QUASI-MEDICAL USE OF OPIUM IN INDIA AND ITS EFFECTS

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Contents

Chapter I

Historical and general

Papaver somniferum var. glabrum, from which opium is obtained, can be grown in any part of India. It is generally cultivated and does not occur in a wild state. Probably the plant is not indigenous to the country but was imported. It is clear from historical records that its introduction dates long before the advent of the British influence into India in the 17th century. The earliest mention of opium, as a product of India, was made by the traveller Barbosa in his description of the Malabar Coast in 1511, and the Portuguese historian, Pyres, in a letter to King Manuel of Portugal in 1516, spoke of opium of Egypt and Bengal.

An excellent account of the history of the cultivation of the poppy and of opium eating and smoking is given by Watt in his " Dictionary of Economic Products in India ".*

History of Cultivation of the Poppy in India

The first recorded instance of the cultivation of the poppy in India, in the 15th century, mentions Cambay and Malwa as the places where it was grown. It appears to have been cultivated first along sea-coast areas and to have penetrated later into the interior of the peninsula. So extensively was the poppy grown in the time of the Mohguls that opium became an important article of trade with China and other Eastern countries. During the reign of the Emperor Akbar in the latter part of the 16th century opium was made a State monopoly. The poppy was mainly grown in Agra and Oudh, and Allahabad, which comprised rather more than the area now included in the present state of Uttar Pradesh; it was also grown in Bengal and Orissa. After the fall of the Mohgul Empire, the State lost its hold on the monopoly and control over the production and sale of opium was appropriated by a ring of merchants in Patna. In 1757, the monopoly of the cultivation of the poppy passed into the hands of the East India Company, who had by that time assumed the responsibility for the collection of revenues in Bengal and Bihar. When Warren Hastings was appointed Governor-General, he brought the whole of the opium trade under the control of the Government. Since then, though changes have been made in the methods of control, of production, distribution, sale and possession of opium, the monopoly has been solely in the hands of the Government and a strict control has been exercised in the best interest of the people of the country as a whole. Under the East India Company and afterwards under the British rule, general cultivation of the poppy and the production of opium were prohibited; these being restricted to three centres :

(1) Patna or Bengal opium, from poppy grown in Bihar and Bengal;

(2) Benaras opium from the United Provinces;

(3) Malwa opium produced in a large number of States of Rajputana, including Gwalior, Bhopal, Baroda, etc. During recent years, cultivation of the poppy has been almost entirely limited to certain areas in Uttar Pradesh State.

Views on Consumption of Opium in India

In 1813 the first Bengal Regulation regarding opium consumption in India was passed and the Government enunciated their policy of restricting the habit of opium-eating by obtaining the " maximum revenue from the minimum consumption ", and declared that they were desirous of countenancing only to the narrowest extent possible a habit which they found themselves unable to eradicate.

Royal Commission. As a result of the activities of the British Society for the Suppression of the Opium Trade, a Royal Commission was appointed in 1893 to enquire into all the circumstances connected with the production and the sale of Indian opium and the Society recorded the opinion that the appointment of the Commission constituted the greatest and most solid forward step that the movement for the suppression of the opium trade had yet made, and considered that the Commission was " as fair-minded and impartial a tribunal as the Society could have desired to hear its case ".

The Commission examined over 700 witnesses from all sections of the population, including 161 medical men. It

* See also : " The cultivation of the opium poppy in India ", by S. N. Asthana, *Bulletin on Narcotics*, Vol. VI, No. 3-4.

examined the various uses of opium, medical and non-medical —namely, the eating of opium, its administration for the doping of children, smoking and use of preparations of decoction from the poppy capsules. It arrived at the conclusion that the smoking of opium and the use of the decoction were rare. The main uses were oral consumption of opium by adults, and administration to children.

The Royal Commission concluded from the evidence collected that the administration of opium to children in the Malwa States was an ancient habit. Abul-fazl, in his *Ain-i-Akbari*, recorded that the use of opium for infants was common in Malwa in the 16th century. Mothers in all ranks of life, while nursing their children, were in the habit of giving them minute doses of opium up to the age of two and a-half or three years. To account for this practice, various reasons were advanced, the principal being the prevention of diarrhœa and other infantile ailments. It was also supposed to correct certain undesirable properties in the milk. Perhaps the chief reason for its widespread use, however, was that by this means the child was lulled to sleep and the mother thus left at liberty to pursue undisturbed her duties in the home or in the fields. A few of the witnesses, chiefly missionaries, who appeared before the Commission were of the opinion that this practice was in part responsible for the high infant mortality then prevalent. The Commission, however, concluded that the age-long practice in the use of opium had resulted in the acquisition of a degree of skill in administering the drug, which must materially minimize the risk of accident, so that evident injury or accidental poisoning, though not unknown, were comparatively rare. The Commission's opinion was that it was impossible to believe that this custom should have been handed down for many centuries amongst a people whose general fondness for their children was well known if it were as injurious as some people seemed to think.

The Commission, on the basis of evidence collected, found it proved beyond reasonable doubt that the prevalence of the use of opium by adults was based first on the universal tendency amongst mankind to take some form of stimulant with which to comfort or distract themselves and, secondly, on the widespread popular belief in the medical or quasi-medical efficacy of the drug. In every part of India, the Commission found witness after witness testifying to the belief in opium as the common domestic medicine of the people.

It was taken in disorders such as rheumatism, diabetes, chill and diarrhœa. As a general stimulant, opium was used in cases of failing strength after the age of 35 or 40. Medical practitioners examined by the Commission were unanimous in their view that the drug was generally used in moderation with beneficial results as a stimulant by those past the middle age. A considerable number of witnesses were of the opinion, from personal experience, that they had derived benefit from the habit. Their experience and vigour were enough to satisfy the Commission that they had suffered no perceptible harm from it, and this was even true of many who admitted that they were in the habit of taking what were considered to be excessive daily doses.

The Commission found strong evidence in favour of moderation on the part of the consumer, and of his general immunity from any evident ill effects caused by the habit. Many of the higher officials of the Government stated that the effects of habitual indulgence in opium by their subordinates had never come to their notice as a reason for dismissal or degradation, though the effects of alcohol had often forced themselves on their attention in this respect. Similar evidence was given by medical officers of experience, both regarding their own subordinates and the men examined by them on behalf of a large railway company and of emigration agencies in Calcutta. The Commission also quoted the evidence of the actuary of the largest insurance company in India in those days that, after twenty years' experience, the company had decided that it was not necessary to impose any extra premium on the lives of moderate opium eaters. They concluded that the use of opium among the people of India in the British Provinces was, as a rule, a moderate use, and that excess was an exception and was condemned by public opinion. The number of people taking opium was, in the opinion of the Commission, a very small percentage of the entire population, and no extensive physical and moral degradation had been caused by the habit.

Ceremonial and social uses of opium. The Commission also referred to the ceremonial and social uses of opium. Amongst the Rajputs, it was considered obligatory as a matter of ancient custom to consume opium on certain religious festivals, such as Holi, Dussehra and the Aksha Tij, at betrothals, marriages, the birth of sons, periods of mourning, etc. The Commission expressed the conviction that it would be impracticable to limit the consumption of opium in India to strictly medical purposes, and expressed the strong opinion that such a measure would be even more clearly impracticable in the case of the Protected Princely States. It could only be enforced, as far as any real enforcement might be possible, by the employment of an army of spies and informers and by a constant intrusion into the domestic concerns of the people. They had convincing evidence to support the view that the habit was not opposed to popular sentiment at that time and that any attempt to suppress it would be in complete opposition to the wishes of the people. They thought it highly improbable that prohibition, if imposed, could be effectually enforced, even if extensive establishments were maintained by the Government of India for inspection and for detection of breaches of the law.

The Commission came to the conclusion that no distinct line could be drawn between the medical uses of opium and those which could not properly be called medical. They pointed out that the chief obstacle to the enforcement of prohibition was to be found in the disposition of the people of India, a matter on which they had specially been required to report by the Order of Reference. From the evidence taken by the Commission, they were convinced that the great mass of public opinion was entirely opposed to prohibition, as an unnecessary restriction on individual liberty and an interference with established native habits and customs. They believed that even those who were not addicted to opium, and who did not belong to the race which commonly use opium as stimulant, regarded the proposal with dislike and suspicion. The use of alcohol was admitted by all Mohammedans, and with few exceptions by all Hindus, to be directly prohibited by their religion. On the other hand, the use of opium was generally considered to be permissible by Hindus, and by all but a few Mohammedans in India. Many able and leading members of the Indian community, Hindu and Mohammedan, not themselves addicted to the opium habit, expressed in their evidence an apprehension that prohibition of the non-medical use of opium would result in an extension of the consumption of alcohol.

Chapter II

Policy of the British Government of India with regard to the use of opium

The views of the British Government of India on the opium policy followed practically up till 1947 are contained in the famous despatch of Lord Harding's Government in 1911, which had become as it were a *locus classicus* of the Government of India on the subject. It reads as follows : " The prohibition of opium-eating in India, we regard as impossible, and any attempt at it is fraught with the most serious consequences to the people and the Government. We take our stand unhesitatingly on the conclusions of the Royal Commission which reported in 1895, viz., that the opium habit as a vice scarcely exists in India, that opium is extensively used for non-medical and quasi-medical purposes, in some cases with benefits, and for the most part, without injurious consequences, that the non-medical uses are so interwoven with the medical uses that it would not be practicable to draw a distinction between them in the distribution and sale of the drug, and that it is not necessary that the growth of the poppy, and the manufacture and sale of opium in British India, should be prohibited except for medical purposes. Whatever may be the case in other countries, centuries of inherited experience have taught the people of India discretion in the use of the drug, and its misuse is a negligible feature in Indian life. Even if it were possible to suppress the cultivation of opium in India, geographical and political considerations would place it beyond our power to prevent illicit import and consumption on a serious scale."

Such was the consensus of opinion at the beginning of the 20th century. Soon, however, the public began to appreciate the harmful effects of the use of this drug, and the policy of the Government began to be criticized.

Public opinion in India against the use of opium. Public opinion in India began to evince great interest in the question of the use of opium. A series of articles were published in the *Servant of India.* An unofficial enquiry was conducted in 1924 by the National Christian Council in India, Burma and Ceylon and its results were compiled by the Reverend W. Paton. His conclusions were exhaustively examined by the Government of India, who decided that they contained nothing that would justify a radical modification of their policy, or that weakened the main conclusions of the Royal Commission on Opium.

Other unofficial investigations were made on behalf of the Indian National Congress with special reference to Assam, where opium was widely used by the people. The All-India Congress Committee in 1924 also passed a resolution stating that the opium policy of the Government of India was contrary to the moral welfare of the people of India, and expressed the opinion that the people of India would welcome the total abolition of the opium tariff for purposes of revenue and that the production of opium was out of all proportion to the medical requirements of India. Among the many petitions presented to the International Opium Conference of 1925 in favour of the world-wide restriction of the traffic in narcotic drugs to the needs of medicine and science was one from India signed, among others, by Mahatma Gandhi and Rabindra Nath Tagore.

In his book *Narcotics in India and South Asia* published in 1930, H. C. Alexander has described how, through the efforts of Mahatma Gandhi and Congress leaders in 1921 and subsequently, the most remarkable reform was achieved in Assam. Referring to the national leader's demand for immediate prohibition, Alexander says : " The official already quoted and some other Europeans I met declare that this would mean the death of thousands of addicts. This seems incredible. I spoke to a prison medical officer, who told me that many opium addicts go to prison, and he never allows them any opium there; in many years' experience, he had only once thought it wise to give a dose for two or three days. For the first few days, he said, the addicts feel very miserable and think that they will die; they continue in a bad state for about a month; after three months without opium, they are entirely new men; robust and strong, hardly recognizable even by their own wives. Testimony to the same effect was given before the Jubbulpore Opium Enquiry Committee; only 5% of the opium addicts who go to prison require the drug, and even they are broken of the habit within a fortnight. Col. R. N. Chopra's account of ' withdrawal symptoms ' is almost to the same effect. The essential thing is that a man should know that his source of supply is cut off. Then he will soon get rid of the craving."

It was concluded that " the commonest cause of opium taking was the association with and example of other addicts ". Disease came next as a cause. Alexander felt convinced that " in parts of the East, especially in areas, whether large or small, in which there is heavy consumption of opium, a strong anti-opium sentiment exists, based on knowledge of the evil effects of the drug and based, too, on a type of puritanism that is wholly indigenous, and which seems to me to rest on a much more profound philosophy of life than the puritanism that survives in the West ".

In 1925, a resolution was introduced in the Council of State recommending to the Governor-General in Council that " early steps should be taken to see that as far as possible only the medicinal use of opium should be countenanced in India ". The Government expressed the view that " any country importing Indian opium can at any moment say that it requires more Indian opium, and the Government of India will not be influenced in the least by any financial considerations. Prohibition can be justified if there are no uses of an article which are defensible; it can be justified if there exists a social evil of such dimensions and of such a character that it cannot be remedied ", and suggested that the policy of the Government should be not prohibition but temperance. The danger of smuggling, the difficulty of putting down illicit cultivation, the difficulty of the Princely States, and the danger that people might be driven to the use of other types of drugs far more deleterious were real. " The danger of over-legislation against opium is that difficulties may be placed in the way of people obtaining it when required medicinally without the prescription or orders of a recognized medical practitioner." The resolution was not passed by the Council of State.

Thus it appears that, whereas various public bodies at various times agitated for the prohibition of opium consumption, the British Government of India, backed by the medical and expert advice at its disposal at that time, held the view that, though they were prepared to take all effective steps to minimize the consumption of opium, they did not find it possible to prohibit its use altogether.

