20. In the course of our inquiry we have received a large amount of valuable information upon the nature, causation, and prognosis of addiction as well as upon the different methods of treatment which have been advocated from time to time. Inasmuch as such information has not heretofore been available in so easily accessible a form, and as there has not previously been so favourable an opportunity of eliciting and collating the opinions of members of the medical profession who have had special experience of the problems of addiction, we thought it well to state the results of our inquiries somewhat fully, for the information of the medical profession and the public, although some of the points dealt with are less germane than others to the main objects of our investigation.

Matters included in this Section of our Report are discussed under the following heads:

(a) Definition of Addiction.
(b) Prevalence.
(c) Nature and Causation
(d) Treatment and After-care
(e) Prognosis.

(a) DEFINITION

21. There has been some divergence of opinion among the witnesses we have heard as to the best definition of addiction. These differences depend to some extent on differences of opinion as to the causation and nature of the condition commonly known as addiction.

In the present Report the term "addict" is used as meaning a person who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired, as a result of repeated administration, an overpowering desire for its continuance, and in whom withdrawal of the drug leads to definite symptoms of mental or physical distress or disorder.

(b) PREVALENCE of ADDICTION
22. We have taken evidence on this subject from medical practitioners, representative of several types of experience, who may conveniently be grouped as follows:
(1) Consulting physicians of wide experience in the treatment of nervous and mental disorders
(2) Medical man who have has special experience in the treatment of addiction.
(3) Medical Officers of Prisons
4. Representative general practitioners from various parts of the country, a few of whom have had a relatively wide experience of the treatment of this condition.
In addition we have been supplied by the Ministry of Health with information obtained by the regional Medical Officers from representative general practitioners of wide experience, respecting the prevalence of addiction in the parts of the country with which they are familiar.

23. This evidence has all tended in the same direction, and the collective, effect is remarkably strong in support of the conclusion, that in this country, addiction to morphine or heroin is rare. Some experienced general practitioners have stated that they had never been called upon to treat such cases; others that they have only seen two or three such cases in the course of 20-30 years' practice. As might perhaps be anticipated, the cases appear to be proportionally more frequent in the great urban centres than elsewhere, and persons engaged in occupations which entail much nervous and mental strain are specially liable to be affected. It appears also that a relatively high proportion of cases occurs among those who, by reason of their occupation or otherwise, have special facilities for access to the drugs.

24. There is also a general concurrence of testimony to the effect that addiction has diminished in recent years, most witnesses attributing the decline in the number of cases to the operation of the Dangerous Drugs Acts which have made it difficult to obtain the drugs otherwise than from, or through, doctors. Although sources of illegal supply exist, it appears that those who might, in other circumstances, have obtained the drugs from non-medical sources are usually lacking in the determination and ingenuity necessary for overcoming the obstacles which the law now places in their way. Thus it would appear that persons who were already addicts when the restriction came into effective operation have been driven to placing themselves under medical care, or in less inveterate cases have been to overcome their infirmity. The effects of the restrictions are even more important in respect of the class of nervously unstable persons by whom addiction is most easily acquired, and who may be designated "potential addicts." When morphine was readily obtainable such persons were prone, on even small provocation of pain mental stress, to seek relief in the drug, purchased on their responsibility, and addiction was thereby quickly developed. Thus the diminution in the number of addicts may be regarded as mainly due to the fact that new addicts are not being created as they were under former conditions. The importance of this conclusion in relation to the administrative aspects of the problem of addiction needs no emphasis, nor does the corollary that the prevention and control of addiction must now rest mainly in the hands of the medical profession since, in the main, it is through them alone that the drug can be obtained.

25. We have also obtained evidence as to the relative prevalence of morphine addiction and heroin addiction respectively. This shows that, in this country, addiction to morphine in any of its forms is much the more common. But this fact would appear to be due to the greater familiarity of the public with morphine preparations, and the much wider use of these than of heroin in medical practice. Of those who take either drug for any purpose a larger proportion of
addicts will be found in the case of heroin than of morphine, and the addiction produced by heroin is the more disastrous in its physical and mental results, and more difficult to cure. In a small number of cases, the drugs are combined, and there are also some cases in which each is used in conjunction with cocaine or with other narcotics.

