six hours the dog was perfectly well and lively. In another experiment twenty grains of alcoholic extract of ganja were given to a very small dog. In fifteen minutes he was intoxicated: in half an hour he had great difficulty of movement: in an hour he had lost all power over the hinder extremities, which were rather stiff, but flexible: sensibility did not seem to be impaired, and the circulation was natural. He readily acknowledged calls by an attempt to rise up. In four hours he was quite well. O'Shaughnessy conducted experiments on carnivorous as well as graminivorous animals, and found that the former invariably and speedily exhibited the intoxicating influence of the drug, while the latter experienced but trivial effects from any dose administered. As a result of several experiments on pupils at the Medical College, Calcutta, O'Shaughnessy observes: "The result of several trials was that in as small doses as $\frac{1}{4}$ of a grain the pulse was increased in fulness and frequency; the surface of the body glowed; the appetite became extraordinary; vivid ideas crowded the brain; unusual loquacity occurred; and, with scarcely any exception, great aphrodisia was experienced." Lauder Brunton states: "Its chief effect is on the brain, and is of a twofold nature; it excites a form of delirium and hallucinations, usually followed by deep sleep. Small doses give rise to delirium with hallucinations generally of a gay character causing much merriment, accompanied by a great inclination to mus-

cular movement. The nature of the hallucinations depends greatly on the character of the individual, and people seem to be able to determine their nature as in the case of opium. The dreams produced by Indian hemp in inhabitants of Eastern countries are usually of a sexual character, but when taken by more civilized people of Western nations they are not sexual, and are often of a disagreeable nature. During this stage of hallucination the person may conduct himself rationally, and answer clearly any question put to him. The drug produces in some persons a curious loss of sense of space and time. This stage is generally followed by deep sleep. The sensory nerves are benumbed, and there is frequent tingling and partial anæsthesia. The pupil is dilated. Respiration may be either quickened or slowed. The action on the pulse is very uncertain. Usually it is at first quickened, then slowed, sometimes *vice versa*. The temperature rises or sinks according as the drug produces muscular movement or sleep. The urine is increased. The processes of digestion are less altered by *Cannabis indica* than by opium, and the after effects of opium (nausea, headache, etc.) are not produced." Dr. Russell (Bengal witness No. 105), in his note furnished to Dr. Prain, gives the following effects of "doses pushed to produce a decided effect": "Mental effects appear in from three to five minutes; exhilaration and excitement of a pleasing nature: the subject talkative and merry; laughs and gesticulates; plays on imaginary musical instruments and sings; converses with imaginary persons; illusions and delusions, usually of a pleasing nature; objective of these very responsive to external impressions and suggestions; rarely quarrelsome or combative. Then ensues a condition of repose and quiet contemplation with fixed stare and immobile pupil. Then drowsiness and restless sleep in from two to three hours, lasting several hours: on waking, dulness, heaviness, profound depression, and irritability lasting for many hours. Physical effects in stage of exhilaration—conjunctiva reddened, pupil immobile; venous turgescence of face and head; respiration increased in frequency by three or four per minute; temperature raised two degrees or more; skin dry; a general condition of febrile excitement, vascular tension, increased pulse, quickened by ten beats or more per minute, hard, jerky, irregular. At later stage of reaction and drowsiness, skin cold, dry, pale; temperature subnormal (97° Fahr.); pulse slow, soft, compressible, very irregular; respirations lessened in frequency and shallow; copious *diuresis*." These experiments refer to the drugs bhang and ganja smoked and drunk as an infusion (*vide* the details of certain of Dr. Russell's experiments instituted in 1883 and appended to his evidence). Dr. Prain in his report on the cultivation and use of ganja refers to some experiments made on cats with alcoholic extracts of ganja, and Dr. Evans, Officiating Chemical Examiner, Bengal, at the suggestion of the Commission, also instituted a series of experiments on cats. Both these observers refer to the idiosyncrasy exhibited as to effects in the animals under experiment. Dr. Evans remarks "that some cats under the influence of the drug were prone to sleep, and others to the development of the phenomena ascribed to the disturbance of the sensory-motor apparatus; that the same dose relative to the body weight would in some animals induce disturbance of the sensory-motor mechanism, and in others a varying degree of narcotism. Apart, however, from individual idiosyncrasy, the quantity of the dose was found to play an important part also in determining the character of the effects produced by the drug. For in certain animals who after certain doses had been recognized as prone to develop sensory-motor disturbance without marked sleep or narcotism, an increased

dose, if sufficiently large, could be relied on to produce sleep deep enough to mask or prevent the development of sensory-motor disturbance, with the exception of the rocking movements." Dr. Bovill (Bengal witness No. 109) describes the effects of smoking ganja in cigarettes, and Assistant Surgeon J. E. Bocarro (Sind witness No. 20) gives notes in which he compares the effects of drinking bhang and smoking ganja and charas.

483. The following interesting account of an experiment on the effects of the Dr. Cunningham's experiment on ganja inhalation. systematic inhalation of the smoke of ganja conducted by Dr. D. D. Cunningham at the request of the Commission is extracted from his report (Vol. III Appendices). The growth of the habit, the uneasiness arising from privation, the symptoms of the intoxication, especially the appearance of optical delusions, the absence of appreciable indication of cerebral excitement, and the *post-mortem* appearances, are most interesting features of the report. So far as one experiment can be accepted as establishing anything, and subject also to the more careful histological enquiry to be conducted hereafter, this experiment gives additional evidence of the absence of morbid changes in the brain and of tissue changes generally under the action of hemp drugs even when used in excess. At the same time the general features of the experiment as indicated above are on the whole comparable with the effects of the hemp drugs on the human consumer as established in the evidence recorded by the Commission. The remarks of Dr. Cunningham regarding the diminution of appetite accompanied by local accumulations of fat as indicating the diminution in activity of the normal processes of tissue waste under the influence of ganja throw light on the evidence of witnesses who ascribe beneficial effects to this drug in cases of severe exertion without sufficient or suitable food. Dr. Cunningham writes :—

"Nature of the animal employed, *Macacus rhesus*, weighing 16 lbs..