International criticism of the British Indian Government's policy. Use of opium in India evoked much criticism at this time in international circles, especially from America. The policy of

the Government of India in this respect was attacked not only on moral and health grounds, but also on the score of the illicit traffic which was alleged to have originated from India.

The question as to what should be considered " legitimate use " of opium was thoroughly discussed at the Conference leading up to The Hague Convention of 1912, but the Convention did not define such use, and merely provided for effective State control on the production and distribution of opium. The American delegates to the Opium Advisory Committee in 1923 tried to circumscribe the scope of the expression " legitimate use " as intended to include only the requirements for medical and scientific purposes, but from the very beginning, the Indian delegates took the stand that the use of raw opium according to the established practice in India, and its production for such use, were not unlawful under the Convention. In explaining the attitude of the U.S.A. Government towards the Indian reservation, the U.S.A. representative said that he did not desire to discuss questions of purely domestic legislation in connexion with the use of opium, but that the U.S.A. Government did not consider any international traffic in opium for other than medical and scientific purposes to be legitimate except under the conditions explicitly laid down in The Hague Convention.

At the Second Geneva Conference again, the American and some other delegates desired to prohibit the production of raw opium except for strictly medical and scientific purposes by redrafting Article I of The Hague Convention. By limitation to strictly medical purposes, the American delegation intended, as they explained later, limitation to the prescription of medical practitioners holding European or equivalent qualifications. Such medical practitioners were few in number in India and the American proposal would therefore have caused great hardship by *inter alia* precluding all possibility of recognizing practitioners of the indigenous system of medicine. India, therefore, could not agree to the proposal even as a guiding principle. There was a wide divergence of opinion among the delegates on the American proposal, and the text as ultimately adopted had no reference to the restriction of production to medical and scientific needs only. America, however, continued to press its viewpoint.

In 1944, the U.S.A. Government suggested that the British Government should give immediate consideration to the advisability of taking steps, with a view to an announcement at the earliest possible moment, that the use of opium for other than strictly medical and scientific purposes should be stopped. In consultation with the Government of India, His Majesty's Government replied that every effort would continue to be made in future, as in the past, strictly to control the production of opium in accordance with treaty obligations, and explained the circumstances under which opium-eating was tolerated in India. It was also emphasized that it would not be practicable, wise, or indeed humane, to limit the consumption of opium to medical and scientific purposes. The post-war plans for increased provision and wider distribution of medical facilities throughout India would take considerable time to materialize, and the question of finding a suitable substitute, if indeed one could be found and made available, presented considerable difficulty. In the circumstances, the Government of India were of the opinion that a drastic change in the internal policy of toleration of the moderate use of opium under proper Government control was not possible.

Taking note of the general feeling both in India and abroad, the Government of India, however, started to take positive steps towards reduction of production and consumption of opium in the country.

Prohibition of opium-smoking. In November 1946, the Government of India, in consultation with Provincial Governments and Indian States, decided to prohibit altogether the smoking of opium in British India, exception being made only in the case of existing addicts so long as they survived, and subject to their producing medical certificates in terms prescribed. An announcement in the form of a Government resolution in these terms was made on 20 November 1946. The provincial Governments were asked to take steps to implement the decision announced by the Government of India wherever necessary and action in this behalf was taken by them either by legislation or by amending their rules. The Indian States generally followed these lines.

Prohibition of opium-eating. Later, in deference to international opinion, the Government of India accepted and declared as their policy " the prohibition of opium production except for medical and scientific use " and that they would " endeavour to give effect to this policy at the earliest possible date compatible with effectiveness ". An announcement in these terms was made by India's delegate to the fourth session of the Economic and Social Council, held in New York in March 1947. Similar views were expressed by India's delegate to the second session of the United Nations Narcotics Commission in July–August 1947, when it was stated that the " policy of the Government of India on exports had been under revision, and its present policy was definitely to discourage cultivation except for medical use. The Indian Government was not interested in exporting opium for profit, and very little profit was actually made by the Central Government."

In the session of the Indian Parliament held in March 1948, this statement was reiterated. It was also announced that in respect of centrally administered areas the policy of prohibition had been accepted.

Progressive annual 10% cut in production and internal supplies. In August 1948, the Government of India requested the Governments of Provinces, States and State Unions to make a progressive reduction of 10 per cent per annum in their indents for the supply of excise opium, and the authorities at Ghazipur and Neemuch factories issuing the opium were similarly directed to cut down indents by 10% where such a cut had not already been effected (as compared to the previous year's supply) by the indenting Government. A corresponding progressive cut of 10% is being made in the area under poppy cultivation in Uttar Pradesh and the producing States and the State Unions have been requested to follow suit.

Chapter III

Use of opium in the indigenous systems of medicine and as a household remedy

From the very earliest times opium has been used in medicine. We have already referred to the use of opium by the ancient Greek physicians. Hippocrates, nearly four centuries before the Christian era, recommended the internal use of opium. Pliny gave a description of opium and its medical use; Galen spoke enthusiastically of the virtues of opium and the drug

soon found its way into Roman medicine. The Arabian physicians used opium extensively in their practice and there appears to be little doubt that it was through their agency that it was introduced into Indian medicine.

No exact statistics are available regarding the use of opium in hospitals and dispensaries in India, but, from a general survey made, it would appear that the use of opiates by the practitioners of Western medicine in this country is limited. While addiction to narcotics resulting from physicians' prescriptions is common in Europe and America, in the whole of a series of nearly 900 cases examined by us not a single individual was encountered who could attribute his habit exclusively to such a factor. The reason is that the practitioners in this country are fully aware of the consequences of such addiction and hesitate to prescribe opiates unless it is absolutely necessary and then only with great caution.

Opium in the Indigenous Systems of Medicine

Opium in Ayurvedic or Hindu medicine. No reference has been made in the ancient books on Hindu medicine either to the poppy or its products. The exact time at which opium was introduced into Ayurvedic medicine is difficult to determine. In the classical works of *Charaka*, *Sushruta* and *Veghbatta*, no mention is found of opium. The last of these works is believed to have been written in the 6th century A.D. The author and the commentator, Chakrapani Dutt, who, on his own statement, lived in the reign of King Nayapala of Bengal (11th century), does not mention opium in his work on the practice of medicine commonly known as *Chakradutta*. It is, however, contended that in an old work on toxicology by Narayan of Malabar about 862 A.D., the use of opium in the treatment of " rat-poison " has been mentioned.

In later works such as *Sharangadhar Samhita* and *Bhavaprakash*, opium is freely mentioned in the *materia medica* section and used in several preparations. According to all modern investigators of Ayurvedic chronology, Sharangadhar lived in the 14th century and Bhavamisra in the 16th century. It is probable therefore that opium came to India along with or a little before the Mohammedan conquest. It was fairly extensively used by the Hindu physicians in the 15th century. Later on, especially during the last two centuries, the use of this drug has extended and there are as many as eight preparations containing opium used by the Ayurvedic practitioners :

1. *Karpura rasa*
2. *Ahiphenasava*
3. *Brihat Gangadhar churna*
4. *Makandeya churna*
5. *Dugdha vati*
6. *Grahanikapta rasa* (Rasendra sara sangraha)
7. *Akrakaravadi churna* (Sarangadhara)
8. *Sambhunath rasa* (Bhaishajya tantra)

It may be stated at once that opium is not used to a very great extent in the Ayurvedic medicines at the present time. Its administration is mainly confined to two diseases, namely diarrhœa and dysentery, and it is only given in certain stages of these conditions. It is said to cure the concurrent derangements of the three humours, increase the sexual and muscular powers and produce stupefaction of brain. The curious fact is that Hindu physicians never made much use of the sedative and pain-relieving properties of opium on the human organism and even now it is said to be used only occasionally to relieve pain and spasms.

Opium in the Tibbi or Mohammedan medicine. In the Mohammedan or Tibbi medicine the introduction of opium naturally came from Arabian medicine, from which this system originated. The Arab physicians Razi and Arisina gave a detailed description of opium many centuries ago. It is described as an anæsthetic and its powers of alleviating pain were fully appreciated. The Tibbi physicians prescribe it for headache, hemicrania, pain in the eyes and ears, pain in the teeth, lumbago and pain in the joints. Not only is it given internally by them, but it is also applied externally in the form of paints. The astringent or constipating property of opium was responsible for its use in diarrhœa and dysentery. The Tibbi physicians believe that opium has hæmatinic or blood-regenerating properties. With regard to its action on the brain, they hold that at first it stimulates the brain temporarily and gives rise to sensations of pleasure and satisfaction, increase of physical vigour and a feeling of warmth. They attribute its continuous use leading to habit formation to these properties. The narcotic and sedative properties of opium were fully appreciated by these physicians and it was prescribed in mania, delirium and inflammatory conditions of the brain, both internally and externally. It was also used in catarrhal conditions of the mucous membranes, paralysis agitans, facial paralysis, epilepsy and other nervous conditions. The sedative action of opium on the respiratory tract was also appreciated and it was largely employed to allay severe cough, asthma and hiccough. The Mohammedan physicians also advocated it as an aphrodisiac as it was believed to lengthen the time of seminal discharge during coitus; it was prescribed also in spermatorrhœa. It is also believed to be an antiperiodic and is recommended especially in fevers of intermittent type. At the present time opium is used by the Tibbi physicians mostly in combination with other drugs in the treatment of diabetes mellitus. It will be seen, therefore, that, while the Hindu physicians knew little about opium and its properties, the Mohammedan physicians had a much more extensive knowledge of this drug and used it more extensively to relieve pain and in other conditions.

The following preparations of opium occur in the Tibbi *materia medica :*

1. *Barshasha* — An old compound of opium which is used even now in catarrhal conditions of mucous membranes, cough, delirium, epilepsy, diarrhœa, hæmorrhage, premature seminal emission, etc.
2. *Hub-i-pecheash* or dysentery pill used in dysentery.
3. *Hub-i-jadwar* — A renowned compound of opium used against catarrh, coryza, cough, diarrhœa and premature seminal discharge.
4. *Hub-i-siyah* or black pill. It is made into paste and is painted on the lids in conjunctivitis and ocular pain.
5. *Hub-i-sarfa* or cough pill.
6. *Hub-i-haiza* or cholera pill used in cholera.
7. *Kurs-i-massallas* or triple tablet used against headache and painful conditions. It is made into a paste and used as a paint.
8. *Hud-i-Mumsik* or aphrodisiac pill used against premature seminal discharge.

Investigations by Chopra (1928) show that, although opium became very popular in India and fell into the hands of

shopkeepers and itinerant quacks who made use of it for all sorts of conditions, its use in both the Ayurvedic and Tibbi systems was on the whole comparatively limited. This is borne out by other investigators also. In a memorandum presented to the National Christian Association of India, Burma and Ceylon, the Social Service League of Bombay (1924) said: " Medical practitioners following the Ayurvedic and Unani systems very rarely prescribe opium, and even when they think it necessary to use that drug, they do so in medicines prepared by themselves in most of such cases." On the other hand, it has been frequently said that Kavirajes and Hakims largely prescribe it and are responsible for the freedom with which it is resorted to in sickness by the people.

We have carefully examined this allegation and find that properly trained practitioners of the indigenous systems at the present time do not advise the use of opium to any large extent and, when they do use it, they do not give raw opium, but give it as a constituent of one of their preparations. We have enquired into the preparations commonly used by these systems and find that very few preparations containing opium are extensively employed by these practitioners. Out of 200 to 250 stock preparations of Ayurvedic medicines kept in the main dispensary of the Ayurvedic and Tibbi College of Delhi, we found only three preparations containing opium and, on going into the consumption of these particular preparations, it was found that they were very sparingly used. The same was found to be the case in the Tibbi Dispensary of that institution.

Opium as a household remedy. We have said that the amount of opium used for purely medical purposes in the indigenous system of medicine in India is very small, but it is largely used by itinerant quacks and shopkeepers who, because of its easy accessibility, and because of its well-known property of relieving pain and bowel conditions, advocate its use indiscriminately in a large variety of common ailments. Dr. Roberts, in his minute in the report of the Opium Commission, stressed the use of opium as a household remedy in India, but his conclusions even at that time were severely criticized and challenged. He said that the drug had been used for centuries and that the people were familiar with its internal and external use. The conditions in which it was used by the lay people were cough, bronchitis, asthma, diarrhœa, dysentery, colic, chills, hæmorrhoids or piles, recurrent febrile attacks, neuralgic troubles, malarial fevers and cachexia, rheumatic pains, diabetes, gravel, nervous troubles and indeed all painful and wasting diseases of every kind.

The use of opium as a prophylactic against malaria was also emphasized in his memorandum. The local consumption of opium in many parts was said to bear a close relationship to the prevalence of malaria. The Commission was informed by many witnesses that this extensive semi-medical use of opium was due to the fact that large masses of people were beyond Western medical aid, that the unrivalled power of opium in alleviating pain and producing sleep and of controlling intestinal fluxes which were so much dreaded, made people resort to it. It was said that not more than 1% of the population ever consulted a medical man and a great majority lived outside the reach of expert advice. Most of them consulted Vaids and Hakims who invariably gave them opium in bowel conditions or when there was pain.

These points were thoroughly investigated and, as already stated, it was found that properly trained practitioners of the indigenous systems do not use large quantities of opium in their practice. There was also no evidence in support of the view that opium was used more as a household remedy in those areas in which medical aid on Western lines was not available. Investigations in the Punjab showed that the consumption of opium was related more to the class of the population residing in an area than to facilities of medical aid in that area. In some districts of the Central Punjab, chiefly inhabited by the Sikhs, where a large number of dispensaries and hospitals had been established and ample provision was made for medical relief on Western lines, much more opium was used than in some of the northern districts which were inhabited by Mohammedans, whose religion forbids the use of narcotics. Observations in the field confirmed the fact that much of the household or semi-medical use of opium was due not to scarcity and expensiveness of qualified medical men, but to the prejudice which existed among ignorant people against Western medicine.

