Epidemiologic Factors in Drug Addiction in England and the United States

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AMONG the proposals not infrequently advanced in much of what is said and written about narcotic control in the United States is one to the effect that: "Since the British have been successful in controlling narcotic addiction in their country, we should adopt their system as a solution for our own narcotic problems."

This proposal is based on several assumptions: first, that the British do not have a serious narcotic problem; second, that their system is different from ours; and, third, that the British did at one time have a serious narcotic problem which was solved through the methods currently in effect. This last assumption is important, since a method of control, like a drug, must have proved itself efficacious before it merits further use.

The first of these three assumptions is essentially correct; the British have only a relatively minor narcotic problem. The second assumption is correct to a degree. The third, however, is completely baseless. The British have not had, in modern times at least, a serious narcotic problem, and the collection of administrative practices designed to cope with what is a very fortunate situation has never been tested by the existence of narcotic control problems of the scope and difficulty of those in this country.

That the English are blessed with a relatively minor narcotic control problem is indicated by the following quotation from the recently released report of the Interdepartmental Committee on Drug Addiction (*1*), headed by Sir Russell Brain:

"After a careful examination of all the data put before us, we are of the opinion that in Great Britain the incidence of addiction to dangerous drugs—which today comprise not only morphine and heroin but also such other substances coming within the provisions of the Dangerous Drugs Act, 1951, as pethidine, methadone, levorphanol, etc.—is still very small. . . . There is no cause to fear that any real increase is at present occurring."

Our own experience, based on a personal visit, fully confirmed for us the statement made by the Brain committee. The British Ministry of Health, through its then Chief Medical Officer, Sir John Charles, the British Home Office, the National Health Service, the Scottish Department of Health, the British Medical Association, the British Prison Commission, the Office of the Commissioner of Metropolitan Police for London (Scotland Yard), and many others, including Dr. Roy Goulding, secretary of the Brain committee, all cooperated fully and generously in making available data regarding narcotic addiction in England and Scotland. These data have been used in the preparation of an earlier paper (*2*), as well as a report to Governor Nelson A. Rockefeller (*3*), of New York State.

The second assumption, that Britain's handling of narcotic drugs is different from that used in this country, is in actuality only partially correct. If one takes at face value the extract, cited below, from the Rolleston Report

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of 1926, which is included in the Home Office Memorandum, "The Duties of Doctors and Dentists Under the Dangerous Drugs Act and Regulations," one would likely conclude that there were vast differences between British narcotic control procedures and our own. This extract is from the report of the Departmental Committee on Morphine and Heroin Addiction, chaired by Sir H. D. Rolleston (*4*):

"(i) Precautions in the treatment of addicts

"51. In the preceding section, the conclusion has been stated that morphine or heroin may properly be administered to addicts in the following circumstances, namely, (a) where patients are under treatment by the gradual withdrawal method with a view to cure; (b) where it has been demonstrated, after a prolonged attempt at cure, that the use of the drug cannot be safely discontinued entirely, on account of the severity of the withdrawal symptoms produced; and (c) where it has been similarly demonstrated that the patient, while capable of leading a useful and relatively normal life when a certain minimum dose is regularly administered, becomes incapable of this when the drug is entirely discontinued."

In actual fact, however, narcotic control administration as carried out by the British Home Office is based officially on another section of the Home Office Memorandum, which states:

"7. The authority granted to a doctor or dentist to possess and supply dangerous drugs is limited by the words *so far as may be necessary for the practice or exercise of his profession.* In no circumstances may dangerous drugs be used for any other purpose than that of ministering to the strictly medical or dental needs of his patients. The continued supply of dangerous drugs to a patient solely for the gratification of addiction is not regarded as 'medical need.' . . ."

The Home Office Memorandum also states: "A doctor or dentist who obtains or attempts to obtain dangerous drugs for a purpose not covered by this authority, or who administers (or, in the case of a doctor, supplies) otherwise than for the purpose of bona fide medical or dental treatment, or who fails to observe the requirements of any of the Regulations, commits an offense against the Act. . . . Offenses may be dealt with summarily or on indictment. If tried summarily the accused is liable on conviction to a fine of 250 pounds or 12 months' imprisonment or to both fine and imprisonment; if on indictment to a fine of 1,000 pounds or 10 years' imprisonment or to both fine and imprisonment. . . ."