"The first inhalation was administered on the 7th of November 1893 and the last on the 12th of July 1894, so that the experiment extended over more than eight months. During this period one hundred and eighty-one inhalations were administered. During the greater part of the period the administrations were repeated almost daily, save on Sundays, but during March they were repeated only on alternate days, and during April and May only at irregular intervals, owing to the fact that at that time the animal was suffering from a mild but prolonged attack of dysentery. During the earlier part of the course of the experiment the animal apparently disliked the treatment, as he violently resisted introduction into the inhalation chamber, was restless when the smoke began to enter it, and not unfrequently attempted to prevent its entrance by plugging the orifice of the supply-tube. As time went on, however, and the experience lost its strangeness, his objections gradually diminished, and were ultimately replaced by a positive desire for the treatment. He then readily entered the chamber, resisted any attempts to remove him from it before he had had a full dose, was restless and uneasy on days on which the treatment was omitted, and, on two occasions on which he managed to make his escape from his cage, showed an evident desire to enter the chamber on his own account.

"The symptoms attending the process of inhalation were not invariably of precisely uniform character. As a rule they came on quietly and insensibly, and

consisted in steadily increasing drowsiness leading on to quiet sleep. During the course of exposure the conjunctiva and eyelids frequently became considerably congested; but this may, of course, have been merely dependent on direct irritation incident on their contact with the smoke. When removed from the chamber, ere profound sleep had supervened, the animal was evidently intoxicated. In many cases he was incapable of sitting up without supporting himself by means of grasping the bars of his cage, and, when less profoundly affected, was very unsteady on his legs. On being introduced into his cage, he not unfrequently, either at once or after a short delay, lay down and slept quietly for some time. On awaking from such sleep, as well as in those cases where sleep did not intervene, he almost invariably showed symptoms which appeared to indicate that he was for some time the subject of optical delusions. He gazed about attentively in directions in which nothing which seemed likely to excite his curiosity was present, and carefully scrutinized the floor of his cage for objects which did not exist. Such symptoms continued to persist for a considerable time after all other indications of intoxication had disappeared, continuing to manifest themselves in greater or less degree during the entire course of the latter portion of any day on which the treatment had been administered in the morning.

“On a certain number of occasions, however, the symptoms did not follow this normal course. On these the onset of signs of drowsiness was greatly delayed, and had hardly begun to show itself ere the animal was suddenly seized with violent general convulsions, and immediately thereafter became profoundly unconscious. The symptoms on the recovery of consciousness in no way differed from those in cases where the earlier ones had followed the normal course. No satisfactory explanation of the occurrence of such exceptional phenomena could be arrived at, and it must remain uncertain whether they are to be regarded as the consequence of certain temporary subjective peculiarities on the part of the animal or of variations in the quality of the drug.

“In no instance was there any appreciable indication of the development of any cerebral excitement either during the administration of the drug or after intoxication had been fully established. The normal symptoms were those of simple drowsiness and loss of will-power accompanied by optical delusions, those characterising the exceptional cases of temporary abnormal activity of the spinal cord and basal ganglia which may very probably have been dependent on diminution in the inhibitory power of the higher cerebral centres.

“The general health of the animal remained excellent during the entire course of the experiment, save for a period during the months of April and May, in which it suffered from dysenteric symptoms. The occurrence of these, however, cannot be in any way definitely ascribed to the use of the drug, as they are of frequent occurrence among monkeys in confinement apart from any special treatment. The only permanent appreciable effect resulting from the treatment manifested itself in the form of a very considerable diminution in appetite for food, which set in shortly after the initiation of the experiment, and thereafter remained persistent throughout its entire course.

“At the desire of the Hemp Drugs Commission, the experiment was brought to a close on the day following my return to Calcutta on the 12th of July 1894. Death was induced by means of prolonged administration of chloroform, and a.

post-mortem examination was conducted immediately it had occurred. The results of this were as follows, in so far as mere casual naked-eye inspection goes ; for I have already pointed out the detailed histological examination of the condition of the various organs and tissues is a matter not of a few hours, but of many weeks' work ; so that it has been impossible for me to carry it out and at the same time to meet the wish of the Commission for the immediate submission of a report. Specimens of all the more important organs have, however, been carefully preserved, and will form the subjects of detailed histological examination hereafter.

"Results of post-mortem examination of the animal.—The body weighed 13 lbs. 7 oz., indicating a loss in weight of 2 lbs. 9 oz. during the eight months of treatment. This, or at all events the whole of this, loss is certainly not fairly creditable to the treatment, seeing that for a considerable period not long before the close of the experiment the animal had been subject to an attack of dysentery, which alone would have been sufficient to occasion considerable loss of weight.

"On laying the body open, the phenomenon which at once attracted attention, as unlike any ordinarily present in those of caged monkeys, was the great amount of fat accumulated in the omentum, the mesentery, and the visceral and parietal pericardium. This was specially noteworthy in connection with the markedly diminished ingestion of food which had characterised the subject of the experiment during the greater part of its course, and with the coincident considerable reduction in body weight which had occurred. The body generally appeared to be fairly well nourished, and a considerable amount of subcutaneous fat was present.

"The lungs were quite exceptionally healthy for a caged monkey, neither of them being in the least degree adherent to the thoracic walls ; the left one being apparently perfectly healthy, and the right merely showing a few patches of deep congestion towards the base. Under the influence of the osmic acid contained in the fixing solution in which specimens of it were immersed, the muscular tissue of the heart shewed unequivocal signs of the presence of a certain amount of interstitial fat. Whether, however, these were due to true fatty degeneration of the muscular elements proper, or, as is more probably the case, to mere fatty accumulation in the connective tissues, must remain an open question until the detailed histological examination of the tissues has been carried out.

"The liver, spleen, and pancreas appeared to be perfectly normal, save that, as in the case of the cardiac muscle, a slight excess of interstitial fat made its appearance under the influence of osmic acid. The kidneys, the stomach, the large and small intestines, and the cerebro-spinal nervous centres were all apparently perfectly healthy.

"The only peculiar features in the body then which could in any way be rationally regarded as connected with the treatment to which the animal had been exposed were the excessive accumulation of fat in the tissue of the omentum, peritoneum, and pericardium, and the tendency to the establishment of a similar accumulation in the cardiac muscle, the liver, the pancreas, and the spleen.