It was also not possible to confirm the assertion that opium was used much as a household remedy for its supposed prophylactic or curative effects against malaria. In some of the districts of the Punjab along the course of such rivers as the Jhelum, the Chenab and the Indus, where a virulent type of malaria prevailed and spleen index was very high, the consumption of opium was very small indeed, while in some of the comparatively dry and healthier areas the consumption was enormous. There was no prevalent belief among the rural population regarding the efficacy of opium in preventing recurrence of attacks of malarial fever though it undoubtedly ameliorated the symptoms.

Dr. Roberts suggested that possibly " anarcotin " or narcotin which occurs in opium and which, according to him, resembles quinine, may have anti-malarial properties. This alkaloid was tried in a number of cases of malaria but no clinical or experimental evidence was forthcoming to support the claim that it possessed any significant anti-malarial action. It is true that the people of India in former days had prejudice against quinine and other anti-malarial drugs of Western medicine and preferred to resort to other remedies which might be soothing but not curative. But the prejudice was not deep-rooted and was entirely overcome.

As regards the use of opium in checking debilitating factors such as diarrhœa and preventing chills, it is true that there was and there still is a widespread belief among the people regarding the efficacy of opium in bowel diseases and they use it either on their own initiative or on the advice of itinerant quacks. Sometimes the results are apparently good but occasionally they are disastrous.

The use of opium as a household remedy is ascribed to a belief said to be prevalent among the people that it gives protection against damp and that it wards off the approach of fatigue. These points were constantly brought up before the Opium Commission as arguments against restricting the use of opium to purely medical and scientific purposes. It was contended by competent authorities that to deprive the people of the possession of " such a wonderful household remedy as opium would be a terrible and wanton cruelty, as it was the only medicine of any value that is available to them ".

So far as the effects of the drug in keeping off damp and cold are concerned, the investigations of the authors in the Punjab particularly, and in other parts of India generally, show that opium was not much used for this purpose. The thickly populated areas along the course of some of the Punjab rivers are inundated every year for many miles on either side

of their banks and to the extent of four to five months in the year during the hot weather, on account of melting of the snows in mountains and later owing to the rains. Little or no opium was used in those areas although the inhabitants were constantly living in close proximity to water. The same was the case in many districts of East Bengal, where a large proportion of the population lives practically in water for many months in the year.

So far as the use of opium in warding off fatigue is concerned, careful observations have shown that opium undoubtedly dulls the individual's sensitiveness to fatigue by depressing his higher faculties and giving him a feeling of drowsiness, but it has no effect whatsoever in averting fatigue or increasing his capacity to work. On the other hand, it is a well-known physiological fact which needs no corroboration that the capacity of an individual to do mental or physical work is considerably reduced when he is under the influence of narcotic drugs such as opium.

It was obvious, therefore, that it would be no hardship at all to the people of this country if they were to be deprived of the use of opium, as far as its alleged use as protection against damp and for warding off fatigue is concerned.

Use of opium for veterinary purposes. It has been said, and reference has also been made to it in literature, that large quantities of opium are given to animals and that a considerable portion of the opium sold is thus used. It was believed to be given to elephants, horses, cattle, etc., and it was held that very large quantities were used in this way. Whatever might have been the case in the old days, our investigations in the Punjab and Bengal particularly and in other parts of India generally showed that the custom of giving opium to domestic animals was not at all common and is rare at the present time. With the exception of Afghan horse dealers who bring quantities of opium to give to their horses and of thieves and dacoits who administer it to their animals supposedly to enable them to endure heavy physical strain, it was hardly ever used. Its very high price precludes its being used in the large quantities which it would be necessary to administer to domestic animals in order to produce physiologic effects. The use of opium in veterinary practice is also not very extensive.

Chapter IV

Habitual use of opium by adults

The use of opium in India could best be discussed in three phases : first phase, until 1893 : no restriction on the production and sale of opium to the public, low prices ; second phase, 1893-1948 : leading to the present régime of restriction; third phase, present situation (this third phase is dealt with in Chapter VIII).

* * *

First Phase : until 1893

That the use of opium was prevalent in the time of Akbar is shown by references made to it by Abul Fazl in his *Ain-i-Akbari*. He states that even the Emperor occasionally indulged in taking opium and " Kuknar ", a beverage prepared from the poppy capsule. Most of the nobility of the court of Akbar and Jahangir used a beverage, composed of a mixture of hemp, opium, wine and kiknar, called " Charburgha ". It is a well-known fact that large quantities of opium were consumed in Oudh during the reign of the dynasty which ruled there until recently. The testimonies of European travellers confirm that in the 16th century opium indulgence attained considerable magnitude in India. It was mostly eaten, as no mention is made about opium-smoking.

Habitual indulgence in opium by smoking has always been considered a very uncommon practice in India (see Chapter VII). The general practice was to pound the drug and mix it with water. Such a mixture was known as " Kasumba " and was taken in the form of a drink. Mostly, however, it was taken in the form of a pill. The majority of the people who took opium habitually took it once a day, generally in the afternoon, but often it was taken twice a day—i.e., in the morning and in the afternoon. Rarely it was taken three times a day—i.e., morning, afternoon and night. Generally, crude opium purchased from the excise shops was used, but not infrequently it was mixed with such other ingredients as saffron, musk, sugar, etc., and then made into small pills.

That the habit of opium-eating was not confined to the nobility of the court but prevailed extensively among the people generally is clear from historical records. Dr. Hove, a Polish traveller who visited India in 1787 and spent much time in Western India studying the habits of the people, said that a beverage made by dissolving opium in water was commonly used by the people. The habit appears to have prevailed extensively among the population, but no authentic records are available to show the extent to which it existed prior to 1857 when the cultivation of opium was brought under control by the British Indian Government. From the general description given by various writers, it would appear that the opium habit was much more prevalent in this country during the 17th and 18th centuries than in the last quarter of the 19th century.

As long ago as 1735, Warren Hastings laid down the principle that opium was not a necessity of life but a pernicious article of luxury which ought not to be permitted, and " which the Government should carefully restrain from internal consumption ". Investigation by Watt (1881) showed that the consumption of opium had gone down considerably since the advent of British rule in India. There is, however, no doubt that use of opium was extensive and considerable. It has been said that so general was its moderate use that it may be likened to the use of beer, wines and spirits in England. It was said to be largely indulged by people over 40 to 45 years of age and even by people who by conviction were total abstainers from all intoxicants. It was said to sustain life and it did not in any way bring social stigma on those who indulged in it especially after that age. It was believed to stave off aches and pains of joints, to keep down cough, expectoration and diarrhœa, etc., common among the aged people. Its use was therefore not considered unreasonable. In younger people it was taken generally for disease or physical ailments and not generally on medical advice. Persons below 30 years of age indulged in it for its pleasure-giving properties, not infrequently with a view to excite the sexual instincts and prolong the sensual gratification. All classes of society and both sexes were said to indulge in it freely.

The practice of taking opium on ceremonial occasions such as marriages, deaths, etc., and on semi-religious grounds has also been mentioned. This might have been the case in certain small areas in parts of India such as Rajputana and

Gujerat, but the present authors did not come across it anywhere in the areas which were investigated by them.

Some writers have gone so far as to say that it was a necessity of life in tropical countries in that it afforded protection against fevers and the depressing effects produced by them. Gavit (1925), in his book *Opium*, speaking about India says : " Something like half the opium produced in India is consumed in India for pseudo-medical purposes and in the ancient practice of eating and drinking opium and almost universally feeding it to infants, as well as to livestock including elephants."

Be that as it may, there is no doubt that, in spite of its unrestricted availability and its low cost, the total consumption of opium in India at that time was infinitely smaller than in China and other opium-using countries in the East. This can easily be shown by comparing the figures of the excise revenues of various countries concerned. Roberts (1895), after carefully sifting the evidence before the Opium Commission, came to the conclusion that, taking India as a whole, it may be said that only a small minority, even of the adult male population, took opium habitually.

* * *

Second Phase : 1893-1948

The first comprehensive study of the problem began with the appointment of the Royal Commission in 1893 (see Chapter I above), but even the evidence placed before the Commission was of a general nature, dependent on personal experience of individuals and hearsay and, despite the investigations referred to in Chapter II, the medical and scientific aspects of the problem and the effects produced on the health by the habitual use of opium were unknown.

It was only in 1928 that Chopra and his co-workers took up a detailed study of indulgence in opium all over India and effects produced by it. They collected very useful statistics of consumption from the excise records of different parts of the country and from their own work in the field, to gauge the extent of the opium habit in the country during this period. They were forcibly struck by the fact that the habitual use of opium was not nearly so common in India as might have been imagined from some of the publications dealing with this question. Its incidence among various peoples was very irregular and although there were certain areas and certain classes of the population which were badly affected, these formed a very small minority. William Paton (1924), of the National Christian Council, after carefully sifting the evidence obtained by the Council, said : " Taking the country as a whole, it is comparatively rare."

The habitual use of opium was not nearly so common among people during the period when life begins to show signs of decline as it was said to be during the end period of Phase I. The considered opinion was that, although there were many people who took small doses—$\frac{1}{2}$ to 3 or 4 grains a day—when they had passed the age of 45 or 50 and when their vitality was on the wane, this was by no means a common practice in most parts of India. If the accounts of the prevalence of the habit given by writers of the last century (during Phase I) are true, there must have been an enormous decrease all around in the use of opium in India. Investigations in the Punjab showed that in the central districts of that Province, populated chiefly by the Sikhs, where the consumption of opium recorded is perhaps the highest with the exceptions of Assam and Calcutta, the percentage of habitual consumers was less than 1% of the total population. In most of the other districts of that Province, the consumption of opium was not above the standard of 12 lbs per 10,000 of population per annum laid down by the League of Nations for strictly medical and scientific purposes. The proportion of people indulging in the habitual use of opium was not much more than 1 in 50,000 in most places.

A detailed study of consumption figures by district throughout India carried out by Chopra (1928) showed that, while there were large tracts in the country where opium consumption was even lower than the League of Nations standard, there were others where it was very high. The Government, however, were taking very great interest in these areas and had appointed local committees to enquire into the causes of the high incidence of addiction there and to make recommendations with a view to their eradication. These committees submitted their reports and suggested such measures as compulsory registration of addicts, further raising of price, stricter regulations regarding retail sale, sale on medical certificate only, etc. These were gradually introduced.

From the study of the statistical and other records and from his own work in the field, Chopra concluded that only a small fraction of the population of this vast country indulged in opium habitually. It was also shown that the habit was on the decrease on the whole, and that it certainly was not spreading. These investigations also showed that during the period 1920 to 1940 addiction had decreased much more rapidly than in the years previous to that period. This is also borne out by the fact that the quantity of excise opium issued for consumption in British India including Burma was reduced to nearly half since 1911/1912.

1911/12 . . .	1,031,227 lbs	
1919/20 . . .	855,721 lbs	
1925/26 . . .	600,784 lbs	
1947/48 . . .	566,456 lbs	(excluding Burma, but including the Princely States).

It was concluded from these observations " that the factors which have been chiefly instrumental in reducing the consumption of opium in India are decrease in its production and increase in its price ".

Causes leading to the use of opium. Under the first group come all those who resort to the drug because they find that it gives them relief from certain diseases or minor ailments from which they suffer. Pain and disease seem synonymous in the conception of many people and as opium relieved pain this had given rise to the popular belief that opium was a panacea. Most of the people were their own physicians, because proper medical aid was not available or was too expensive for the regular and protracted treatment required for some of their ailments. Opium was often taken on the advice of a friend, a relation or a quack to relieve some obstinate complaint. This relief was more often obtained than not and the habit not infrequently was formed and persisted with the result that soon the sufferers became slaves to it.

A considerable portion of the population resorted to very primitive methods of treatment and this was very largely responsible for the use of opium as a household remedy. They made use of opium, failing to realize the fact that it was only a palliative and had no curative action. The word

cure is not clearly defined in their minds; temporary disappearance of a distressing symptom is considered to be a cure, and the dose is repeated again and again. Most of them start with a small dose and stick to it. For many of them the euphoric action of the drug apparently has little or no attraction, the relief of the ailment being the paramount consideration. A comparatively small number of this group, however, fall victim to the euphoric action of the drug and increase the dose in the same way as an addict who has contracted the habit purely for its euphoric action.

In the series of nearly a thousand cases studied, as many as 40 or 50% of the addicts came under this category. The diseases which figured most commonly amongst this group were of a minor character, the commonest being pain of a neuralgic type, joint pain, digestive and respiratory affections, diarrhœa, and cough. In the whole of this series there was no single case of severe or incurable disease for which opium was taken on medical advice.

The habit in all these cases was by no means as innocent as has been described. In a number of these individuals the habit thus formed developed into a vice and the drug was taken as a panacea to alleviate the physical and mental ills which had resulted from the life these people had been living. Even those individuals who started the drug purely for the relief of ailments and pain not infrequently began to feel pleasure and comfort from its anodyne effects, and were likely to continue its use even when their condition was relieved. In fact it may be said that, if the exhilarant and stimulant effects of opium were entirely left out (leaving only the physical and pain-removing effects), 95% of the addicts would not use it. Our experience was that relapse, in cases of most of the addicts who had conscientiously tried to give up the habit, was not due so much to ill-health as to the insatiable desire to experience the pleasurable effects of the drug. There was, however, a very small minority of individuals in whom the habit was acquired purely on account of physical disease and discomfort, there being no psychopathic taint. In them the habit could be easily eradicated if the condition was relieved.