26. The mode of administration of the drug is of some importance.
In the case of morphine, the evidence shows that hypodermic injection is much more likely than other methods of administration to produce addiction, and that with most addicts it is the favourite method of using the drug. The addiction arising from the hypodermic use of morphine is also more difficult to cure than that arising from other methods of administration.

(c) NATURE AND CAUSATION.

27. The nature and causation of morphine and heroin addiction are so closely associated that they are most conveniently considered together. While there were differences of opinion among the medical witnesses, whom we heard as to the importance of the parts which different causes may play in the production of addiction, there was general agreement that in most well-established cases the condition must be regarded as a manifestation of disease and not as a mere form, of vicious indulgence. In other words, the drug is taken in such cases not for the purpose of obtaining positive pleasure, but in order to relieve a morbid and overpowering craving. The actual need for the drug in extreme cases is in fact so great that when it is not administered great physical distress culminating in actual collapse and even death, may result, unless special precautions are taken such as can only be carried out under close medical supervision, and with careful nursing. It is true that there is a certain group of persons who take the drugs in the first instance for the sake of a new and pleasurable sensation, e.g., the "underworld" class, who often use heroin for this purpose as a snuff. But even among these a morbid need for the drug is acquired and the use is maintained not so much from the original motive as because of the craving created by the use.

28. The condition of imperative need just described will only be observed after the drug has been taken habitually. The only immediate cause of addiction is the use of the drug for a sufficient time to produce the constitutional condition that is manifested in the overpowering craving and the occurrence of withdrawal symptoms when use is discontinued. Administration of the drug, however, will lead to addiction much more readily in some persons than in others, and the causes of these differences call for examination. Of such predisposing causes most stress was laid upon inherent mental or nervous instability. One eminent witness emphasised the frequency with which inquiry elicited the history of mental disorder of a more or less serious kind in the near relatives of the patient, and believed that a neuropathic heredity could be traced in many of the cases. Some attached such importance to this factor as to believe that not only could it be traced in most cases of addiction, but might reasonably be assumed to have been present in the remainder. In other words, the continuous administration, of the drug would not, they believed, in itself produce addiction in a person whose previous mental and nervous condition was entirely normal. Others, however, while agreeing that persons previously in some
degree unstable were more liable than others to become victims of addiction, and furnished the majority of the cases, held that it was possible for a person who had previously appeared free from any indication of mental or nervous instability to become a victim of addiction as the result of prolonged administration of the drug. Moreover, a person whose nervous system is not entirely normal in its working may become an addict through the administration of the drug who would otherwise have escaped. The point is of obvious importance in its bearing on the value of preventive measures, and we therefore feel called upon to state the conclusion to which we think the evidence points, namely that addiction may be acquired by injudicious use of the drug in a person who has not previously shown any manifestation of nervous or mental instability, and that, conversely, due care in administration may avert this consequence even in the unstable.

29. Apart from inherent nervous instability, the liability to addiction as the result of use of the drug may be produced or enhanced by various conditions which include chronic pain of various kinds especially abdominal, the physical distress caused by such affections as asthma, insomnia, and over-work, anxiety, and other causes of mental distress. Some, indeed, hold that, even in the nervously unstable, one or other of these causes has usually contributed to the production of the habit.

30. The following specific events have been regarded by medical witnesses as having immediately led up to the development of addiction in different cases:-
   (i) Use of the drugs in medical treatment.
   (ii) Self-treatment for the relief of chronic or recurrent pains or distressing physical conditions, or for the relief of emotional distress.
   (iii) Example or influence of others.
   (iv) Curiosity, bravado, and search for pleasurable experience

We proceed to discuss these separately.