"But the only persistent symptom attending the treatment during life was a considerable diminution in appetite for food, so that, in so far as the results of

a single experiment afford any ground for inference, it would appear that the most important effect of the habitual employment of inhalations of the smoke of ganja is to give rise to diminution in the normal processes of tissue-waste to such a degree that local accumulations of fat are liable to occur even in spite of the coincident and similarly originating diminution in the ingestion of food. The diminution in activity of the normal processes of tissue waste tends, on the one hand, to give rise to decreased ingestion of food, and, on the other, to local accumulation of fat in spite of this. But if the habitual practice of inhalations of the drug really do produce such effects, it is clear that, in place of being hurtful, it may be positively beneficial to people who are obliged to undergo exertions without having the means of procuring a diet fully adapted to make good the amount of tissue waste normally associated with them. As has been already pointed out, it is necessary to exercise extreme caution in coming to any definite conclusions from the experiment, first, because it is an isolated one, and, second, because the *post-mortem* examination has not yet been histologically completed; but the evidence which it has afforded is, in so far as it goes, rather in favour of the use of the drug under certain conditions than adverse to it."

484. In considering the effects induced by drinking bhang and smoking charas or ganja, it must be remembered that the same active principle is present in all. The effects, therefore, induced by any one of the three drugs must necessarily depend upon the content of active principle, which is smallest in the case of bhang, and, theoretically at least, largest in charas, weight for weight. Practically it is impossible to compare with anything approaching to accuracy the physiological effects of the three drugs, because at present no definite active principle has been isolated. The alcoholic or other extracts from bhang, ganja, and charas are neither chemically similar in composition nor physiologically equivalent, weight for weight, in the effects they induce; and it is only possible, therefore, to approximately compare the physiological effects of ganja, charas, and bhang *inter se*. When, in addition to these initial difficulties, the disturbing factors, racial and individual idiosyncrasy and habit, come into operation, the question of the immediate effects of the drug becomes a most complex problem to deal with scientifically, or indeed even to generalize on in the broadest sense of the term. And, moreover, though the same active principle is originally present in all three of the drugs, yet when either ganja or charas is smoked, the active principle, not being volatile, must undergo decomposition, new products being evolved. Strictly, therefore, there can be no comparison between the physiological effect of the drug when introduced into the stomach as bhang and the products of the destructive distillation of ganja or charas when smoked and inhaled. And a writer on hemp drugs aptly remarks: "The action of hemp on man is so various that when we read the several descriptions given, differing so widely, we would scarcely suppose we were considering the same agent."

485. Judging from the replies of several witnesses, the immediate effect of the moderate use of any of the hemp drugs on the habitual consumer is refreshing and stimulating, and alleviates fatigue, giving rise to pleasurable sensations all over the nervous system, so that the consumer is "at peace with everybody"—in a grand waking dream. He is able to concentrate his thoughts on one subject: it affords him

pleasure, vigour, ready wit, capacity for hard work, and sharpness for business; it has a quieting effect on the nervous system, and removes restlessness and induces forgetfulness of mental troubles; all sorts of grotesque ideas rapidly pass through the mind, with a tendency to talk; it brightens the eyes, and, like a good cigar, gives content; the man feels jolly, sings songs, and tells good stories; it causes bravery in the brave and cowardice in the timid, and, like alcohol, brings out the real character of the man. In young men it may give rise to sensual thoughts, and aphrodisiac effects are mentioned. Some witnesses, on the contrary, state that the drug is not refreshing, and that the consumer is sometimes sleepy and sometimes talkative; or there is no tendency to talk: the conjunctiva become suffused and red, and the moisture dries in the throat and lips; the man becomes peevish, stupefied, sees double; and occasionally it may cause vomiting. Regarding the question of intoxication, witnesses speak of exhilaration and slightly dizzy sensation; a little intoxication, but no stupefaction; a feeling of "briskness" followed by sinking, but no stupefaction; a little heaviness in the eyes, slight narcotic effects, or stupor more or less complete. Others say that the first effect is exciting, then soothing; while some describe the effects as those of intoxication of varying degrees, from moderate to dead drunk. According to certain witnesses, the intoxication of hemp drugs differs from the alcoholic in that only those unaccustomed to the drug are affected, or that intoxication is not much marked in old consumers. Some witnesses state that the drugs allay hunger; others that these effects only result from excessive use; while others deny the power of the drug to allay hunger under all conditions apparently. Similar contradictory statements are made in connection with the alleged power of the drug to create appetite. On this point, however, it may be of interest to note that O'Shaughnessy, as a result of observation, records the fact that hemp drugs in small doses possess an extraordinary power of stimulating the digestive organs: "the appetite became extraordinary" is the remark he makes in describing the symptoms induced in certain of his students by the administration of $\frac{1}{4}$ grain doses of the resin. A Sind witness, No. 16, says: "It sharpens the appetite, and in this respect the action of the drug is certain and to be depended on." These are the immediate effects mentioned in the evidence. No doubt some of them would only result from an unaccustomed or excessive dose.

486. In connection with the period during which the effects last, it is very difficult to arrive at any general conclusions, as so much depends on individual idiosyncrasy, on habit, dosage, and on the manner in which the drug is exhibited. According to Dr. Russell's experiments, the mental effects appear in from three to five minutes, and the drowsiness and restless sleep may last several hours in cases in which the drug was pushed to produce decided effects. Assistant Surgeon J. E. Bocarro gives fifteen minutes as the period at which intoxication commences after ganja smoking; in the case of charas, with the first pull at the *chillum*. In the case of ganja, the effects last from half to one hour or much longer, and in charas from fifteen to twenty minutes. With bhang the symptoms may set in from twenty to thirty minutes, or may be much delayed; and, according to Assistant Surgeon Bocarro, may last on an average two hours, or, according to a Bombay medical witness (No. 91), six to twelve hours. According to Dr. Russell's Assam experiments, the effects of two drachms of bhang drunk as *goonta* came on slowly and disappeared in three hours. With a solution of the resin in alcohol, thirty drops of the tincture

are stated to have induced slight excitement within half a minute, lasting for a few seconds. In fifteen minutes a feeling something allied to the early stage of intoxication came on. Three grains of extract gave rise to no symptoms for one hour (*Medical Times and Gazette*, 1852). Speaking generally, however, smoking produces far quicker effects than the exhibition of the drug by the stomach, as in the latter case in India the resin in bhang is associated with a large amount of inert insoluble matter, and absorption is thereby delayed; but with pure resin, administered in a finely divided state, absorption from the stomach may occur with great rapidity.