The second group comprising about 20 to 30% (in this series) included the persons for whom the strains and stresses of life had become unbearable and who took the drug to forget their worries and anxieties. Some of these were quite genuine cases and might have come from any strata of society. They were tillers of the soil, daily labourers, people following different professions or vocations in life. Social and economic conditions prevailing in the country often threw a great strain especially on the elder earning members of the family. People often had to work hard to a ripe old age owing to the loss of the younger earning members of the family. A number of these were also inadequate personalities, nervous and over-sensitive in type, highly strung individuals who were unwilling or thought they were unable to stand the physical or mental stress of life and resorted to opium with the idea of warding off fatigue or staving off the effects of old age so as to enable them to carry on their work. They fondly imagined that the drug would increase their physical powers and would enable them to do more work. From their point of view the apparent results were extraordinarily good. There is no doubt that opium, on account of its analgesic effects, does enable a person suffering from pain or a minor ailment to undergo physical exertion which otherwise would be impossible for him, but this only puts extra strain on the system and has a baneful effect on the constitution in the long run.

With regard to the effects of opium in staving off the onset of old age, it was represented to the Opium Commission by many witnesses that the habit was mainly one of middle life and was comparatively rare among young adults. The habit, it was said, began between 30 and 40 years of age, when vitality was on the wane and the premonition of old age came on. This epoch, it was said, occurred much earlier in Indians than in Europeans. The use of small quantities of opium taken during this period of life was stated to have a beneficial effect on the longevity of the individual. This idea undoubtedly was very prevalent at one time, and a large number of people took small doses of opium ranging from 1 to 4 grains per day after they had passed the age of 50 and were convinced of its beneficial effects. Such is no longer the case. While in the series of cases referred to there were some old people who had taken small quantities of opium ever since they had passed the age of 50, it could not be said that opium was responsible for prolonging their life, as similar cases occurred among people who do not eat opium and perhaps with greater frequency.

The third group of addicts or the euphoric type was composed of those persons who took opium for the purpose of self-gratification; these in this series comprised about 15 to 30% of the total addicts. Although their occurrence was noted among the rural population, they were much more commonly met with in the cities because of the overcrowding and the insanitary surroundings which existed there and because of the lack of facilities for open air and healthful recreations. This type of addiction generally occurred between the ages of 20 and 35 and was on the increase both in cities and rural areas during this period while the other types showed a decrease.

As already pointed out, some used opium for its aphrodisiac action as it was a common belief that it increased the pleasure of the sexual act. It is a well-known fact that this drug stimulates the body to endure excesses of all kinds to which it is driven by mental depravity which it itself produces. Others belonging to the leisurely and idle classes started taking the drug for the mere fun of it. They tried the drug through sheer curiosity in periods of idleness and became addicted to it to escape the monotony of their life. Its use amongst this class may be said to be traditional, as ever since the time of the Mohguls it had been considered to be a luxury habit of the rich classes. They were the classes of people who fell an easy prey to the soothing effects of the drug and, appreciating the comfort it afforded them, readily developed the habit.

There was yet another type in which the psychoneurotic factor played an important part. These addicts generally were weak-minded individuals who developed the most vicious type of habit and who rapidly sank very low. In this group were also included a large criminal class who often started taking opium under the impression that it fortified them and enabled them to bear the physical and mental strain connected with their nefarious work. They often increased the dose and the euphoric factor became prominent in many of them. Not infrequently they also used other drugs such as *Cannabis*, alcohol, cocaine, etc. Our investigation in the jails showed that a large percentage of the criminal population in these places was addicted to opium.

Types of Indian Habitués to Opium. From a careful study of the large number of people who used opium habitually, Chopra (1928) concluded that Indian addicts indulging in small doses of opium were in no way different from addicts elsewhere. No person, whether an Indian or belonging to any other nationality, is innately addicted to this drug. It is a well-known fact that the basic factor underlying addiction to opium or to any other narcotic drug is in most cases some abnormality in the mentality of the individual. The causes leading to the use of the drug are the same all over the world. The reason for which the drug is taken is sufficiently convincing to the addict himself and he takes it in spite of its dangers. The reason is not physiologic or pathologic but generally of a psychological nature. The great majority of *habitués* in this country are not of the vicious type at all. They tell you that they take the drug for no other reason than that having once started it they do not feel normal without it. Life to them under the influence of opiates is brighter and their surroundings are more pleasant. Sensitiveness to the " pin-pricks " of life is dulled by it, they cannot feel happy without opium and this leads to the repetition of the dose.

A perusal of what has been said above will show that in the large majority of people who took opium, the use was always started for some disease or ailment or to strengthen the body against invasion of disease.

Chapter V

Administration of opium to infants

Incidence in Different Parts of India

That the custom of giving opium to infants prevailed in India there is no doubt. During the time of the Mohgul Emperor Akbar, prevalence of this practice has been recorded in the passages which occur in Abul Fazl's *Ain-i-Akbari*. Opium was given to infants because of its power of allaying diarrhœa and vomiting and of relieving pains such as colic, which often afflict children. According to Roberts, the administration of opium to infants was considered as part and parcel of the household and popular use of this drug. Its use as a household remedy for children's ills was prevalent in the United Provinces (now Uttar Pradesh), Rajputana and Malabar and other parts of India. William Paton, writing in 1924 about the use of opium in children, says, " in almost every part of India it appears that the custom of giving opium pills to small children prevails ". Usually it was not continued beyond the age of 2 or 3 years, but up to that age it was said that the custom was distressingly widespread. The real reason for which opium was given was to stop the child from crying and to ensure sleep when the mother was away at work. All sorts of virtues both prophylactic and curative, however, were attributed to the drug.

Some believed that opium acted as a stimulant and that the children became fat and robust if small quantities of opium were administered and would not do well without it. Others believed it to be preventive of many diseases, especially those of the respiratory and digestive tracts. It was also said to keep the child warm and to afford protection from cold. It was given to children especially during the teething period to allay diarrhœa, peevishness and salivation. Opium was also said to be given to appease hunger among the poverty-stricken masses and to keep the baby warm in cold weather on account of its heat-generating properties.

As far as Northern India is concerned, investigation by Chopra and co-workers (1934) showed that the custom was practically non-existent 40 years ago. In the Simla Hills it was found that opium was fairly extensively given to children, for the women have to work all day long in the fields and their customs forbid them taking children out of their homes until they are 2 years old. Besides, poppy was grown in those parts and raw opium was easily obtainable. In the Punjab, particularly in the Central districts, which are populated chiefly by the Sikhs and where the consumption of opium recorded was one of the highest in the whole of India with the exception of, perhaps, Assam and Calcutta, administration of opium to infants was rarely practised. In the United Provinces (Uttar Pradesh area), where opium is largely grown, the custom was prevalent in certain parts, and was showing signs of decrease in others.

From a rough general survey of different parts of India by these workers, it was found that, although opium was administered extensively to infants in some of the large industrial areas such as those of Bombay, Calcutta and the Uttar Pradesh, where women have to do long hours of work in factories, this custom was becoming progressively less prevalent. This was especially the case in the rural areas. It had entirely disappeared from many parts of India where it existed before and was rapidly disappearing from others. Even in industrial centres the doping of children with opium was rapidly diminishing. This was partly due to the educational work of infant welfare societies and partly to an increase in the price of opium. Indian mothers on learning the disadvantages and harm done by the drug to infants abandon the practice quickly. The belief that it was good for the babies' growth also rapidly disappeared as its evil effects were more and more impressed on the minds of the mothers. In Gujrat, Madhya Pradesh, the Maharashtra and the Deccan, where the custom was very prevalent at one time, an enormous decrease was recorded. Among the educated classes in cities and towns the custom has become extinct in most parts. In parts of Orissa, although the use of opium was very prevalent among adults, administration to infants was not common. In the Madras area this custom was also showing signs of decrease.

Doping of Infants

Investigation by Chopra and co-workers (1934) in the field revealed that the practice of doping infants with opium was generally begun during the first few weeks of the child's life, the earliest age being three weeks and the latest about three months. Occasionally, however, doping was started at a later age. In a series of cases examined by these workers it was found that in about 90% of infants the drug was started before the fourth week of their lives and that in only 10% it was started after this age.

In the rural areas, it appeared that the drug was always administered to infants who were weakly and ailing. Those infants who had no trouble during this period were rarely given the drug by the labouring classes. It was further found that the practice was generally discontinued when the child had attained the age of 2 or 3 years. A random sampling of a series of 100 infants showed that there was no child to whom the drug was habitually administered after the age of 3 years. There was, however, no hard-and-fast rule regarding the age when doping definitely stopped but the practice was generally given up when the child began to play about and could live on ordinary food such as rice, dal and vegetables.

Causes of Doping

For disease and minor ailments opium has always been considered a sovereign household remedy. As stated above it was specially given to children to allay diarrhœa during their teething period and the peevishness and salivation which accompanied it. There was a deep-rooted belief amongst the parents in many parts of the country that opium acted as a preventive against cough, diarrhœa, cold and other minor ailments. The palliative properties of the drug in these conditions cannot be denied, and the ignorant people considered it a necessity for their children and were generally quite unconscious of the harm it did.

A large number of parents started giving the drug on account of some minor ailments, and its frequent repetition led to its habitual administration to the children. The table below presents the principal causes for which the drug was started in 100 infants selected at random :

		Number of cases
1.	Cold with sneezing, coughing, watering of the eyes and nose	20
2.	Boils all over the body (called " charu " in the Punjab)	8
3.	Diarrhœa, particularly infantile diarrhœa with green stools	30
4.	Teething and other such troubles	10
5.	Colic and other pains	18
6.	Sore eyes, pain and watering of the eyes, otitis media with purulent discharge from the ear (opium is believed to dry up the discharge and allay pain)	10
7.	To cause loss in weight	1
8.	For polyuria and anuria	1
9.	For infantile convulsions	1
10.	As general tonic and euphoric	1
	TOTAL...	100

From the data presented above, it will be obvious that in 48% of the infants the drug was given as a cure for abdominal discomfort, diarrhœa, and colic; in 30% for the relief of catarrh of the respiratory passages and conjunctivitis, and in 10% of troubles associated with dentition. In only one child was the drug given because of its supposed virtues as a tonic.

Dosage : The dosage employed was generally very small and was said to be equal in weight to that of a poppy seed. Experience had taught mothers to keep the dose as small as possible, because infants usually develop tolerance to the drug very slowly. The dose was usually three-sixteenths to three-eighths of a grain (11 to 23 mgm) to begin with, and was gradually increased to obtain the desired effects; parents were likely to increase the dose whenever the child got an attack of some ailment such as diarrhœa, cold or cough. In the large majority of cases the dose was kept below one and a-half grains (90 mgm); in only a small percentage of children were large doses given.

The drug was generally administered twice daily, in the morning and evening in the form of crude bazaar opium. The usual practice was to buy a week's ration at a time and keep it in a small tin box. The size of about a pin's head was put into the mouth of the child, who was then put to the breast. In Bombay State, especially in Gujerat and Kathiawar, small pills were made which were given the name of *bala golis* or children's pills which were commonly sold by quacks. One of these was dissolved in a little water or milk and was given to the child. Sometimes, suckling mothers smear their nipples with opium and thus administer it to the infants.

Effects produced

The majority of the parents were unanimous with regard to the effects produced by the administration of the drug. They stated that, after the dose, the child becomes quiet, smiles, plays about for a while and soon goes off to sleep. When examined after the usual dose, these infants lay quietly sleeping or half-sleeping close to the spot where the mother was working. The narcotic effects generally last from 4 to 6 hours during which period the child remains undisturbed.

An important result of the practice is constipation. This, however, is desired and encouraged by the parents to save themselves the trouble of cleaning the child frequently. The general physical condition and health of the majority of the children examined was poor, but it is difficult to say how far this poor state of health and physique was due to the effect of opium, and how far to other causes—viz., insufficient nutritious food, unhygienic surroundings and general lack of care. There was no doubt, however, that, as compared with other children under similar circumstances who were not getting the drug, the children doped with opium looked leaner and more unhealthy.

The parents in many places fully believed in the beneficial effect of giving the drug to their children. This belief, they said, was based on the accumulated experience of many successive generations who had used the drug. The harmful effects of opium such as constipation and intoxication, which may be considered as the cause of poor health, were actually regarded by the parents as being beneficial and health-giving. There is no doubt that, despite the large doses they were receiving, some of the children did look quite healthy, but such cases were not common.

Deaths from over-dosage undoubtedly did occur but were very rare. Continued use of the drug appears to make the child more liable to attacks of epidemic diseases. Most of these children, enquiries showed, were constantly ailing and the mortality rate amongst them was comparatively high.

It was observed that children soon get addicted to the drug. If the dose was not given about the due time, crying, watering of the nose and eyes, refusal to take nourishment properly, and diarrhœa were the principal manifestations. All these symptoms subsided rapidly when the proper dose was given.

Physical Effects

Opium appears to hinder the normal growth of the child, probably on account of the attendant toxæmia. The children examined were as a rule small for their age, thin, anæmic and emaciated; their conjunctivæ were dull and pupils contracted. Conjunctivitis, corneal ulcers and opacities, otitis media with purulent discharge were frequent. About 40% of the children were found to be suffering from enlarged tonsils, adenoids and discharge from the nose. The tongue was often thickly coated, the abdomen protuberant on account of sluggishness of bowels and accumulation of fæcal matter and production of wind. The liver was often enlarged and palpable. All of them had a relaxed skin on account of paucity of subcutaneous adipose tissue and they were mostly under weight. The bones were prominent owing to wasting of the overlying muscles, and the chest was thin-walled and ribs prominent on account of wasting intercostal muscles. The cardiac impulse was forcible and the heart-sounds loud, often being audible all over the chest.