31. (i) Use of the drug in medical treatment was considered by the witnesses, with but one exception, to have been the immediate cause of addiction in a considerable proportion of the cases they had treated. Some regarded it as the cause in from one-fourth to one half of their cases, and one thought that it accounted for the majority. In some cases the original object of administration has been the relief of pain due to various causes. Some of the witnesses especially insisted that abdominal pain associated as it so often is with mental depression, is the commonest type of pain the relief of which by drugs leads to the formation of a habit. It was generally held (as already stated) that addiction was more likely to supervene when the drug was administered by hypodermic injection than when it was given by the mouth or the rectum, and that the risk was specially great when such injections were repeatedly given in post-operative and accident cases.

32. In many of these cases, it was considered that the drug had been administered injudiciously in various ways, either as regard to the doses given, or the period for which administration had been continued, or from lack of care to diminish the doses and make the patient independent of the drug before treatment was concluded. Attention was drawn to the special care needed in the medical use of morphine or heroin in the case of the young, in whom the danger of addiction is
usually greater than in older patients. On the other hand, one physician of wide experience expressed the view that some practitioners had been too reluctant to administer morphine in adequate doses at a sufficiently early stage in the treatment of painful and other conditions, with the result that when at last it was given the patient was in such distress and so worn out, and the relief obtained so intense, that there was much greater danger than there would otherwise have been of the formation of a habit. "The best way," he stated, "to avoid addiction ensuing from the medicinal employment of morphine, was thoroughly to relieve pain and to treat insomnia, if present."

33. (ii) Self-treatment for relief of pain, etc., and recourse to the drug in cases of emotional distress have undoubtedly been common causes in the past, especially, among those whose occupation enabled them to obtain it otherwise than under medical advice. Cases, arising in such ways may however, be expected to be less frequent in future, in view of the restrictions which the Dangerous Drugs Acts have now placed on supply.

34. (iii) Influence of other addicts. We have received evidence of cases in which it was believed that the addict had acquired the habit through the influence of other addicts, either by way of direct initiation into: the practice or through example. Cases arising from this cause may also be expected to be less commonly met with in future, owing to the gradual diminution in the number of confirmed addicts, and the lessened facilities for obtaining the drug.

(iv) Vicious indulgence and curiosity. We have already mentioned cases in which the addiction took its origin in the use of the drug through mere curiosity or search for pleasurable sensations. Such cases appear to be exceptional, and may be expected to become even less prevalent through the operation of the restrictions on supply.

(d) TREATMENT AND AFTERCARE.

35. We have heard a considerable amount of evidence as to the relative values of various methods of treatment, which differ chiefly in the rapidity with which the drug of addiction is entirely withdrawn from the patient. The methods of treatment described to us may be stated as follows:--

36. The Abrupt Withdrawal Method. In this method the addiction drug is abruptly cut off and certain remedial measures are adopted to combat the withdrawal symptoms. Among the remedies so employed as auxiliaries are hyoscine, bromides, chloral, alkalies and intensive parargan. Occasionally, a dose of morphine by the mouth is employed to treat impending collapse. Hot baths, particularly at bed time, and massage, are held in great esteem as a useful adjunct by some physicians. In addition to these medicinal adjuncts, physical measures such as the regulation of food and exercise and attention to the general health are instituted.

While one witness strongly advocated the use of hyoscine as an auxiliary to the treatment by abrupt withdrawal, it was not favoured by other witnesses who had had experience of its employment, and they regarded it as dangerous if pushed to the degree usually considered necessary.
37. The Rapid Withdrawal Method. This method in its essential features differs only from that above described in that the drug, instead of being suddenly withdrawn, is rapidly reduced to zero in the course of a few days. The treatment is assisted, as in the case of abrupt withdrawal, by various ancillary measures, one being the employment of a belladonna., hyoscyamus and xanthoxylum mixture pushed to the point of delirium.