487. Various replies are given regarding the after effects induced by the drugs. A very common answer to this question is

After effects.

that no immediate after effects are induced. Others say that "scarcely" any after effects follow the moderate use. Dr. Crombie (Bengal witness No. 104) says: "I have not seen any after effects in these cases, and have spent days in company with native boatmen habitually using ganja in moderation." Another witness states (Sind No. 20): "With bhang none of any importance. Ganja and charas, especially the latter, give rise to a dull frontal headache, singing in the ears, weakened mental power, much thirst, impair the appetite, constipate the bowels, and concentrate the urine." Other witnesses describe the after effects as laziness and languor, stupor, drowsiness, melancholy, weakness, laxity of the body, disinclination to do anything, exhaustion, depression, pains in the body, headache, giddiness, and gnawing at the stomach, nauseous taste in the stomach, and thirst. O'Shaughnessy gives a succinct account of the after effects of bhang and charas. In the case of bhang, "the intoxication lasts about three hours, when sleep supervenes; no nausea or sickness of stomach succeeds, nor are the bowels at all affected: next day there is slight giddiness and vascularity of the eyes, but no other symptoms worth recording." In the case of ganja, "heaviness, laziness, and agreeable reveries ensue, but the person can be easily roused, and is able to discharge routine occupations, such as pulling the punkah, waiting at table, etc." The Commission consider it very probable that in regard to the after effects of the moderate use of these drugs, the evil after effects described by some witnesses are really due to the excessive use, and that witnesses have not always discriminated between the effects of the moderate and excessive use of the drugs.

Replies to the question whether the want of subsequent gratification produces any longing or uneasiness are answered by some witnesses in the negative as regards moderate consumers; others say that a little longing or even uneasiness is experienced for want of gratification. There appear to be no valid reasons why the want of gratification of even a moderate habit should not cause "uneasiness" in some cases, and a "sensation of longing" in many: it is certainly the case with the majority of habitual moderate tobacco smokers, in whom the want of an accustomed smoke certainly does produce "longing," and which may even amount to "uneasiness" in some instances. In no case, however, is the longing or uneasiness experienced by users of hemp drugs for want of subsequent gratification comparable to the cravings of an opium smoker or eater. This matter has, however, already been discussed in dealing with the formation of the habit.

488. There are few, if any, classes of the community some members of which do not use hemp drugs in some form. There are religious objections to the use of intoxicants by Muhammadans, and these deter such of this class as are orthodox from indulging in these drugs. Many of the Hindus who are both orthodox and respectable consider it contrary to their religion to indulge in these or any other intoxicants, though many of the same class also believe that they may, at least occasionally at feasts, take bhang. Orthodox Sikhs do not smoke, and therefore regard ganja and charas as prohibited, though they do not see the same religious objection to drinking bhang. These are illustrations of classes which generally abstain. Members even of these classes are, however, found among the consumers of these drugs. It may be said probably with safety that there is no class of the community that does not to some extent partake of these drugs. At the same time consumption is in the main confined to particular classes. Ganja or charas is chiefly used by (1) "religious" persons, such as fakirs and wandering mendicants, sadhus and pandahs, the followers of Trinath, and other sects; (2) the lower classes of both Hindus and Muhammadans, such as artizans and cultivators, fishermen and boatmen, palki-bearers and day labourers, sepoy and night watchmen, wrestlers and athletes, Chamars and Domes, and others of the lower orders; (3) domestic servants of all kinds, especially those who, as syces, durwans, or dhobis, have especially trying work to do; (4) aborigines of different races, such as Sonthals, Gonds, and many more; (5) tradesmen, Kayasths, and others of the lower middle classes. These are among the classes specially mentioned by witnesses as smoking hemp drugs. Among the upper classes this habit is generally regarded as exceptional and indicating a special tendency to dissipation, but not so among these lower classes. Bhang is also used to some extent by these classes, but is more generally used by the more respectable middle and upper classes. Among those who are specially mentioned as habitually using it are Marwaris, Banias, and jewellers, sharp, intelligent, and successful tradesmen. Bhang is also occasionally used more or less generally by practically all classes on certain feast days and at times of social rejoicing. Like all intoxicants everywhere, the drugs are used in moderation, but more frequently to excess, by licentious and dissipated persons of all classes. Except, however, in the case of religious mendicants, the use by all the classes named above is generally moderate. Excess is exceptional.

489. From what has been said above it will be expected that there would be many witnesses whose opinion regarding the use of these drugs as stimulants would not be favourable. Popular opinion regarding this use. The very great majority of witnesses in all provinces declare that this use of the drugs is regarded with disapproval by the people generally. This disapproval rests on several grounds. It depends partly on the classes using the drugs. Many witnesses point out that ganja is the cheapest intoxicant, and that it is principally used by the lower classes, while bhang is more used by the upper classes. They state that it is on this account that ganja smoking is regarded with much more general disfavour than bhang drinking. As one witness points out, the feeling is somewhat akin to that which some Englishmen who do not generally disapprove of stimulants have regarding a "vulgar taste for gin." On the other hand, the use of ganja by religious persons is not thus generally disapproved.



Survey of India Offices, Calcutta, August 1894.

GROUP OF GOSAVIS, HABITUAL EXCESSIVE GANJA SMOKERS, KHANDESH.

Many witnesses share the view which one witness tersely expresses thus: "Sanyasis are respected by the people; low caste people are not respected." There is no doubt that by far the greater part of the community abstain from any disapproval, and in fact are even strongly in favour, of the use of these drugs by religious persons, although that use is so often excessive. Mr. Monro (Bengal witness No. 206), however, records an instance of his having persuaded the people among whom he was working to dissociate ganja and holiness, so that "a sanyasi was laughed out of the town when I convicted him of habitually consuming ganja."