Weaning from Opium

The habit does not have the same hold over children as in adults, and in most cases the drug can be stopped without great inconvenience. The weaning of the child from the habit is generally done gradually and any resumption of it in later adult life is entirely disconnected from the use of the drug in childhood. When for want of a dose the child cries or becomes restless, a heavy meal of rice or milk stops the discomfort. The period taken for the complete withdrawal of the drug varies from a few weeks to one or two months. Irritability resulting from discontinuance of the drug is effectively controlled by the administration of two or three minims of tincture of belladonna with two to four grains of potassium bromide. The child is quieted down at once and may fall asleep.

It will be seen from the above that the reasons underlying the doping of children with opium in the large majority of infants were connected with belief in its quasi-medical properties.

Chapter VI

Quasi-medical use of *Post* (unlanced capsules of *Papaver somniferum*)

Poppy Capsules

There is little doubt that the merits of seeds of the opium poppy as a food were recognized much earlier than the somniferous property of the capsules. It is also certain that the soporific and narcotic properties of the capsules themselves were appreciated long before their recognition in its milky sap. The capsules have been employed in the preparation of soporific drugs or in the preparation of stimulating and soothing beverages from time immemorial. According to Watt, *Papaver somniferum* was grown in Asia Minor many centuries ago for its capsules, and the Arabs carried the dried poppy-heads to the Eastern countries including China even before the inspissated juice was taken and its properties made known to the inhabitants of those regions. The medicinal properties of the plant and its capsules were fully known during the early classic period of Greece and Rome. There are records to show that the Arabs instructed the Chinese to prepare from these capsules a soporific beverage and medicine before they knew anything about the properties of opium.

It will thus be seen that capsules of the poppy aroused the attention of the human race long before opium was known. Little wonder, then, that, after their narcotic and soothing properties were appreciated by those practising the healing art, they became known to the laiety who also made use of them for satisfying the almost universal desire which human-beings possess for a stimulant or a sedative.

Medical uses of poppy capsules. The capsules have been used in both the Ayurvedic or the Hindu medicine and the Tibbi or the Mohammedan medicine for many centuries as a sedative both for internal use and external application and are still used.

The " Hakims " or practitioners of Tibbi medicine prescribe them for headache, diarrhœa, dysentery and digestive troubles in children. They are used as a household remedy in many parts of India and are given during the teething periods by mothers to their children to keep them quiet. An infusion prepared from the poppy-heads is used as a soothing application for bruises, inflamed, excoriated and swollen parts. It is also used as an application for various forms of painful conjunctivitis, inflammation of the ears and other similar conditions. Fomentations with poppy-heads are even now applied to painful inflammatory swellings.

In China the physicians used poppy capsules freely in the early centuries of the Christian era. Most of the Lung dynasty medical writers extol the merits of poppy capsules, especially when combined with astringent drugs in the treatment of dysentery. The Chinese writer Wang-Shih, in his work *I-Chien-Fong*, says the effect of poppy capsules in dysentery is simply magical. Both the red and white forms of poppy were certainly described and used in the Chinese medicine in the 11th century before opium was known. A medical author of the Yuan dynasty (13th century) describes the preparations of poppy capsules as being a very effective remedy against dysentery.

Use as a beverage. Whatever may have been the case in the countries of its origin (e.g., Asia Minor), there appears to be little doubt that poppy-heads began to be used not only for their medicinal properties but also for euphoric purposes in India soon after the introduction of the poppy plant in the country. The plant was known as " Koknar ", the capsules were called *goza*, *khol-i-koknar* or *post-i-koknar* or simply *post* or *post doda*. In the time of the Moghuls a beverage made from the poppy capsules known as *Kuknar* was very commonly used throughout the country.

The beverage *post* is prepared by soaking the poppy capsules overnight or for five or six hours before use. These become quite soft and are then rubbed between the fingers in a small quantity of water till they are broken up to pieces. This process takes a long time and those who take the beverage enjoy this. In this way any alkaloid present in the capsule passes into water. The whole mass is then strained through a piece of cloth and squeezed till all of the solution comes through. This is then suitably diluted or mixed with sugar and forms the beverage.

According to Watt, the beverage *post* at present taken in the Punjab closely resembles *Kuknar*, which was a luxury among the Mohammedans in the time of Akbar. We have already referred to the beverage known as *Charbughra*, which was a mixture of wine, hemp, opium and poppy capsules. Many other references in the Moghul literature indicate the extent to which the habit of drinking *post* or *Kuknar* prevailed among the Indians during the 16th century and later. In the history of the Punjab during the time of the Sikhs there are many references to the use of the beverage, but it is not possible to know the extent to which it was habitually used. Since the introduction of restriction to the cultivation of the poppy, the temptation has been undoubtedly removed from the doors of the peasant and the habit has considerably decreased. Poppy-heads are obtained now with difficulty and in most parts of India the beverage *post* or *Kuknar* has become unknown. The use of poppy capsules or *post* even in indigenous medicine has become uncommon in this country.

Alkaloidal content of capsules. Since the quantities of alkaloids obtained from the capsules from which opium has not been extracted are so small as to be of no commercial value, no detailed analysis of these appears to have been done. Lyon of Bombay (1879) analysed poppy capsules from Malwa. He obtained 0.099% of the alkaloids soluble in ether, consisting apparently of narcotine, 0.023% of impure alkaloids soluble in benzol, and 0.033% of impure alkaloids soluble

in chloroform. No morphine apparently could be detected by the ordinary reagents.

Chopra and co-workers (1931) carried out a detailed analysis. One hundred and thirty-seven grammes of the powdered capsules gave 15.18 grammes of the alcoholic extract. This contained 1.05 gramme of the total alkaloids of which only 0.045% (or 0.673 grain) was morphine. About 50 to 60 capsules weighed 137 grammes and contained a total alkaloidal content of 1.05 gramme. The average dose is 5 to 10 capsules, which will mean about 1 to 2 grains of the alkaloids in each dose or 3 to 5 grains a day. This quantity would be quite sufficient to produce the effects for which the poppy-heads are taken.

It will be seen from these results that the poppy capsules contain a very small quantity of morphine and large quantities of narcotine, papaverine, codeine and other alkaloids which have a decidedly weaker depressant action on the central nervous system. The combination of alkaloids probably strengthens the effect of individual alkaloids.

Habitual use of capsules. In a study of 530 cases of habitual use of poppy capsules studied by Chopra (1930) it was found that the addicts generally belonged to the lower grades of society, the majority of them having very meagre means. Those belonging to better classes were few in number and were generally those individuals who had tried a number of narcotic drugs such as hemp drugs, opium, alcohol, cocaine, etc. An inquiry made in the Punjab showed that most of the addicts were Muslims belonging to lower classes whose main occupation was agriculture. A number of addicts belonged to the menial classes such as sweepers, water-carriers, hackney-carriage drivers, etc. No particular cause could be assigned as to why they became addicted to poppy-heads except that they were obtainable and that they were cheaper than opium.

The average dose of poppy-heads estimated from a large series of cases studied worked out to be 3 ounces per day. This was generally divided into 2 or 3 portions and taken morning and evening or in the afternoon also. About 8 to 10 average-sized capsules weighed about 2 ounces. A capsule when lanced gives about half-a-grain of opium on an average but we have already pointed out that, when the capsules from which opium has not been extracted are ripened and dried, they neither yield the same quantity nor the same quality of alkaloids. An average dose of poppy-heads, however, contains sufficient alkaloids to produce the effect which the drug produces. There were people who took as much as 16 to 20 ounces of capsules a day but this was very rare. As a rule the dose was kept below 10 ounces, by far the large majority taking between 2 to 4 ounces, equivalent to 3 to 6 grains of the alkaloids.

Quasi-medical use of post leads to habitual use. In the series of 530 *habitués* referred to above as many as 40.3 % took this drug for some disease or ailment which it was believed to cure. It was interesting to note that out of 214 cases who took the drug for some illness, the majority kept to very small doses of under 2 to 4 ounces. The commonest ailments for which the drug was taken were, in order of frequency, eye diseases, diseases of the respiratory system such as asthma, hæmoptysis, cold, cough, etc., aches and pains and finally the bowel diseases. It is evident that poppy-heads have never been taken for any serious disease.

Those who take *post* beverage habitually are very fond of company and always like to have friends or associates around them when taking the drug. They advise *post* as a panacea for all possible ailments and troubles. Most of them had contracted the habit by advice and even entreaties of other addicts who had derived benefit for some ailment or disease.

Effects produced. The symptoms and effects produced by opium and poppy-heads differ more in detail than in general aspect. They naturally differ with the dose taken, the duration of the habit and the idiosyncrasy of the user. On the whole it may be said that the effects of the capsules are milder and not so lasting as those of opium and for this reason capsules have to be taken more frequently. Poppy-heads contain morphine and codeine, and narcotine and papaverine in about equal proportions, but the amount of morphine itself is very small as compared with that in opium. Although most of the opium alkaloids depress the psychical areas, the action of morphine in this respect is much more powerful and the same is true of its analgesic effects. In fact papaverine, narcotine, and also codeine to some extent, act more as excitants than depressents and their stimulant action, especially on the psychical areas, appears to be a prominent feature of indulgence in *post* after its use is started for medical and quasi-medical purposes.

Within a few minutes after taking the potion, a feeling of ease, comfort and well-being is experienced. There must be some psychical element in this as the alkaloids would probably take 10 to 20 minutes at least to be absorbed from the gastro-intestinal tract into the circulation in sufficient quantities to produce their effects. There is undoubtedly a marvellous change in the individual soon after the potion is drunk. From a condition of lethargy, fretfulness, moroseness and peevishness, he passes into a state of gaiety and talkativeness. He looks happy, becomes very communicative and companionable. This state of affairs lasts for 1½ to 2 hours and gradually the agreeable feeling of elation passes into a state of depression, the person becomes drowsy and may fall off to sleep. The stage of depression is not nearly as marked as in the case of opium. The effects completely pass off in 5 to 8 hours. The excitement stage is undoubtedly more pronounced than with opium. The effect appears much more quickly, probably owing to the fact that the alkaloids are taken in solution and are absorbed more rapidly.

When the habit has established itself for a long time the *habitué* generally looks dull and sleepy, becomes slow of comprehension and inattentive. His gait becomes heavy, his movements slow, he is careless in dress and dirty in his habits. His speech is slow and hesitating, in monosyllables, jerky and his voice is husky as if he were talking in sleep. The only time when he brightens up and looks his normal self is when he has taken his potion, and for 2 or 3 hours afterwards. Even then his method of talking gives him away. He speaks as if in a dream; he pays little attention to what is said to him but goes on muttering to himself. The special senses are not directly affected but appear to be disturbed through impaired attention or heightened reflex irritability.

Even small doses—e.g. 5 or 6 capsules a day—appear to produce a marked physical deterioration when continued foe prolonged periods and the addict becomes mentally degeneratr and lazy. Probably the chronic constipation which is present in the majority of these individuals and the consequent intestinal toxæmia have a great deal to do with it. Even those addicts who took small doses could carry out their ordinary vocations only with difficulty.

The addicts say that poppy-heads do not upset their digestion, in fact they claim that it sharpens their appetite and they can eat more and digest better. They claim that their eyes feel dry, the sight is improved and cough and expectoration are decreased. It is said to dry all the excessive secretions. Some claim that it gives them relief from asthma. A drink of *post* in the evening after a hard day of toil refreshes them and gives them ease of mind and languor of the body.

Those who take capsules habitually are generally believed to suffer from sluggishness of the bowels and chronic constipation. The act of defæcation thus becomes difficult, so much so that the addicts sit for long periods and forget that they are in the act of defæcation. Constipation, however, does not appear to be so frequent in those who take *post* habitually as in those who take opium. The drug undoubtedly has a well-marked diuretic effect and those addicted to it micturate very copiously and frequently.

Habitual use of *post* makes the individual forgetful not only of himself but also of his surroundings. He appears to lose all idea of correlation of time and space; he forgets his environment and does not know what he is engaged in doing. He may sit in one place for hours together doing nothing, without feeling it. He may walk a few yards and think that he has travelled for miles or he may have walked for miles and think that he has walked only a few paces. He may go on doing hard work for hours without feeling it or he may sit idle for long periods. He loses the idea of correlation of touch, perception and localization and many stories are told about it. He is likely to become mechanical or automatic in his actions and appears to have no will-power. Once he starts doing a thing he will go on till he is reminded that it is time he stopped.

Physical, mental and moral effects. Habitual use of poppy-heads produces considerable psychical, mental and moral degeneration. In the Punjab a lazy, slovenly, dull and unintelligent-looking person is often called a *posti* (or one who indulges in poppy capsules). The *habitués* who have taken the drug for prolonged periods are, as a rule, spare and emaciated individuals with stunted growth and subnormal weight. They have a sallow, muddy appearance, sunken eyes and cheeks and are anæmic. Their eyes look dull and sleepy, they have heavy palpebræ and conjunctivæ. Advanced cases who have taken large doses look cachectic, have a dirty tongue, foul breath and give the impression of suffering from chronic intestinal toxæmia. The subcutaneous fat is absent and the muscle tissue is wasted so much that the dry skin becomes quite loose over it. The throat is dry, respirations are slow and shallow and the expansion of the chest is impaired. The pulse at the wrist is weak, slow and compressible; soft hæmic murmurs are not infrequently audible over the heart.