One can note a certain similarity between these portions of this British memorandum and certain provisions of our own Harrison Anti-Narcotic Act as enacted by Congress and interpreted by the courts.

Yet another misconception about narcotic control in England is that there are provisions for narcotic addicts to "register" so that they may obtain supplies of narcotic drugs as needed. There is no such provision, as noted in the following quotation from the Brain committee report:

"27. We would emphasize that there is, in Great Britain, no system of registration of addicts, nor any scheme by which authorities allocate to them regular supplies of the drugs they are taking. We are, however, satisfied that the arrangements for recording manufacture and supply, and for inspection, continue to ensure that nearly all addicts are known to the Home Office, to the Ministry of Health and to the Department of Health for Scotland."

The third assumption, noted at the beginning, that the British did at one time have a serious narcotic problem for which a solution was found through the control methods which make up the British system, is, as noted before, entirely false, certainly as it pertains to modern times. The Rolleston committee noted in the period of its study (1924–25) that:

"Addiction to morphine or heroin is rare in this country and has diminished in recent years. Cases are proportionately more frequent in the great urban centers, among persons who have to handle these drugs for professional or business reasons, and among persons specially liable to nervous and mental strain. . . . Facility of access is an important factor in the production of addiction and the recent diminution in the number of addicts to both these drugs [heroin and morphine] is largely attributable to the restrictions imposed by the Dangerous Drugs Acts."

That the conditions described in the Rolleston committee study in 1924–25 are not unique

with respect to the prevalence of addiction in England is indicated by a 1935 "Report to the League of Nations," regarding addiction in England, which is quoted by E. W. Adams in his book "Drug Addiction" (*5*). The report states that: "The number [of addicts] known actually to exist from official records is about 700. . . . in 90 percent of the cases morphine was the drug of addiction; in five percent heroin and in five percent cocaine." Elsewhere in his book Adams notes that 120 of the 700 known addicts in 1935 were members of the medical profession. Twenty-five years later the Brain committee, as has been previously noted, recorded essentially the same findings.

Why, then, if it isn't the "system," do the British have an insignificant narcotic problem compared with ours? The answer to this very pertinent question is perhaps best found through an epidemiologic approach to the problem of narcotic addiction. Epidemiology has been applied from the earliest days of medicine to elucidate the etiologic factors of human disease and has made many contributions to the control of disease processes, particularly infectious diseases. Recently the epidemiologic method has been used in the task of seeking the etiologic factors of such diseases as cancer and heart disease and of such events as accidents. It is submitted that epidemiology also has much to commend it as an effective means of approaching the problem of narcotic addiction.

In narcotic addiction, an epidemiologic triad presents an interacting complex that can lead to an addictive state in the presence of potentiating factors, as shown below:

Host. A susceptible individual.

Agent. An addiction producing substance.

Environment. A situation in which the addiction substance is present under circumstances which promote its spread.

While the limitations of space preclude a detailed description of each of the factors of the epidemiologic triad as it pertains to narcotic addiction, it would seem indeed pertinent to examine them even briefly.

The Host

Under laboratory conditions opiate addiction can probably be established in all humans, and no special somatic or psychic requirements of the host have been established. Nevertheless, the addicts seen in American treatment facilities are predominantly young, male, psychopathic, immature individuals drawn from foci spotted about certain big city slums. In practice one finds addiction, delinquency, and personality disorder so intertwined that it remains a matter of controversy which is cause and which is effect and how much of our concept of drug addiction is colored by selection bias since we know chiefly those who have come into conflict with society.

The common denominators of the host which have been established are of value for descriptive purposes and have implications with regard to the theory of addiction, its treatment, and its prognosis. The relationship to the so-called psychopathic personality is close and several epidemiologic characteristics of psychopathology and addiction coincide fairly well. These characteristics diminish rapidly in middle life and later; there is a male preponderance of three or four to one, though it has been claimed that women were at one time more involved than men, and both sexes tend to be found in multiproblem areas where rates of arrest and mental hospital admissions are high.