The disapproval of the use of hemp drugs by classes other than these religious classes is, as has been already indicated, based also on a religious objection to intoxicants still held by many, both Hindus and Muhammadans. There can be no doubt that this orthodox objection influences the public expression of opinion by many who have ceased themselves to share this religious sentiment. It is a respectable thing to denounce intoxicants; and it sometimes requires an effort for a witness to speak favourably or apologetically of intoxicants, especially of those which are used by the lower orders. Another ground for this expression of disapproval by so large a majority of the witnesses is the fact that so many of them have seen nothing but the excessive use. It cannot be too carefully remembered that the moderate use does not obtrude itself, and that much of the evidence given before the Commission deals in truth only with excess. Thus we find a large number of witnesses illustrating the popular disapproval of the drug by pointing out that "ganjeri" or "bhang" (the names given to the consumers of ganja or bhang) is a term of great reproach. They point out that it means "one who acts as if he had lost all sense," an unreliable and despicable character. Other witnesses explain that these terms correspond to the English word "drunkard," and that the moderate use is not, so far as their experience goes, regarded with contempt at all. Akin to this is the natural desire expressed by several witnesses to assist the young in resisting the temptations of bad companions by establishing in their minds a wholesome antipathy to intoxicants of all kinds, excessive indulgence in which is followed by disastrous results, especially to the young.

490. In this connection it is well to notice the references made to alcohol.

Hemp drugs and alcohol. It is only a minority of the witnesses who compare alcohol and hemp drugs. But it is a striking fact that of these witnesses a majority of about three to one declare alcohol to be more injurious than hemp drugs. In every province the majority of the witnesses who make this comparison hold the view above expressed. This majority includes experienced officers of Government. Thus Colonel Hutchinson, Commissioner of Lahore (Punjab witness No. 4), says: "So far as effects have come to my notice, the effects of liquor are infinitely worse than those of drugs." Mr. J. B. Thomson, Collector of Allahabad (North-Western Provinces witness No. 2), gave evidence to the following effect: "I remember no case from which I can deduce the theory that the use of the drugs is in any way connected with crime; that is to say, from my own personal experience. I cannot say the same regarding alcohol even among natives of this country." Similarly, Mr. Toynbee, Commissioner of Bhagalpur (Bengal witness No. 4), says: "I have never had persons pointed out to me as social wrecks from the effects of ganja. As far as I have seen, many more cases of evil effects from alcohol than from hemp have come before me."

And Colonel Bowie, Commissioner in the Central Provinces (witness No. 2), says : " I can call to mind a great many cases which I have had to deal with as a Magistrate and as a Sessions Judge, in which serious hurt and homicide have been caused by persons under the influence of alcohol, but not a single case of crime of any kind which had been committed under the influence of bhang or ganja." Representative officers from other provinces might be quoted, such as Mr. Vidal or Mr. Campbell, C.I.E., in Bombay, or Mr. H. E. M. James, Commissioner in Sind. The Rev. Mr. Laflamme (Madras witness No. 153), who took much pains in collecting information, gives evidence in the same sense. It is, however, in the northern provinces that there is most experience of these drugs. The only officer of standing in Upper India who holds the contrary view is Mr. T. Stoker, Excise Commissioner, North-Western Provinces (witness No. 6), who says : " I put these drugs above liquor and opium in their injurious tendencies." In saying this, he differs, however, both from his predecessor, Mr. R. Wall (witness No. 233), who held the office for eleven years, and from the Hon'ble A. Cadell (witness No. 1), who is the Member of the Board of Revenue in charge of Excise.

The opinion that alcohol is more injurious than hemp drugs is also expressed by leading Native gentlemen in these provinces, such as Maharaja Bahadur Sir Jotindra Mohan Tagore, K.C.S.I. (Bengal witness No. 163), Munshi Newal Kishore (North-Western Provinces witness No. 231), Babu P. C. Chatterji, Judge, Chief Court (Punjab witness No. 76), and the Hon'ble Gangadhar Madho Chitnavis (Central Provinces witness No. 46). The first of these only need be quoted. He says : " The use of the aforesaid indigenous drugs appears to me to be preferable to the use of ardent spirits and wines now rapidly replacing them to the great injury of the moral and material well-being of our people. Prohibition, I fear, would lead many to take to the use of ardent liquors, and this, in my humble opinion, would be replacing one evil by another of still greater magnitude." These views are held by the great majority of the native witnesses who make the comparison between hemp drugs and alcohol ; and there is really no witness of authority on the other side.

This is also the opinion of medical witnesses who make this comparison. It is no doubt an accepted and established opinion among medical men that the evil effects of alcohol are intensified in the tropics. This may explain the very strong opinion held regarding alcohol. Perhaps it is unnecessary to refer to more of these witnesses than to two of more than ordinary experience who take a very strong view of the deleterious character of hemp drugs if used to excess, but a still stronger view regarding alcohol. Surgeon-Lieutenant-Colonel Crombie says : " I believe that the habit of using ganja moderately is absolutely harmless ; but I think even the moderate use of alcohol is liable to produce tissue changes in the long run. Further, I here refer entirely to the native community ; and it is my observation that when a native takes to alcohol, it is extremely difficult for him to remain moderate ; and in life assurance work, of which I have a good deal, I always advise an extra premium in the case of any native who indulges in alcohol even in the most moderate way, and utterly refuse to accept a native life if there is evidence of the consumption of alcohol to any considerable extent which would still be considered moderate in the case of Europeans. My experience leads me to hold the same views of the effects of alcohol on the lower classes.

A native who takes to liquor is lost. As regards the excessive use, I would still place alcohol first. I regard it as most deleterious." The only other medical man who need be quoted is Dr. H. M. Clark, a well-known Medical Missionary in the Punjab (witness No. 46), who says: "As regards charas, I think there can be no such thing as moderate use, if we mean such use as will not leave any permanent bad effect on the system. In whatever quantity it is used, it is bound to be deleterious. I should say that in this country alcohol does more harm than charas." These views are supported by distinguished native medical men like Rai Bahadur Kanny Lall Dey, C.I.E. (Bengal witness No. 117), and others.