The mental effects differ somewhat from those of opium. The excitement stage is more prolonged on account of the smaller amount of morphine and larger quantities of the alkaloids narcotine and papaverine. There is a feeling of elation, exuberance and well-being, which manifests itself in speech and gestures. In this stage the addicts become very communicative and reveal all their secret thoughts. There is loss of responsible control over the mental processes, but the control of movements is not impaired as is the case with alcohol. The net results of the action on the psychic areas is unrestrained imagination which may take different directions in different individuals. In some it will produce excitement, in others drowsiness and sleep. The irritation of the nerve cells produces hallucinations which, though present in this addiction, are not so prominent a feature as in the case of cocaine. The effect on the addict who has taken the drug for long periods resembles a chronic poisoning of the nervous system, especially of the higher psychical areas, which alters the mental activity from a state of high irritation to a complete breakdown even to paralysis. The individual becomes dull, lazy and careless; he has a vacant look and his eyelids droop; the temper is often irritable and he gets excited quickly; his will-power and determination of mind and character are weakened. The addicts are generally feeble-minded individuals and are untruthful, selfish and self-centred.

Chapter VII

Smoking of opium in India

Note. — Although opium-smoking is not quasi-medical use within the usual meaning of this term, it has been considered advisable to include this chapter on opium-smoking in order to provide a comprehensive survey of all uses of opium other than those made with medical aid—i.e., other than consumption for strictly medical purposes. See also page 17 and especially the footnote on that page.

Introduction into India. Even up to the beginning of the 19th century no writer has recorded the smoking of opium in India, although it prevailed in China. Tobacco-smoking was introduced into India after the 16th century and it is not evident that, in the case of India as of China, opium-smoking was simply an outcome of tobacco-smoking. It is uncertain how this habit was brought into India but, fortunately, it never assumed such a menacing aspect as it did in China. The Royal Opium Commission of 1893 described the habit as " comparatively rare and novel " in India.

A careful consideration of the available data points to the possibility of introduction of opium-smoking in India by Mohammedan traders from Persia and Afghanistan. The stimulating and the narcotic properties of the drug, combined with the wonderful flow of ideas which occur early in the act of smoking, appealed to the easy-going, well-to-do section of society and the habit spread among them, particularly during the days of decline of the Moghul Empire. The habit of smoking opium, however, began to be considered disreputable and no self-respecting person would own to it. Besides, during more recent times restrictions were placed on it by law, and both these factors made an accurate survey of its incidence very difficult.

A study of the records, however, leaves little room for doubt that opium-smoking has always been an uncommon practice in India. That it did exist and does exist even now among certain classes is evident from the fact that the word " chandubas " or opium smoker is well known, and in some of the old Hindustani books very detailed and a somewhat exaggerated description is to be found of this habit and the effects produced by it. Opium dens were found till quite recently in many of the large towns in India, but the proportion of people who smoked the drug was very small. Its incidence among the people was very irregular and, although there were areas and certain classes of the population who were badly affected, these fortunately formed a very small minority.

Investigations in the field by Chopra and co-workers (1938) showed that the habit of smoking opium in one form or other was met with on a small scale in many of the large towns in India. The practice was almost entirely confined

to the poorer classes. It may be stated here without fear of contradiction that the habit of opium-smoking has considerably decreased in India during the last 40 years and as a result of stricter control measures may now be considered as almost eradicated. Opium-smoking, however, appears still to be practised in secret in some of the large towns among the lower strata of society.

Causes leading to opium-smoking

A large proportion of the habitual smokers studied by Chopra and co-workers (1938) in the tea gardens and forest areas in Assam and in the Central Provinces said that they took to opium-smoking because they had to perform strenuous work in an unhealthy climate. They believed that opium had a general stimulant action and increased their vigour and working capacity. It also kept off hunger and fatigue. These beliefs were responsible for the spread of the habit amongst the labouring classes in some of the tea gardens and the forest areas.

Race. Among the Mongolian races there appears to be a strong instinctive desire for a stimulant, and drugs possessing euphoric properties appear to have great attraction probably because, *inter alia*, they have the reputation of having aphrodisiac properties. The racial factor was in all probability responsible for the higher incidence of opium-smoking in Assam and Burma as compared with any other part of India. The high incidence in Madhya Pradesh was, however, difficult to explain.

Diseases. Sufferings produced by disease conditions are very commonly blamed for the habitual use of opium. The role of the disease factor was studied in detail in one series of smokers. This factor was present in more than one-third of one hundred smokers investigated. In a hot humid climate, such as is met with in Assam, where the incidence of cough, asthma, dysentery, typhoid, malaria, kala-azar and bowel infections was high, there was a widespread belief that the regular use of opium, whether by smoking or eating, acted as a prophylactic against, and also as a cure for, these diseases. On account of the power this drug possesses of depressing the respiratory centre, the irritative cough is certainly ameliorated. The effects upon the gastro-intestinal tract, particularly in diarrhœa and dysenteries and painful affections already referred to are rapid and very striking. In this series of cases, diseases of the respiratory system such as cold, cough, coryza, asthma, hæmoptysis, etc., were the commonest exciting causes of smoking opium. Next in order of frequency were aches and pains, such as sciatica, neuralgia, rheumatic troubles and fevers. Belief in its general tonic effects and its power of controlling symptoms of bowel diseases were minor exciting causes for indulgence. In most cases the use of the drug was often started by suggestion at the instance of a smoker and in no case was it begun on the advice of a qualified medical practitioner.

Fatigue and hard work. In quite a number of persons the habit was started to enable the addict to bear the strain and stress of hard work. In a number of others opium-smoking was started as a substitute for such habits as alcoholism and addiction to cocaine. These addicts stated that a few whiffs of opium satisfied their cravings for cocaine and alcohol and therefore the desire for these drugs was minimized with comparatively smaller doses of opium. All these individuals were weaklings of vicious temperament who were given to multiple drug habits and excessive drinking. The reason for substituting opium-smoking often was that they found it less expensive than cocaine or alcohol and as much if not more satisfying.

Association. The opium smoker should be regarded as an individual who acts as a focus of infection for susceptible individuals. In India ordinarily it is difficult to obtain prepared opium for smoking purposes, but once the acquaintance with habitual smokers is developed, ways and means of securing these preparations are found. The smokers as a rule do not reveal the names of the manufacturers and distributors of these preparations. When the habit is confirmed, the new consumer realizes his helplessness especially if he has had the misfortune of running short of the drug and experiencing the symptoms of sudden withdrawal. Very often he himself starts manufacturing these preparations and keeps a supply in hand in case of emergency. A smoker may have no money for his daily food, may be insufficiently clad, yet will manage to get his dope, as this is the only method of escape from the acute mental and physical sufferings produced during the period of abstinence. He will pawn or sell his personal belongings and those of his family and will try to get the drug even if he has to sacrifice all that he possesses in the world. The ravages caused by the habit in such persons are terrible and the moral depravity produced is indescribable.

Preparations used for smoking

The excise opium as it is sold in India in licensed shops is not suitable for smoking purposes. It is therefore necessary to convert it by certain manipulations into suitable preparations. This process requires certain equipment and takes a good deal of time. This fact is probably responsible for the existence of opium-smoking dens, as it is there that opium for smoking is prepared and sold.

In India two preparations of opium are generally used for smoking. These are *madak* and *chandu*. A third preparation which is rarely used in this country is opium dross.

Madak is much more extensively used in India than *chandu*, and in most parts of the country this preparation is smoked. Madak is prepared by mixing raw opium with water, which is then heated to boiling-point. The boiling is continued till a thick suspension is formed, impurities occurring in form of scum being removed. This is then strained through a cloth and mixed with charred leaves of *Acacia arabica* till it assumes the consistency of a thick paste. The mass is then rolled into pills which are available for smoking.

Chandu and chandul or clarified opium. This is a stronger preparation and was only used in India by persons who were heavy smokers, or by the Chinese smokers settled in this country. Chandu is prepared by boiling a strained solution of opium in water in a copper vessel till it becomes thick in consistency. As the concentration proceeds crusts form on the surface of the simmering mass. These are removed as they form, until finally a thick mass of the consistency and appearance of coal-tar is obtained. This is the " smokeable extract " and is the chandu or chandul of opium smokers. The chandu commonly smoked is often adulterated by addition of dross scraped from chandu pipes which has a high morphine content.

Opium dross. Opium dross is the residue left in the pipe when either chandu or madak is smoked. The quantity of the dross produced depends on the type of pipe used and the method of smoking employed. Usually the amount of dross

produced corresponds to a maximum of 60% and a minimum of 40% of the quantity of the prepared opium smoked.

The dross is usually prepared for smoking by mixing it with water and subjecting it to heat till it assumes a thick consistency. This prepared dross is smoked in the same way as prepared opium and leaves a residue in the pipe which is called second dross (in the Netherlands Indies *dit-jingko*). The second dross is often consumed in very much the same way as the original opium dross. It is generally believed that the smoking or ingestion of dross is more harmful than the smoking of prepared opium. The reason for it is not known, but it is possible that the high alkaloidal (morphine) content of this substance is responsible for this belief.

Modes of indulgence. Different kinds of apparatus have been improvised in various parts of the country for smoking opium. The one commonly used consists of an elongated wooden pipe, made from bamboo or desert acacia, 12 to 18 inches in length and three-quarters of an inch in diameter. One end fits into a small china or earthenware bowl, and the other end is the mouthpiece.

This method of smoking madak is simple. The bowl is slightly warmed and the madak pill is placed in the bowl. A glowing charcoal is applied and simultaneously several pulls are made through the mouthpiece, the smoke being deeply inhaled into the lungs.

When chandu or clarified opium is smoked, the technique is somewhat different. The bowl is at first warmed by holding the pipe over the brazier so that the mass of opium placed in it becomes sticky and begins to melt. The temperature to which the bowl is heated is of importance because if it is too high there is danger of the opium melting rapidly, becoming charred, and emitting a disagreeable odour. After the bowl is properly warmed, a small piece of chandu or clarified opium is placed on one side of the hole leading into the pipe or just over it. In the latter case a hole is made through the opium mass with a stylet. The bowl is again warmed and, as the opium softens, it is stirred with the stylet until it forms a thick coffee-coloured mass. A piece of glowing charcoal is then held with pincers close to the opium and the smoker applies his lips to the other end of the pipe. When the opium is on the point of melting, he actually places the burning coal on it, and gives a few rapid and deep pulls inhaling the smoke into the lungs. The actual process of smoking lasts less than a minute, and then more opium has to be taken if it is desired to continue smoking. The smokers inhale the smoke deeply and after each pull at the pipe, sweet food, such as bananas, sugar-cane or sugared tea, is often taken.

Classes of opium smokers. Three classes of Indian opium smokers may be described:

(i) *Occasional smokers.* This class is ordinarily addicted to opium-eating, but indulge in a smoke, a pull or two of madak or a few whiffs at a chandu pipe occasionally when an opportunity offers itself, for example when they are in the company of opium smokers. These persons are as a matter of fact aware of the evil consequences of over-indulgence and have enough will-power to limit the amount of smoking. Properly speaking these individuals are not active smokers, but may be potential ones who may take up the habit any time when they have sufficient means or their will-power is weakened.

(ii) *Regular but moderate smokers.* The majority of the addicts in this group are from the artisan class, such as hackney-carriage drivers, domestic servants, labourers working in tea gardens and forest areas, etc. These persons smoke once or twice a day and usually consume up to 20 grains a day as their means permit. Many of them earn a few rupees or so per day and spend a large amount of their earnings on their dope. They generally smoke in the evening after the day's hard labour is over. The smoking is mostly done in their own homes, but it may also be indulged in a regular opium den on a holiday. Such addicts are now decreasing in number and in the series studied formed about one-third of the total number.

(iii) *Regular and excessive smokers.* This class was much more numerous formerly than the preceding two classes and comprised more than two-thirds of opium smokers studied by Chopra and co-workers. The dose in this case ranged from 20 to 180 grains a day. Most of these addicts belonged to the lower and mendicant classes who had meagre means but obtained money by begging. A few belonging to better classes were generally individuals who had tried all narcotic drugs, such as ganja, charas, opium, alcohol and cocaine, etc. and wanted something more potent. Not infrequently the excessive smokers were morally degenerate and, when they had no money for their usual smoke, resorted to begging and thieving.

In spite of the stringent restrictions placed by law, opium smokers prefer to smoke in company. The smoker feels happy while he is watching others and is watched by others. All sit on the floor or on a platform. Social distinctions disappear and the smokers take part in the ritual of preparation in the most leisurely fashion and with much good humour. Tea and sweets are brought in and served to all present. The glowing of the brazier and the manipulation of the pipe are kept up with the utmost relish and enjoyment. All combine to make the sitting as pleasant as possible; there is no hurry and no thought of anything else. This is the sort of " atmosphere " the smokers like to secure even though they may be in the dark corner of some smoke-blackened opium den.

Semi-religious and social aspects of the habit. Smoking of opium was not an uncommon practice in the old days at such social gatherings as marriages and funerals in certain parts of Assam. The custom required that opium should be distributed among the smokers who were present on such an occasion. Not long ago a ceremony purporting to be of a semi-religious nature, the *Kenia seba* (the serving of opium), was found to exist among the more ignorant classes in Assam at which opium addicts assembled and opium was distributed with the object of averting sickness or other troubles sent by Providence. The distribution and consumption of opium was also common at *namagoa* (the name-giving ceremony). These semi-religious uses of the drug were purely the inventions of interested opium consumers and had no authority from the *Sastras* (religious books). They were looked upon with disapproval by the better classes and have now practically entirely disappeared.

Madak-smoking as a social function in Assam existed formerly on a much more extensive scale when opium was not only more easily available but was much cheaper in price. Certain families were said to have been ruined by the habit. The number of smokers declined rapidly as opium got dearer and restrictions against smoking were increased. Opium-eating was found to be cheaper and less troublesome and many smokers took to opium-eating instead.

Owing to restrictions placed during recent years on smoking opium, the opium dens in this country have practically entirely disappeared.