The most frequent clinical diagnosis is that of psychopathic personality or its various equivalents (sociopathic personality disturbance, and so forth), although there are often overtones of depression, neurosis, schizophrenia, or other psychic disorder. In patients of higher social status there is a greater heterogeneity of personality structure and of psychopathology; yet even here the psychopathic elements, although muted by social and cultural considerations, can be identified. Finally, the self-destructive effect of the behavior of the addict is similar to that of the classic psychopath, and the therapeutic problems also have many elements in common. Despite the psychic deviations, narcotic addicts do not suffer from a higher incidence of overt psychosis than does the general population, and addiction accounts for only about 2 out of each 1,000 admissions to mental hospitals in New York State (*6*).

Addicts as a class are psychiatrically described as manifesting low tolerance for frustration and physical discomfort, lacking in capacity for sustained effort toward long-term

goals, unrealistic in aims and ambitions, manipulators of persons always in relation to obtaining drugs and oriented toward this one aim to the virtual exclusion of others, untrustworthy, amoral but of low or absent interest in sex, willing to take almost any measure to secure drugs but primarily offenders against property and only secondarily aggressive against persons. There is evidence that drugs actually reduce the levels of physical aggressivity (*7*). Patients are further described as suffering from strongly passive-dependent needs, which complicates therapy. Their personality is also called immature and pseudo-aggressive since the aggression when it does occur is self-defeating and ineffectual for long-term constructive goals. Difficulties in therapy are one of the characteristics of the narcotic addiction "host" in our culture. Although therapeutic relationships tend to be tenuous and fragile, they can be developed, and special techniques are created for this type of work. Time works on the side of the therapist in that maturity brings diminished susceptibility of the host. Also, tolerance to long-term addiction is high both in the mental and physical fields. Damage to the host is essentially in his social relationships, and the pathology is on an interpersonal level.

Much of what is considered specific for drug addiction in our culture can be interpreted as the result of a highly complex selection process which allows only the most susceptible to become addicted and this is further reinforced by the nature of the psychic contagion since, to an important degree, addicts select each other and show specific mutual affinities based on personality.

The Agent

Almost every culture since the beginning of time has had its addicting substance and ours, it is hardly necessary to point out, is no exception. In fact, modern civilization can count many addicting substances, including alcohol, amphetamine, and barbiturates, as well as the opiates and their derivatives. The first firm records of addiction deal with alcohol and these, of course, go back to the beginning of recorded history. Addiction to opium and its products did not begin to be recognized in Western medicine until about 1850, although "The Opium Eater" by DeQuincy dates back to 1822. This is somewhat curious as the medicinal use of opium has been known at least since the days of the Ebers Papyrus, dated about 1150 B.C. Opium was probably a drug of addiction in Persia, India, and China beginning in the early Middle Ages, but records are scanty and limited to Eastern countries until addiction was recognized medically.

The opiates as a group, especially heroin (diacetyl-morphine), fulfill the three classic characteristics of addiction: habituation, tolerance, and physical dependence. It would seem scarcely necessary to call attention to these three attributes of addiction, yet some of the proposals advanced for coping with the narcotic addiction problem seem to have lost sight of them.

In this country heroin is the drug of choice among narcotic addicts. It accounts for some 90 percent of addiction, whereas cocaine does not play a prominent role, and marihuana is of concern chiefly as a step on the road to addiction to the opiates.

Obviously, narcotic addiction cannot exist without an addicting substance. Efforts to limit the use of narcotic drugs in this country date back to 1870, and they were given new impetus with the passage of the Harrison Anti-Narcotic Act of 1914.

As Ausubel (*8*) has pointed out, there is essentially nothing punitive about the attempt to reduce the availability of narcotic drugs. Isolation of disease-producing agents from susceptible individuals is just as logical in the prevention of narcotic addiction as it is in the control of typhoid fever. When viewed in this context, the efforts of State and Federal narcotic control officials in limiting and controlling the supply of narcotic drugs assume their true importance.

Environment

The significance of environment in the epidemiologic triad of narcotic addiction becomes readily apparent when we examine the distribution of narcotic addicts in this country. Four States have the bulk of the nation's addict population: New York, 45 percent; California, 15

percent; Illinois, 15 percent; Michigan, 5 percent; and the remaining States 20 percent. (These percentages are approximations, since the actual number of addicts is not precisely known.)