It is not within the province of the Commission to come to any definite finding on this evidence as to the comparative effects of alcohol and hemp drugs. The effects of alcohol were not within the scope of the inquiry. As has already been stated, it is only a minority of the witnesses who make the comparison. It was not asked for in the Commission's questions, and has only been incidentally made by certain witnesses. The Commission have not felt called on to test the correctness of the views of the witnesses on this point, as this could only have been done by a full inquiry into the effects of liquor. But it is important to observe the existence of these views. In this connection it is interesting to notice the existence in certain parts of the country of a belief among ignorant persons that "the attack on hemp drugs was due to a desire to foster European liquor" (see the evidence of Mr. William Almon, Assistant Collector, Abkari Department in the town of Bombay, witness No. 38); or, as another witness puts it, "the agitation is attributed to them who are anxious to encourage the spread of alcohol, *i.e.*, the persons who import and manufacture liquor" (V. K. Joglekar, Bombay witness No. 110). The existence of such misapprehensions can only be explained by the difficulty felt in accounting for an agitation against these drugs alone. The Rev. Mr. Laflamme (Madras witness No. 153) says: "Many are surprised to hear that the Government is concerned about a practice which is confined to so small a portion of the people as is ganja and bhang, and is not concerned about the widespread, rapidly increasing, and much more injurious habit of alcoholic drink, from which much greater harm results. I have been six years in the country, and engaged in village work during four years. Before entering on these inquiries I did not know the hemp drugs were in use among the people, and had only met with them in the temples." One witness of much experience (Khan Bahadur Kadir Dad Khan, C.I.E., Sind witness No. 4) says: "All classes of the people, from the most influential spiritual leader to the lowest beggar, will say that the British Government, while not interfering or prohibiting the use of alcohol in their own country, are stopping them here from the use of less intoxicating drugs, which they have been using from time immemorial, and which is also religiously respected."

491. Among the ancient physicians the evil effects of the drug are thus referred to by the author of the *Makhzan-el-Adwiya*:
Injurious effects of hemp drugs (history).
 "Afterwards the sedative effects begin to preside, the spirits sink, the vision darkens and weakens, and madness, melancholy, fearfulness, dropsy, and such like distempers are the sequel, while the seminal secretions dry up." Alluding to its popular use, the author dwells on the eventual

evil consequences of the indulgence: "Weakness of the digestive organs first ensues, followed by flatulency, indigestion, swellings of the limbs and face, change of complexion, diminution of sexual vigour, loss of teeth, heaviness, cowardice, depraved and wicked ideas, etc." Iban Beitar was the first to record its tendency to produce mental derangement, and he even states that it occasionally proves fatal. Taki-ed-din-Ahmad, commonly known as Makrizi, who wrote a number of treatises upon Egypt in the 14th century, states that in 780 Hijra very severe ordinances were passed in Egypt against the use of the drug; the famous garden in the valley of Dijoncina was rooted up, and all those convicted of the use of the drugs were subjected to the extraction of their teeth; but in 799 Hijra the custom re-established itself with more than original vigour. Makrizi states: "As its consequence, general corruption of sentiments and manners ensued, modesty disappeared, every base and evil passion was openly indulged in, and nobility of external form alone remained to these infatuated beings." Rumphius alludes doubtfully to the alleged aphrodisiac powers of the drug, and states that the kind of mental excitement it produces depends upon the temperament of the consumer. O'Shaughnessy in his introduction to certain experiments with hemp drugs remarks: "As to the evil sequelæ so unanimously dwelt on by all writers, these did not appear to us so numerous, so immediate, or so formidable as many which may be clearly traced to over-indulgence in other powerful stimulants or narcotics, *vis.*, alcohol, opium, or tobacco." O'Shaughnessy also refers to insanity occasioned by continued hemp inebriation as follows: "Before quitting this subject, it is desirable to notice the singular form of insanity which the incautious use of hemp preparations often occasions, especially among young men who try it for the first time. Several such cases have presented themselves to our notice. They are as peculiar as the 'delirium tremens' which succeeds the prolonged abuse of spirituous liquors, but are quite distinct from any other species of madness with which we are acquainted. The state is at once recognized by the strange balancing gait of the patient, a constant rubbing of the hands, perpetual giggling, and a propensity to caress and chafe the feet of all bystanders of whatever rank. The eyes wear an expression of cunning and merriment which can scarcely be mistaken. In a few cases the patients are violent; in many highly aphrodisiac; in all that we have seen voraciously hungry. There is no increased heat or frequency of circulation or any appearance of inflammation or congestion, and the skin and general functions are in a natural state. A blister to the nape of the neck, leeches to the temples, and nauseating doses of tartar emetic with saline purgatives have rapidly dispelled the symptoms in all the cases we have met with, and have restored the patients to perfect health." This description of what O'Shaughnessy considered hemp drug insanity is of considerable interest. It is clear from his account that the symptoms were of short duration, almost typical, and that under treatment recovery was rapid. Such cases as those described by O'Shaughnessy are probably similar to the class of cases which have occasionally come before the Commission as having occurred while under observation of the certifying medical officer, and which on reaching the asylum were sane. They were probably more of the character of intoxication than of insanity. The curious point, however, in connection with O'Shaughnessy's account of hemp drug insanity is the absence of all information as to cases of longer duration, such as the class of

cases now met with in asylums and attributed to hemp drugs. And this omission is all the more striking because O'Shaughnessy had devoted special attention to the subject of hemp drugs, and indeed was the first to draw the attention of European practitioners to the value of the drug as a remedial agent; and it is hardly possible that if in his day any large number of persons insane from the alleged use of the drug had been admitted into asylums, he would have been ignorant of the fact and omitted to notice it in his account of the effects of the drug.

492. The action taken in Turkey, Egypt, Greece, and Trinidad in the direction of the prohibition of the use of hemp drugs will be noticed later (*vide* Chapter XIV.) The Commission have not before them material to enable them to judge of the statements regarding the effects of the drugs in these countries which formed the basis of the action taken. The note drawn up in 1890 by the Sanitary Board of Greece, on which the action in that country was based, contains a statement of the effects of the drugs as alleged to have been ascertained (*a*) by scientific inquiry in India and other "warm countries" by experts, among whom O'Shaughnessy is specially mentioned, and (*b*) from statistics of the Indian (and especially the Bengal) lunatic asylums. But there is nothing given in original of the views of any of the experts named. The views of O'Shaughnessy and the Indian asylum statistics are already before the Commission. They have therefore no new material in this note. They are compelled therefore to set it aside. For the same reason they find themselves unable to arrive at any opinion in regard to the recent controversy between Dr. Ireland and "Pyramid" in the *British Medical Journal* regarding the effects of the drugs in Trinidad and Egypt. They pass on, therefore, to the evidence available in this country.