Control of the opium-smoking habit by the Government. It has long been recognized that in India opium-smoking stands on a different footing from opium-eating. Opium-smoking was indulged largely for its euphoric or pleasure-giving effects, and was certainly a social vice. The danger of its spread, when practised in public, furnishes strong justification for adopting strict measures which approach as nearly as possible to total prohibition.

In 1925, under the agreement arising out of deliberations of the First Geneva Opium Conference of the League of Nations, India was bound to take measures to reduce the consumption of prepared opium so that it would be completely suppressed within 15 years. Prepared opium was defined as any product of opium obtained by a series of operations designed to transform it into an extract for smoking purposes. Even before this conference, according to the Hague Convention of 1912, all Provinces of India were under an obligation to suppress opium-smoking. In Assam and other Provinces an Opium-smoking Act was in force, which prohibited the smoking of this drug.

Under the existing law, smoking is subject to very severe restrictions. The sale of the preparations of opium for smoking purposes is absolutely prohibited throughout India, while their private manufacture is allowed only to the smoker himself or, on his behalf, from opium lawfully in his possession, and to the extent of 180 grains (one tola) at a time. The quantity of opium daily used by an opium eater and the inconvenience and difficulty involved in the repeated preparation for the smoking are so great that these restrictions practically amount to total legal prohibition.★

Effect of Opium-smoking

In persons who have just started smoking opium, the symptoms produced are those of euphoria. At the onset the senses become momentarily keen; the stimulant effects are produced by the first pull; physical pains of whatever nature disappear or become abated; there is a feeling of elation, followed by a delightful languid ease, an exalted sense of superiority and later on, sleep with pleasant dreams. As smoking progresses the smoker becomes dull and drowsy. If at this time he receives some important and exciting news, he takes little notice of it and indulges in another smoke. Soon after he has finished the first pipe the smoker becomes talkative and communicative. He talks of politics, religion, poetry, and other subjects of special interest to himself. Facts are often exaggerated and he is over-confident of his powers and superiority. He talks mostly of his personal affairs and thinks that he is logical in all his expressions and conclusions. He is disposed to criticize others and is anxious to prove all sorts of fantastic theories in order to impress his hearers, who are generally smokers themselves, and who listen attentively. Time is of little consequence. The smoker becomes a slave to the habit and the evil is enhanced by the bad surroundings in which the habit is generally indulged in.

Early stages of habit. As the habit takes root the individual gradually becomes conscious of the danger and ill-effects of the practice. Attempts and efforts are often made to give up the habit and a constant struggle seems to be going on between the sense of caution on the one hand and the desire for euphoria on the other. The symptoms produced are similar to those produced in the first group, but are less marked. There is a general attitude of hesitation during this period and the habit is continued partly because of its pleasure-giving symptoms.

The stage of established habit. Prolonged use of the drug is apt to produce permanent changes in the system. The mental and moral faculties are affected and the addict behaves more or less like an abnormal individual. After the drug is smoked, the symptoms of incompetency and inhibition present during the abstinence period completely disappear. The drug, however, is able to produce only a temporary sense of well-being, and no marked euphoria or intoxication, as is seen in the first two stages. Addicts at this stage have a desire to give up the habit but are unable to do so on account of the dread of the withdrawal symptoms.

Long-standing habit. The confirmed addicts, if they do not change their mode of consumption, are apt to get into a stage of cachexia or inanition. The mental and physical changes are much more marked in this group than in the previous three groups. The physical changes may go on to actual dementia. The individual is pale, thin and commonly subject to intercurrent diseases. The craving for the drug is greater than ever. When the drug is smoked by such individuals the euphoric symptoms are absent. The only effect produced is a short-lived feeling of normality after indulging in a smoke. The feeling of constant and general depression always present is overcome for the time being. If smoking cannot be indulged in at the proper time there is great prostration, vertigo, torpor, watery discharge from the eyes, acute distress and insomnia. All these feelings are overcome for a while by the smoking of a single pipe of opium.

★ *Note by the Editors :* The total figure of registered opium smokers given in the Annual Report of the Government of India for 1954, made under the 1931 Convention, was 2,519.

Chapter VIII

Opium consumption in India for quasi-medical purposes—present situation

In 1948 the Government of India agreed to restrict the production and use of opium in the country (see Chapter I) and this marked the beginning of what we have called the third phase.

From what has been stated in previous chapters, it is obvious that the underlying causes leading to the use of opium by the people of India, in the large majority of cases, were belief in its quasi-medical properties. Owing to inadequate facilities of medical relief in the past, it is not surprising that the wonderful pain-relieving and other qualities of this drug led people to make use of it in some form for the relief of various ailments. During the last decade, however, medical relief to the population both in the urban and in the rural areas in most of the states has been greatly extended. This has led to a significant decrease in the consumption of opium all over the country. This is clearly shown by the consumption figures given in the following table.

Year	*Consumption*
1948/49	376,489 pounds approx.
1949/50	301,432 „ „
1950/51	320,169 „ „
1951/52	296,974 „ „
1952/53	271,395 „ „
1953/54	209,767 „ „

The *All-India Opium Conference of 1949* resolved that the use of opium for other than medical and scientific purposes should be totally prohibited and also that the quasi-medical uses of opium are not desirable and should be stopped as early as possible. It was further resolved that the central and state governments should " in any case, before four years, take effective steps to bring down the *per-capita* consumption of opium to a level not exceeding the League of Nations limit " which works out at up to 6 seers (12 lb.) for every 10,000 of population. These recommendations are being gradually put into effect everywhere and the consumption of opium both as an intoxicant and for quasi-medical purposes has shown a remarkable decline. This is clearly shown by the figures of consumption given in the above table. These figures show that in the five-year period between 1948/49 and 1953/54 a reduction of about 45% has already been achieved and, taking India as a whole, the consumption of opium per 10,000 of population has been reduced to well below the 12 lb. per 10,000 population standard laid down by the League of Nations. Smoking is prohibited (except for the relatively small number—2,519 in 1954—of registered smokers). In urban areas where medical facilities are constantly increasing, opium is now allowed on medical prescription only. Adequate machinery has been set up by the individual states to enforce this rule.

In such rural areas where medical facilities are still inadequate the quantity of opium used for quasi-medical purposes is being rapidly reduced by reducing supplies to the licensees and retail quotas to individuals.

Another important fact, which should be appreciated, is that consumption of opium varies enormously from state to state in the Union. *Per-capita* consumption in India, during the year 1947, was 7.68 grains against 9.25 grains or 6 seers per 10,000 of population, the standard fixed by the League of Nations many years ago. The consumption in India as a whole, therefore, is reasonable and does not exceed the League of Nations standard for the medical and scientific needs of the population. The table given above shows that, taking India as a whole, the *per-capita* consumption dropped to only 5.3 grains in 1953/54. The League of Nations standard was of course based on consumption in Western countries, where opium is almost entirely used in the form of medicinal preparations.

As far as the Indian Union is concerned, there are certain areas such as Madhya Bharat, Rajisthan, Patiala and East Punjab States where the *per-capita* consumption is still considerably above the League of Nations standard. With the progressive cut of 10% in the supply of opium made to these states from the government factories, it will be possible to reduce the consumption of opium in these areas to the standard of the League of Nations within a reasonable period. In fact a good deal has already been achieved in this connexion.

It is also significant that the Government of India is now strictly controlling the cultivation of the opium poppy by confining it to limited areas, where strict control can be and is being exercised. The opium produced by licensed cultivators goes to the two government factories at Ghazipur and Neemuch, where supplies of both alkaloids and excise opium are made. The opium factories in Madhya Bharat, Rajisthan and Doda (Jammu and Kashmir) have already been closed or are being closed down. The areas in the Punjab, where poppy was grown for the production of poppy-heads (*post*), are also under strict control and attempts are being made to stop this altogether within a specified number of years. This will put an end to the use of *post* for quasi-medical or other purposes.

Legislation with regard to the control of the sale of opium is being enforced uniformly in different states. The Dangerous Drugs Act, which is an all-India legislation, is being strictly enforced, and this in itself is operating as a potent factor in reducing consumption.

It has been made abundantly clear in the preceding chapters that in the vast majority of cases the use of opium is started on medical or pseudo-medical grounds, and it is due to the particular habit-forming properties of opium that such use, in a substantial proportion of cases, leads to confirmed addiction. Now that opium is no longer being made available for quasi-medical purposes and its price has been further increased, it is expected that addiction to the drug will rapidly decline and will soon cease to exist as a public-health problem. The few areas throughout the country where the use of opium is still comparatively widespread are being energetically dealt with by means of stricter enforcement of legislation, more extensive educational propaganda and provision of further medical facilities. The problem of the consumption of opium in India as it existed before 1948 is rapidly disappearing.

Chapter IX

Physical, mental, moral and social effects of the opium habit

Chopra and co-workers (1935) carried out a systematic statistical investigation into the physical, mental, moral and social effects produced by the habitual use of opium. In a study of a series of 1,523 cases from both rural and urban areas and from among people in different vocations and situations in life, an effort was made to evaluate the subject from the following points of view:

1. To what extent was the habit of eating opium responsible for the deterioration of the physical condition of the individual?
2. To what extent did the habit lead to intellectual, moral and mental derangement or decay?
3. What were the individual's social reactions? Did he remain a useful member of society or not?

Such factors as dosage, duration of the habit, individual tolerance, idiosyncrasy, social position and personal hygiene, exercise considerable influence upon the intensity of the effects produced by habitual indulgence in opium. All these factors were duly taken into consideration in this study. Moreover, it was found that in nearly half of the cases, alcohol, hemp drugs, arsenic, etc., were being occasionally used by those habituated to opium.

General appearance

It requires an expert eye to detect an opium eater who is taking moderate doses of the drug (up to 10 grains) daily. The majority of these people had a healthy and normal appearance except for the fact that most of them were thinly-built individuals. A small number had dark pigmentation on the face, probably the result of intestinal toxæmia produced by the sluggish action of the bowels and the liver. Out of the entire series, only three individuals had the type of appearance ascribed to opiumad dicts of very old standing—i.e., cachexia,

a pale skin, lack of fat and sallow complexion. These individuals were taking large doses of the drug and at the same time were indulging in other drugs, such as cocaine, morphine or hemp drugs.

Young people taking moderate doses who had not indulged in the habit for a long time appeared to be well nourished, but even they looked flabby. They perspired easily even after slight exertion and were incapable of undergoing any physical or mental strain. Some of them complained of a chilly sensation in the body and had a tendency to shiver on exposure to cold. They stood even slight variations of temperature badly. Individuals addicted to large doses (exceeding 10 grains daily) looked pale and sallow and had a peculiar pigmentation around the mouth, cheeks and eyelids. In such people the eyes were lustreless and sleepy and the conjunctivæ were pale. Many of them suffered from trichiasis, had corneal opacities and suffered from profuse lacrimation. Trichiasis and trachoma are common complaints in the rural areas in parts where opium is taken presumably with the object of ameliorating the troublesome and painful symptoms produced by these conditions. The pupils were contracted in those habituated to taking large doses and reacted to light and accommodation rather sluggishly. The lips were dark and had a bluish tinge.

The effect of opium-eating on the body-weight was studied in about 500 individuals. The average loss of weight in different groups was determined by a comparison with the average weight for the same height and age worked out from the records of various insurance companies. It was established that opium eaters were, as a rule, lighter in weight in comparison with normal individuals. The prolonged use of the drug results in disordered metabolism leading to chronic toxæmia and this probably was responsible for the loss in body-weight.

The prolonged use of opium in infants and children leads to stunted growth. The infants who had been given the drug for prolonged periods were shorter and had deformities of the chest more frequently than other children. They generally had protuberant abdomens.

Effect on Body Organs

Skins. Those habitually indulging in opium often complained of dryness and itching of the skin and even ulcer formation was observed in some. In old *habitués* taking more than 10 grains a day, the skin was dry and lost its usual turgid appearance, natural elasticity and subcutaneous fat. The hair was often dry, lustreless and thin. The dirty habits into which they drifted and the irregularity in taking baths were probably contributory causes. Minor eye troubles such as conjunctivitis and allied conditions were common among them.

Respiration. About 12% of *habitués* examined were found to suffer from minor ailments of the respiratory tract, such as chronic sore throat, coryza, cough, bronchitis and post-nasal catarrh. Habitual use of opium, besides producing general impairment of the body functions, leads to diminished sensitiveness of the mucous membranes of the respiratory tract leading to various respiratory disorders. It undoubtedly delays recovery from various chronic affections of the chest for which the drug is used as a household remedy. Its withdrawal is often followed by the amelioration of the symptoms and sometimes by the cure of these disorders.

Heart and blood vessels. In those taking large doses of opium the pulse is generally small, soft and thready. One who has examined opium addicts can easily make out the typical soft and low tension pulse of a confirmed addict taking large doses. When the habit has persisted for many years the pulse alters its character, becomes full and has high tension; the blood vessels become hard and are not easily compressible.

The majority of the *habitués* who take small doses do not show any signs of anæmia, but those taking large doses look pale and have a sallow colour. The minor degree of anæmia met with among those indulging in large doses of opium can be explained by the fact that the daily income of the majority of these people is just sufficient to meet their daily ordinary requirements. Any extra expenditure on the purchase of opium interferes with their proper nourishment and serves to reduce general vitality. In addition to this the toxic effect of the drug itself after prolonged use is also responsible for these changes. Opium probably does not affect the blood-forming organs directly, but a certain amount of anæmia and deterioration of blood occurs indirectly as a result of the lowering of the general vitality from malnutrition and toxæmia due to constipation.