36. The Gradual Withdrawal Method.-- The drug is withdrawn gradually on a systematic plan, and auxiliary treatment by drugs and other agencies is given to suit the needs of particular case's. The actual plan adopted by different experts varies, but there is a broad similarity underlying all the various modifications of the method. The following description gives a good general idea of the procedure adopted. At the outset appropriate measures must be taken to deprive the patient of any secret supplies of the drug which he may have concealed upon his person or in his effects. The first step in treatment is stabilise the amount of drug which the patient receives, both in respect of dose and frequency of administration, which will, in the first instance, usually be hypodermic if the patient has been accustomed to that method of administration. The dose is decided upon after consideration of the circumstances of the case as regards physical state, duration of addiction and customary quantity consumed. The initial dose generously computed, and may be the full dose the patient has accustomed to take; in addition the patient is assured that he is receiving this quantity. The aggregate daily amount is divided into 3 or 4 doses and is given at regular intervals during the 24 hour -the largest dose being administered just before bed-time. After waiting a few days, the dose of the drug is diminished by a certain proportion (e.g., one-tenth), the reduction effected being such as the experience, of the physician suggests will not be noticed by the patient. The reduction is continued at appropriate intervals by cutting off successively the same proportion of the dose last given. If at any stage of the treatment the patient appears to be bearing the withdrawal badly, either by reason of the supervention of some minor illness or by reason of mental distress, the process of reduction is interrupted for a day or two.

When by these means, the dose administered has reached a fairly small amount, the number of doses is altered from 3 or 4 to 2 a day. This alteration is often accompanied by a temporary increase in the total amount given in order to enable the patient to become reassigned to fewer doses; for every effort is made to secure the patient's willing co-operation by sparing him unnecessary inconvenience, and by explaining to him the reasons for the various steps in the treatment. A valuable mental effect is secured by giving the doses, however small they may be, in the same quantity of fluid and, as before the largest dose is given just before. bed-time.

In cases in which the addict has previously used hypodermic injection, some physicians find it advantageous to substitute oral for hypodermic administration during the later stages of the treatment.

Ultimately, a stage is reached in which none of the drug is being given at all. The patient, however, is not made aware of the actual moment when the drug has been totally withdrawn, for hypodermic injections of innocuous solutions or, when oral administration has been substituted for injection, certain harmless medicaments are continued for e week or two after the withdrawal has taken place. The patient is then surprised to learn that he is no longer taking the drug, and, on realising the position, readily consents to do without further medication.

The intercurrent symptoms which occasionally arise, especially sleeplessness, must be treated on general lines. Some authorities rely upon hypnotic drugs such as bromides, paraldehyde, etc. Much attention, is, of course, also paid to the general health by means of
various physical and medicinal measures, and many of our witnesses assign value to intensive purgation in suitable cases.

Various estimates as to the period of reduction were given to us by individual witnesses, and it is evident that the time taken to effect complete withdrawal of the drug must vary according to the age, general condition, and temperament of the patient, the size of the dose taken and the duration of the addiction. The average period of treatment was estimated by one of the witnesses who had medical charge of a well-known institution for the treatment of drug addiction, at about three months, but he insisted that the patient should remain under reliable supervision for some time afterwards. The most difficult part of the treatment is the reduction of the last half-grain or so to zero point.

39. Relative Value of Different Methods: Certain of the witnesses were strongly in favour of the abrupt withdrawal method, and regarded it as the most reliable or even the only certain means of bringing about an effective and permanent cure. The method was advocated especially by those of our witnesses who were in medical charge of K M. Prisons, and we learned from them that they had experienced no deleterious effects. One of our witnesses also, who was not a prison medical officer, expressed the opinion that the cases in which it was found impossible to reduce the dose below a certain minimum, and necessary therefore to supply this dose for an indefinite period, were cases of persons who had been treated by the gradual reduction method. Rapid withdrawal, combined with the employment of a belladonna, hyoscyamus and xanthoxylum mixture pushed to the point of delirium, was stated by one of the witnesses to have been attended in his hands by considerable success. Other witnesses, however, informed us that they had been unable to reproduce these favourable results.

40. Opinion was on the whole, strongly in favour of the gradual withdrawal method in preference to either of the alternative plans.