493. In order to ascertain the alleged noxious physical, mental, or moral effects which are popularly believed to be induced by use of hemp drugs, the Commission considered it desirable in framing the questions on these points to clearly discriminate between the *moderate* and *excessive* use. The replies show, however, that in very many instances the witnesses have failed thus to differentiate between the two uses of the drug. This may be partly due to the somewhat inherent difficulty in discriminating or to carelessness on the part of persons who conducted the inquiries. The evidence, moreover, before the Commission clearly demonstrates that any departures from the normal in health, if associated with the mere mention of the hemp drug habit, is in most cases sufficient for "cause" and "effect".

494. In analyzing the replies given to question No. 45, which deals with the alleged noxious effects of the moderate use of the drugs, the Commission have thought it expedient to indicate first the view taken by the medical witnesses, and then to consider the tenor of the evidence given by all witnesses, including medical. In considering the medical evidence, the witnesses have been divided into three classes—(*a*) superior medical officers, including assistant surgeons; (*b*) hospital assistant class; (*c*) native practitioners who have not been trained in Medical Colleges, and who practise according to native methods. In estimating the value which should be

attached to the evidence tendered by each of these classes, the Commission consider it necessary to point out that the superior medical officers are by their training necessarily in a far better position to judge intelligently of the effects of the drugs than the other two classes; but the superior medical officer class comprises both European doctors and assistant surgeons. The former class—in all but exceptional instances—do not see nearly so much of the common or general dispensary practice as the assistant surgeons. Though at head-quarters they visit the dispensaries as regularly as possible, and see some of the patients and assist in prescribing, they are rather the “superintendents of the dispensaries,” and occupy generally a position more or less of “consultants” to the assistant surgeons, who actually conduct dispensary practice, and who diagnose the ordinary diseases and prescribe for them. It therefore appears to the Commission not unlikely that the views of most European medical officers may have been based on less direct contact with the people, and may have even been sometimes derived more or less from the assistant surgeons, their immediate subordinates. The hospital assistants as a class are much inferior to assistant surgeons in medical training and general intelligence; but they possess one advantage over the assistant surgeons. From their inferior social position they have a more intimate knowledge perhaps of the habits of the persons who frequent dispensaries, and who constitute the class to which hemp-drug consumers belong. The native practitioners probably have a still more familiar knowledge of the habits of the people; but the absence of systematic training renders them practically incompetent to form a true estimate of “cause” and “effect,” and their ideas of the noxious effects of the drugs are doubtless largely coloured by the popular and common views on the subject.

495. In respect to the evil effects—physical, mental, and moral—asccribed to the habitual use of these drugs, there is one feature that must strike any one who reads the evidence—that is, the large number of witnesses who do not answer at all the questions (No. 45 and No. 46) regarding evil effects. Among Europeans over one-half of the witnesses and among Natives about one-third abstain from answering. This must be due in large measure to the fact that the effects have not obtruded themselves on observation. This is what is stated over and over again by witnesses of the greatest experience. Of those who do answer, about one-half of the Europeans and one-third of the Native witnesses ascribe no evil effects at all to the moderate use of ganja and charas. Those witnesses who specially mention bhang do so, as a rule, to except it from their statement regarding the evil effects alleged to result from hemp drugs generally. These are not, however, very numerous. It is unnecessary to do more than take up the evidence regarding hemp drugs generally. About one-half of the European witnesses and two-thirds of the Native witnesses who answer at all the question regarding the alleged evil effects of the moderate use do so in the affirmative. But of these about one-half of both classes do not discriminate between the moderate and excessive use. They answer generally concerning the use of the drugs without drawing the line between moderation and excess. The number of witnesses who really give evidence to the effect that the moderate use of these drugs causes injury is therefore less than those who distinctly affirm that they do not, and forms but a small fraction of the whole body of witnesses. The evidence regarding the evil

General view of the whole evidence regarding evil effects.

effects of the excessive use is much stronger. The number of witnesses who are able to give information is indeed much smaller than might have been expected, and certainly indicates that the evil of excessive consumption is not widespread. But of those who do speak of the effects of excessive consumption, the very large majority state that they are evil. There are very few exceptional witnesses who allege that the excessive use does no harm. This is precisely what might have been expected. The excessive use of any intoxicant cannot be other than evil, and in the great majority of cases of excess the evil must be manifest.

496. The impressions which the evidence leaves on the mind are these. The evil results from the use of the drugs, whether moderate or excessive, have not hitherto obtruded themselves on observation. The only manner in which they have really attracted attention is in respect to asylum statistics. Apart from this, the majority of witnesses have not seen the effects at all, and know nothing about them. Of the minority, a few witnesses only have had their attention drawn to the effects before this inquiry began; the rest knew nothing of them until they began to search them out on receipt of the questions issued by the Commission. Some of these witnesses fail to remember that in going to public places, such as shops or shrines where smokers congregate, to ascertain the effects, they have taken measures to see not the moderate, but the excessive, use of the drugs. They thus fail to discriminate between the moderate and excessive use. Their evidence is as unfair a representation of the general effects of the drug as would be the evidence of men regarding the general effects of alcohol who judged of these effects solely from what they saw in public houses in England. Further, a great deal of the evidence is based upon a casual observation of very few cases of actual consumers. The number of cases seen by a witness is as a rule too few to form an adequate basis for definite opinion in respect to results. Yet there are but few witnesses who have seen and admitted this necessity for caution in the expression of opinion. Again, these cases are not only few in number, but as a rule very inadequately observed. There are very few of them indeed which have been known to the witnesses in any way intimately or for any length of time. Occasionally a case is mentioned of a relative or personal acquaintance who has been seriously injured by excess. But as a rule the cases mentioned have been cases of wandering mendicants, devotees at temples or strangers in the street, cases observed in a shop visited for the purpose, or in a collection of social wrecks brought together for the witnesses' inspection, or (in the case of medical witnesses) outdoor patients who have come casually for relief, and whose history is unknown. Clearly these are not cases on which satisfactory conclusions can be based. It must be impossible to say with anything like certainty what features from among the physical, mental, and moral features of the case are due to circumstances and causes antecedent to or independent of the hemp drug habit, and what (if any) may be reasonably ascribed, and in what degree, to that habit.