Further, within those States the environment which supports the greatest addict population is found in their large cities. It may be pinpointed even further as being concentrated in certain socioeconomically depressed areas of these cities. It is in these areas that the greatest stresses and tensions exist, especially among the minority groups from whom the largest number of addicts is drawn.

It is interesting to note in connection with the environmental factor that narcotic addiction in this country was, during the early part of this century, largely a southern-rural-white problem, while at present it is essentially a northern-urban-Negro problem.

Finally, we address ourselves to the question posed earlier: if the favorable position of the British with respect to narcotic addiction is not the result of the alleged "system" of British narcotic control, what is it due to?

To answer this, we again refer to the epidemiologic triad. The answer obviously is not in the absence of an addicting agent. While England's law-enforcement activities with respect to narcotics are efficiently and conscientiously carried out, narcotic drugs are nonetheless available. Neither can the answer be found solely in differences in environmental factors between the two countries. England has crowded cities with socially and economically depressed areas not too dissimilar in appearance to those in this country.

The answer, we believe, lies in the lack of a comparable supply of susceptible hosts, conditioned by custom, economic and social forces, attitudes, and interests.

For example, England has no problems comparable to ours in the integration of minority groups who are subject to great stresses and tensions. England has a relatively homogeneous population, blended from various ancestral strains. Less than 1 percent of England's population is nonwhite. In contrast, it has been estimated that more than 60 percent of the addict population in the United States is nonwhite, reflecting social stresses.

It is clear that, despite the common heritage which we share with England, there are considerable cultural differences between our peoples which suggest a lack of cultural susceptibility to narcotic addiction on the part of the English people themselves. The Englishman with a personality disorder which in this country might form the basis for narcotic addiction is likely, it appears, to seek some other solution.

In seeking a reason for the negligible extent of criminal narcotic addiction in Great Britain, the Brain committee noted: "The cause for this seems to lie largely in social attitudes to the observance of the law in general and to the taking of dangerous drugs in particular, coupled with the systematic enforcement of the Dangerous Drugs Act, 1951, and its regulations."

Summary

A comparison of essential factors, such as host, addicting agents, and environment, in the epidemiology of drug addiction in the United States and England indicates that England's relatively small incidence of drug addiction results from having fewer susceptible hosts rather than from its method of handling narcotic drugs.

England, with a comparatively homogeneous population, has no minorities subject to great stresses and tensions comparable to those in the United States. The British population also has a lower cultural susceptibility to drug addiction rather than a superior method of control of addiction.

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Education Notes

Public Health Engineering. Beginning July 17, 1962, the University of Minnesota School of Public Health will train graduate engineers for service in governmental agencies administering hospital programs or in large medical installations. The new 2-year curriculum is designed to develop competence in hospital administration, technical engineering, and public health, and in dealing with environmental engineering problems peculiar to medical care institutions. Graduation from an approved engineering school is a prerequisite.

The first academic year includes courses in hospital administration, biostatistics, communicable disease control, epidemiology, and radiological health, as well as courses in technical engineering. Special work and seminars on control of the microbiology of the hospital and other problems of hospital environmental health round out the first year.

Following the first academic year, a 3-month hospital residency will be taken. The second academic year is more specialized and more technically oriented to the needs of individual students, with opportunities for additional study and training in industrial, mechanical, and electrical engineering. Seminars, individual projects, and conferences with specialists from government programs, industry, and hospitals are also part of the second year's program.

This curriculum leads to the degree of master of science. In unusual cases a student may also earn the degree of master of public health. Occasionally a gifted individual might continue to complete a doctoral program.

Bio-Engineering. A new education program combining studies in any area of engineering with those in the medical and biological sciences will be offered by the University of Michigan College of Engineering in September 1962. Under the program an engineering student may take courses for credit in a wide range of biological or medical subjects, such as anatomy, botany, bacteriology, biochemistry, organic or physical chemistry, and zoology, along with the courses required for his chosen engineering degree.

A student may, for example, combine courses in biochemistry and bacteriology with a chemical engineering curriculum to prepare for a professional career in pharmaceutical or food manufacturing; or physiology, psychology, neurology, and electrical engineering may be studied for a career of research on neurosurgical instrumentation or the application of computers to such areas of medicine.

Candidates will be graduated with an engineering degree, but also with the knowledge necessary to enable them to work professionally in many areas associated with medicine, dentistry, pharmaceutical, and other biological research.