The evidence appears to show that it is more generally suitable, and more free from risk than either the abrupt or rapid withdrawal methods. It entails less strain and distress upon the patient, is unattended by collapse, and other withdrawal symptoms may in large measure be prevented by its adoption;

41. Though there was thus a distinct conflict of opinion as to the merits and demerits of the various methods, the following inferences may, we think, be regarded as established:--

(a) That each patient requires individual consideration.
(b) That abrupt or rapid withdrawal may be advisable in cases of young healthy adults in whom the addiction is of recent date and only moderate doses are being taken. Otherwise the gradual method is to be preferred.
(c) That abrupt or rapid withdrawal is specially dangerous in the case of old or seriously debilitated persons, of patients with advanced organic disease, and those who are taking exceptionally large doses.
(d) That abrupt or rapid withdrawal should not be carried out except in a well-appointed institution and with the aid of skilled nursing and constant medical supervision. It is therefore, unavailable for the treatment of those who cannot or will not enter institutions.
(e) That it would be unsafe to draw any conclusions of a general nature from the peculiar success which appears to have attended the prison cases treated by the abrupt method. These persons were confined under close observation and subject to a discipline more strict than
could be enforced in any voluntary institution; they received prompt, medical aid in any emergency, and the dose of the drug that had been habitually taken by most of the prison addicts appears to have been comparatively small.

42. It was specially insisted upon by several witnesses that actual withdrawal of the drug of addiction must be looked upon merely as the first stage of treatment, if a complete and permanent cure is to be looked for. As one witness put it, the real gain to the patient by withdrawal of the drug is to enable him to make a fresh start in new and more favourable circumstances, and little more than that can be expected from the actual treatment itself, whatever the method employed. A permanent cure will depend in no small measure upon the after-education of the patient's will power, and a gradual consequent change in his mental outlook. To this end it was regarded as essential by one witness that full use should be made of psychotherapeutic methods, both during the period of treatment and in the re-education of the patient. It was not considered that a lasting cure could be claimed unless the addict had remained free from his craving for a considerable period- 1½ to 3 years after the final withdrawal of the drug. Scarcely less important than psychotherapy, and education of the will is the improvement of the social conditions of the patient, and one physician informed us that he made it a practice, wherever possible, to supplement his treatinent by referring the cases to some Social Service Agency. It was also regarded as important that the physician in charge of the case should, while the patient is under his care, make a thorough study of the causes, pathological and other which originally led the patient to take drugs, and try to readdress them. Pain, insomnia or other physical malady must be treated before the patient is released from observation.

(e) PROGNOSIS

43. Evidence we have received from most of the witnesses forbids any sanguine estimate as to the proportion of permanent cures which may be looked for from any method of treatment, however thorough. Relapse, sooner or later, appears to be the rule, and permanent cure the exception. With two exceptions, the most optimistic observers did not claim a higher percentage of lasting cures than from 15 to 20 per cent. One eminent authority, however, who employs the abrupt withdrawal method reinforced by certain auxiliary measures of a drastic character, was of opinion that a real cure may be expected in about 66½ per cent of the cases in which the patient is willing to accept treatment; and in whom the treatment is not contraindicated. The witness who had practised the rapid withdrawal method (referred to in paragraph 39) gives a percentage of cures as high as 70 per cent, but other observers who have tried the method have failed to obtain successful results in such high proportions. In this connection may also be mentioned the remarking results obtained by one of the general practitioner witnesses who, by the employment of the gradual reduction plan, had obtained success in 8 cases out of 12 which he had treated. Some of these cured cases, had been under observation for years and had not relapsed.

44. While therefore, the ultimate outlook in any individual case is always serious it can by no means be considered hopeless and every effort should be made by thorough and suitable
treatment to free the patient from his addiction. It must be borne in mind, however, that those witnesses who were most sanguine as to the proportion of permanent cures that could be obtained under the best possible treatment, recognized that, the results they described could only be secured by treatment in institutions. Looking to the small number of such institutions in this country, as well as the cost of the treatment which, reasonable as it usually is, is beyond the means of some of the patients, and the impossibility under the law as it stands, of compelling persons suffering from addiction to become inmates of institutions, it is clear that under present conditions there must be a certain number of persons who cannot be adequately treated, and whom it is impossible completely to deprive of morphine which is necessary to them for no other reason than the relief of conditions due to their addiction.