Digestive tract. The gastro-intestinal tract bears the brunt in those who take opium habitually. In many of these individuals the tongue is dry, flabby, cracked and thickly coated. The breath is offensive, indicating subnormal stomach and liver functions. Most of them suffer from chronic pharyngitis and pyorrhœa and carious teeth are present in a large number. Probably faulty personal hygiene into which addicts allow themselves to drift is responsible to a great extent for these changes. A large number in the series undoubtedly suffered from various disorders of the digestive tract. The common complaints were heaviness over the pit of the stomach probably due to slow emptying of the organ, loss of appetite, constipation alternating with diarrhœa and heaviness in the head commonly occurred in a very large number.

Nausea, although it occurred on withdrawal of the drug, was not seen even in addicts taking large doses. Gnawing pains in the epigastric region was a common complaint. Digestion, especially of carbohydrates, was not interfered with. Opium addicts are particularly fond of sweets and take sugar, molasses, caramel in plenty and digest these well.

In opium addicts activity of the bowels is generally markedly inhibited. In those taking large doses the cæcum and the colon are generally loaded and can be easily felt and rolled under the fingers. The addicts usually spend a long time over defæcation every day. The stools are dry and hard and are ejected in the form of scybalæ and involve considerable straining. A large number of *habitués*, however, stated that they had a regular movement of the bowels every morning before they took their morning dose. Withholding of the drug in some addicts produced symptoms of acute gastro-enteritis, severe pain in the abdomen, followed by diarrhœa and sometimes bloody stools.

Although cirrhosis of the liver produced by intestinal infections and toxæmia is a fairly common occurrence in certain parts of India, no definite relationship with the opium habit was observed. The habitual use of opium does not injure the liver to the same extent as does indulgence in alcohol.

Urinary system. It is commonly believed that opium addicts pass smaller quantities of urine as compared with normal individuals. This was not borne out by observations in this series. There is a common belief among the medical profession that opium causes injury to the kidneys and that persons

suffering from kidney disease stand the drug badly. The effect of opium upon damaged kidneys was studied in a series of cases and it was found that in patients with nephritis moderate doses of up to 5 or 6 grains daily produced no marked effect on the amount of albumin in the urine.

Diabetes. One of the reasons why opium is commonly taken habitually in India is that it is believed to have a curative effect on diabetes. In a series of cases studied from this point of view it was found that opium in doses of 1 to 6 grains daily reduced the total quantity of the urine excreted in mild cases of diabetes. In severe cases, however, it had no effect whatever upon the quantity of urine passed and sugar contained in it. Further, in early and mild cases of diabetes, opium had a well-marked effect in reducing the daily output of the sugar in the urine and in some cases the sugar entirely disappeared. In severe cases no such effect was produced. It is interesting to note that, although opium diminished the amount of sugar in the urine in mild cases of diabetes, it had no effect upon the blood sugar; in fact in severe cases it actually increased the quantity of sugar in the blood. Probably the drug acts by raising the renal threshold for excretion of sugar.

Use of opium as a sex stimulant. There was a widely prevalent belief amongst people in India that opium, when taken in small doses, is an aphrodisiac. This belief had been handed down for generations and may be based on practical experience of the people who have used the drug for ages. It has been asserted that opium is especially useful in sexual impotence in young adults and the drug has been frequently recommended by the practitioners of indigenous medicine in the treatment of sexual neurasthenia, premature ejaculations and spermatorrhœa, due to hyper-excitability of the sexual emotions. It was not uncommon among certain classes of the lower strata of society to take a small dose of opium before the sexual act. It is possible that on account of its general depressant effect on the nervous system, opium may prolong the sexual act and thus prevent premature ejaculation. This may be the reason for the aphrodisiac effects attributed to it.

It may be mentioned here that hemp drugs are also believed to strengthen the sexual act. Perhaps the partial delirium produced by indulgence in these drugs may produce visions of a sexual nature which may result in the stimulation of higher psychical centres. Alcohol may increase the desire for the sexual act by removing the control of the higher centres of the brain on the lower centres. Unlike alcohol, opium prolongs the sexual act without increasing the desire for it. Opium for this reason has been used along with hemp drug and alcohol by dissipated and licentious persons as an aphrodisiac. All these drugs were employed by prostitutes in India as sexual excitants. In females who took opium habitually, irregularity of the menstrual periods was not uncommon. In extreme cases of addiction and with large doses it was found that the habit led to a certain loss of sexual desire and sexual emotions. Some of the males complained of complete absence of sexual desire. Most of them experienced somewhat exaggerated desire after withdrawal of the drug.

Mental and Moral Effects

The mental effects produced by indulgence in opium can be subdivided into temporary effects which are present only when the patient is actually under the influence of the drug and the more permanent effects produced by prolonged habitual use.

Temporary effects. When a person is actually under the influence of opium powerful euphoric effects are experienced : it stimulates and refreshes the individual for a while in every way. It temporarily hides the painful symptoms of any intercurrent disease and it gives a feeling of fitness and well-being. A dose of opium gives rise to pleasurable sensations all over the body, so that the addict is pleased with things round him. He regains his power of concentration of thought and is even inclined to work hard, and take interest in his surroundings and in life generally. The drug also induces forgetfulness of mental worries by depressing the higher centres in the brain.

Habitués when under the influence of a dose displayed buoyancy of spirit and most of them stated that their imaginative powers were stimulated and they could even think more vividly and with clarity. All this is true to a certain extent in the case of persons habituated to small doses who have taken to the drug to relieve worry, fatigue, or minor ailments. These effects are no doubt the result of the dulling of all sensations and reflexes generally.

Permanent effects. While studying the permanent effects of opium addiction on the mental faculties of addicts the following points were kept in view.

(*a*) *Causes which led to habitual use.* In those *habitués* in whom the cause of the habit was disease—e.g., toxæmia due to some infective focus in the gums, teeth, tonsils, etc.—the toxic absorption was in itself sufficient to produce mental depression, irritability and hypersensitiveness. The presenec of such symptoms cannot be attributed to the opium habit but are rather the cause of the development of the habit.

(*b*) *The personality of the addict*—i.e., what sort of individual he had been before he acquired the habit, whether he had been a normal individual with more or less stable nervous system, or with a neuropathic taint. In some cases the habitual use of small doses of opium may help to stabilize a hyper-excitable individual. Habitual criminals sometimes become sedate and settle down to a more or less honest life after taking to the drug.

The popular belief that opium addiction is to be found amongst the degenerates and vicious weaklings does not hold good entirely in the case of Indian addicts. In the large series of cases referred to above, there were quite a large number of good citizens and agriculturists who were working like normal individuals, without any appreciable change in their social behaviour. Many of them took the drug in order to tide over an unpleasant period of their lives, mental worry or strain of excessive work or in some cases bodily pain. These mostly kept to small doses not exceeding 10 grains daily and showed anxiety to get rid of the habit. Among about 500 addicts in whom repeated examinations were carried out at varying intervals for about three years, the majority were found to be normal individuals in whom no apparent mental or moral deterioration could be detected.

The mental faculties are, however, increasingly affected as the dose is increased and, further, the duration of the habit is an important factor. Mental injury is more likely to occur in those taking large doses for prolonged periods. A detailed study of the past history and the personality of this type of *habitué* showed the cause of addiction to be a nervous taint, or a defective personality as a result of which they were led to take this drug. Such persons had a vacant look, sad expressions, their memory was impaired and they were dull and suffered from slow cerebration. Besides, these individuals

showed want of self-reliance, weak will-power, and were often selfish and quarrelsome. Such addicts were found to possess weak morals, showed lack of sense of responsibility, were given to habitual lying and showed well-marked moral depravity. Dosage is an important factor here.

It is a well-known fact that a dose of opium bestows the feelings of euphoria, ease and contentment on account of the loss of sense of responsibility produced by the depression of the higher brain centres and the relaxation of their control over the lower mental faculties. The *habitués* from constant usage of the drug become careless regarding their daily duties and acquire habits of idleness. Addicts of this type usually associate with persons of low morals in order to continue their indolent life. Such a life and the high cost of the drug which they must obtain leads them to depraved habits such as stealing or begging to provide their daily ration. In this way changes in their character are brought about which are partly due to surroundings in which they find themselves but chiefly due to the direct action of the drug which, by acting on the higher brain centres, impairs their power of judgment.

Mental injury. Opium addiction in itself is undoubtedly an important factor in causing mental injury. From a detailed study of the problem, it would appear that in those taking doses of 20 grains and less daily, there were about one-fourth who started the habit to obtain the euphoric effects of the drug, or as a substitute for other drugs, such as alcohol. In those who took over 20 grains, however, nearly half were found to be using the drug on account of its euphoric and sexual effects. This shows that in certain individuals there is an inherent tendency to excesses of all kinds.

Large doses of opium produce greater injury to the central nervous system in those having neuropathic tendencies. A careful study of this aspect shows that this group consisted of care-free pleasure-seeking young individuals mostly of neurotic temperaments with defective personality. In persons possessed of normal stability of mind and body and those who start the habit after the age of 40 years from such causes as fatigue, worry and old age, little or no deterioration of mental faculties could be observed. In none of these individuals could we find any evidence of injury to the nervous system or higher functions of the brain, such as is met with in addiction to alcohol and cocaine.

Relation to society. Opium addicts in this country are not liars or moral wrecks as has been described by some observers. Some of our addicts were upright, straightforward and self-respecting individuals. We have observed that moderate consumers of the drug and a majority of those taking even large doses are generally inoffensive to society. It is only when the excessive use affects the addict physically and morally that he resorts to dishonest practices, but he seldom commits acts of violence. The ordinary types of opium addicts met with in this country are not mentally defective, and the habit does not lead to insanity or serious nervous disorders needing custodial care. They are not dangerous to society, but undoubtedly many of those taking large doses are useless to the community. The opium addicts in India are not much objected to by the people at large, but persons taking large doses of drug, and those who smoke opium are shunned by respectable citizens lest their children and youths should acquire the habit by force of example. The harm done by an opium addict is mainly confined to himself and does not affect society.

The opium habit and crime. Some authorities have remarked that narcotics do not arouse criminal impulses. Whether a person becomes a criminal because of his habit, or an addict because of inherent criminal tendencies, is difficult to determine. Klob (1925), after an intensive study of 255 drug addicts, formed the opinion that the majority were criminals before they became addicts and that no opiate ever directly influenced them to commit a violent crime. It would be hazardous to state that the majority of drug addicts have a low grade of morals and are persons with criminal tendencies, though it is quite true that when an apparently normal person becomes an addict and when he is deprived of his drug, he may do anything to get it. It has been claimed, however, that addiction to opiates does not excite crime unless the drug supply is absolutely cut off or its procuring rendered difficult. Our own experience in India is in accord with these findings. From our intimate contact with opium eaters in this country we are inclined to believe that the opium habit rather inhibits impulses of a violent nature, by lowering the vitality and reducing ambition and courage which prompt a normal individual to abnormal impulses to perform a criminal act. There is thus more possibility of an addict becoming a thief than a murderer. In our series, the nature of the crime in the majority was assistance in smuggling or selling illicit drugs or theft. There were only two persons in this series who had served sentences for more serious offences.

Opium habit and insanity. In the earlier stages of habit-formation, mental brilliancy, lasting as long as the so-called stimulating effects of the drug persist, is observed. Some of the best speeches and a few excellent literary productions are said to owe their inception to opium. Opium does not injure the psychic areas as seriously as alcohol does. The intelligence seems to be spared even in extreme stages, though other functions, such as character, self-control and mental equity are the first to go, and thus render an addict weak-minded and exhausted of energy. In worse cases the memory is weakened and torpor, psychic depression and marked dysthemia intervene. Among the 4,700 cases of insanity collected by Powell (1924) none was due to either eating or smoking of opium. The Police Surgeon and Deputy Commissioner of Police, Bombay, did not report a single case of insanity attributable to opium. Our own observations in the mental hospitals showed that of all the cases admitted only a few gave the history of opium habit. Evans (1904) in his paper on insanity in India, showed that 20% of insanity is due to hemp drugs and has cited no case at all in which insanity could be attributed directly to opium. He writes, "It is my deliberate opinion that opium never directly causes insanity. Even if an insane person has been found to be an addict, it is quite possible that there may be some hereditary tendency towards congenital psychopathy and psychic disturbances of hysteric nature and mental weakness to account for it."

Our own work in the mental hospitals at Ranchi, Agra, Lahore, Benares, Poona and Thana corroborates this view. Among our series of 1,070 opium addicts we had only three cases of insanity. Although no family history of insanity could be elicited, all these three persons were, in addition, addicted to hemp drugs in the form of *bhang* and, therefore, opium could not be held entirely responsible for the condition. It may, however, be at the most an exciting cause along with hemp.

Opium habit and fecundity. The case histories of a large number of addicts were carefully investigated, but there

are difficulties in getting dependable information. The finding of the gross or net number of children in the whole series serves no useful purpose as about 50% of the *habitués* start taking opium when their sexual powers are on the decline and their fecundity normally exhausted or at low ebb. However, the histories of 500 cases who were either taking opium at the time of marriage or had started it within two years of their marriage and who had been taking the drug for over 15 years, were carefully investigated. It was found that the average number of children per 100 families was 273.2, whereas according to the normal fertility curves this figure worked out to 375.39 children per 100 families. The 1931 census gave the figu[illegible]s 396 per 100 families for all castes and ages in India. We were therefore justified in concluding that the fecund[illegible] in our series was appreciably lower as compared to the general population.

Further, according to the census figures of 1931, only 1% of all marriages were sterile, whereas in our series 86 marriages or 17.2% were sterile. The higher rate of sterility amongst opium addicts may of course not be entirely due to the direct effect of the drug, but may in considerable measure be due to neglect of the wife on the part of the husband, venereal disease, psycho-neurosis and sexual neurasthenia and such other factors as are sequelæ to the drug habit.

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1. Opium habit
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