497. The result of this has been to make much of the evidence vague and unsatisfactory. It has been deemed necessary, therefore, to make an effort to sift and test the evidence. The necessity for testing it. It can hardly be considered necessary to question the view that excessive con-

sumption of these drugs indicates and intensifies mental and moral weakness, and must also be attended in all but exceptional constitutions with some visible physical injury. In regard to the moderate use, on the other hand, it would be quite wrong to accept without clear evidence the view that physical, mental, and moral injury resulted. In the absence of all physiological evidence of tissue changes being produced by these drugs, as they are produced by alcohol, it must be presumed, until the contrary appear, that the moderate use does not cause injury in any but the most exceptional cases. General experience warrants the admission that even the moderate use of such drugs may cause injury in exceptional cases owing to idiosyncrasy or peculiar diathesis. But as a rule, practically without exception, the presumption must be against injury from the moderate use. It is necessary then to weigh the evidence carefully so as to ascertain both whether there is any ground for believing that the moderate use is attended by evil results at all, and also what the particular results are which under any circumstances follow the use of the drugs.

498. Leaving out of account for the present the question of the connection of the drugs with insanity, there is no evidence of any weight regarding mental and moral injury from the moderate use of the drugs. Vague statements are made by a small minority of the witnesses regarding the stupidity or moral weakness of consumers whom they have met. But after making allowance for the fact that these observations have often been of excessive consumers, and for the lower mental and moral tone found generally among the lower orders to which the consumers, or at all events the smokers of hemp drugs, almost exclusively belong, there is little left in the evidence on which to base any opinion. The statements, too, are of results of an indefinite character and difficult to gauge or account for even with careful observation of the whole history of a case which is never possible in the instances adduced. Similarly, in regard to physical injury, there are a considerable number of vague statements made regarding "impairment of constitution," debility, emaciation, and other physical results of an indefinite character. These are largely accounted for by the mere fact that it is the poorer classes who ordinarily use these drugs. The poor cultivator or day labourer, who works hard and has nothing but a bare sufficiency of the necessities of life, cannot be expected to be sleek. Witnesses who have spoken of the use of hemp as making men thin and ill-nourished looking have admitted that their experience is based only on what they have seen of the poor, and that among the poor there is no specially marked appearance of this kind among the consumers of hemp. A similar fallacy is noticed by several witnesses. They point out that the drugs, which are more used in malarious and unhealthy tracts than elsewhere, are credited with the evil effects which result from the malarious and unhealthy conditions. As a matter of fact, the moderate consumer in such localities cannot, they say, be distinguished from the non-consumer. Then, again, a great deal of the vague evidence regarding the general injury to the constitution alleged to result from the use of hemp drugs is based on what the witnesses know of fakirs and wandering mendicants who consume the drugs. It is surprising to find witnesses who have had years of experience, whose work has brought them into close contact with the ordinary life of the people, testifying that they have never seen the drugs used except by religious mendicants, or known any of the effects of the

drugs except as shown in these classes. The mendicant, if he is ascetic, is naturally of a very spare and even emaciated appearance. The use by such mendicants is better known to the community generally than the use by any other class. The mendicant pushes himself to the front wherever he goes, and he has no hesitation in asking for precisely the thing he wants at the time. His use of hemp is therefore known to all who meet him. The life he leads—a wandering, homeless life of exposure and self-imposed privation and unrest—makes him as a rule thin and miserable in appearance. This appearance of the man, an unknown stranger, once seen perhaps as he passes through the village on his round of India, and never seen again, is often associated in the mind of the witness with the use of hemp and not with the life that really produces it. Allowance must also be made for the large proportion of cases of excess which must have been found among the comparatively few cases observed by the witnesses. The religious mendicant, for example, uses hemp drugs very frequently to excess; and this is the class which has hitherto attracted most the attention of the witnesses. As to the cases seen since the Commission's questions drew attention to the subject, it must be borne in mind that they are of necessity chiefly cases of excess. A Civil Surgeon asks a native practitioner to show him cases of the effects of hemp drugs, and the latter selects a broken down consumer from among his patients and produces him. The Civil Surgeon forgets that he has never himself in years of experience seen the effects of the drugs; he forgets that unless the consumption of hemp is most exceptional, or his friend's practice exceedingly small, it is only to be expected that there should be consumers among his patients; and he accepts the case as an illustration of the ill effects of the drugs. A Collector asks a subordinate to collect the consumers in a town or village, and the subordinate gets together the social wrecks from among the consumers of the drugs. No one would willingly join such a party for inspection except dissipated and degraded persons. Yet the Collector, without remembering this, and without enquiring how many of these social wrecks are also consumers of alcohol and other intoxicants or are addicted to other vices, thinks he has got hold of something tangible to enable him to judge of the effects of the drugs. Similarly the missionary, anxious to assist in this inquiry, goes to the drug shop, and sees the habitual excessive consumer at his pipe. Perhaps he finds him a lean, miserable man, though indeed some witnesses of this class have evidently been agreeably surprised at what they have seen. The witness is, however, led as a rule to ascribe anything of misery or evil that he sees to the drug about which he is interested without considering that he knows nothing of the history or circumstances of the men whom he thus meets for the first time. Such mistakes are not confined to European witnesses. Native witnesses of all classes have similarly searched out cases of evil results ascribed to hemp drugs, have obtained assistance in collecting them, have visited the places where consumption to excess is practised, and have often given what they have learned in this hasty inquiry as the undoubted and inevitable effects of the use of the drugs. The mere fact that they had no information to give without making inquiry, and that the effects of the drugs had never attracted their attention before in all their lives, should have warned them of the necessity for caution in generalising from the limited experience they had thus specially to acquire. The difficulty, if not impossibility, of judging under the circumstances in almost any case whether

the conditions observed were due to such general causes as poverty or malaria, or to such special causes as vicious or dissolute habits or even disease, quite apart from hemp drugs, has been too often forgotten. And the evidence is vague and unreliable. On the whole, then, it seems best to devote attention to clear and definite issues, and to discuss under physical effects the alleged causation of specific diseases like dysentery, bronchitis, and asthma which are frequently mentioned; under mental effects, the alleged causation of insanity; and under moral effects, the alleged connection between hemp drugs and crime.