C.3 CHARACTERISTICS OF USERS

A number of the difficulties with regard to providing information on the extent and patterns of drug use have been discussed in C.1 *Introduction* above. These difficulties, such as variations in the methodological sophistication of studies, the narrow scope of most studies and the choice of sample populations also apply to, and limit, the generalizability, validity and reliability of the available data concerning the characteristics of drug users. The most reliable and readily available socio-demographic data concerns the age, sex and socio-economic status of drug users. Therefore, these will be the variables emphasized in this section although other relevant factors will be discussed if valid and reliable data is available. As there are numerous studies of student drug users, but few good studies of adults who use illicit drugs, this discussion will, of necessity, focus mainly on young persons, primarily those in high school and university.

Discussions of survey data on social characteristics related to the use of drugs are predicated on the assumption that these relationships are not only statistically significant but socially meaningful. The assumption is that certain characteristics highly associated with the use of a drug have a predictive value in enabling us to determine which persons or groups are more likely to use that drug, at what levels-of-use, and with what patterns of consumption. Unfortunately, however, epidemiological concentration on specific populations (particularly high school and college students) and the fact that many survey findings refer only to that situation that prevailed at the beginning of the diffusion of hallucinogen use during the middle and late 1960s render any attempt to generally predict on the basis of social characteristics a speculative and often misleading exercise. Consequently, the following review of the social characteristics of Canadian drug users must be seen as a descriptive rather than analytical account, and reliable predictions must await the completion of more comprehensive and dichronic surveys.

OPIATE NARCOTICS

There is wide variability in the ages of heroin users in Canada, ranging from the late teens to over 60 years of age. Until the mid-sixties, most heroin users first became recognized by the Bureau of Dangerous Drugs (B.D.D.) between the ages of 25 and 39, indicating that this was the age range in which heroin users, on the average, were most likely to be first arrested for a narcotics or other offence or to appear for treatment. However, this was not usually the age range in which most users became dependent on heroin.[253]

An R.C.M. Police survey in Vancouver in 1945 indicated that over one-half of those arrested had started their heroin use at an average age of 17.4 while the overall average for the sample was 21.9.[203] Dependence first occurred in the late teens or early twenties for over one-half of the samples of British Columbia heroin users who were studied by Henderson in the late sixties[117] and by Stevenson and his associates[253] in the mid-

fifties. However, 21 per cent of Henderson's sample first experienced dependence before the age of 18, and most of the remainder became dependent by the age of 30. A recent Vancouver study by the Narcotics Addiction Foundation of British Columbia indicates that the younger patients who have come for methadone maintenance did not become dependent, on the average, until age 21.[127] Although the age at which opiate users are recognized is declining (see C.2 *Extent of Use,* page 678), there is little evidence that people are using opiates or becoming dependent on opiates at significantly earlier age than did their counterparts in the past. Heroin use, in its beginnings, has been preponderantly a phenomenon of the late teens for several decades.

Patients who came to the Narcotic Addiction Foundation between 1956 and 1963 were questioned about the year they had first become dependent, and this was compared to their records at the Bureau of Dangerous Drugs. Fifty-one per cent had not been recorded by the B.D.D. after three years of regular heroin use. Twenty-eight per cent were still not known to the B.D.D. after five years of dependence.[117] Thus, the national statistics at that time were not indicative of age of first dependence because there was a considerable timelag between dependence and becoming 'known' for a large proportion of the known habitual narcotics-using population.

In recent years, however, a growing proportion of new names have come to the B.D.D. from "retail reports" information (i.e., methadone prescriptions). Simultaneously, a greater proportion of persons under age 25 have come to their attention. It is increasingly evident that the timelag between first use of opiates and becoming 'known' is decreasing due to the apparent willingness of young users to apply for methadone maintenance at clinics or to appeal to private physicians for methadone prescriptions within their first year of heroin use.[127] Furthermore, Commission research indicates that before the new restrictions on the prescribing of methadone came into effect in June 1972, a significant number of methadone prescriptions had been issued to persons who had had little or no experience with heroin. Thus, those who have used heroin may be recognized at an earlier age due to methadone prescriptions, and many young people obtaining methadone are possibly being listed as habitual narcotics users although they have had little or no previous involvement with opiate narcotics (see C.2 *Extent of Use,* page 678).

In addition, this increase in newly reported young users may be a result of changes in law enforcement practices. Recently more police emphasis has been placed on youthful drug users. The young are now more likely to be stopped and searched on the street and their residences are more likely to be investigated. Consequently, there is an increased likelihood that those who have used heroin for only a few months, some of whom may not be dependent on the drug, will be arrested for heroin offences.

Although the above-mentioned factors indicate that the drop in age of known heroin users in recent years may not reflect proportional changes in

the using population, there is, nevertheless, evidence to indicate a small amount of heroin use among young teenagers. Halpern and Mori, for example, found that the proportion of Ottawa English-speaking students using 'opiates' (including heroin) in the two months preceding the survey was 1.1 per cent in grade eight, 3.3 per cent in grade ten, and 2.5 per cent in grade 12.[108] The highest rates of use among Ottawa French-speaking students were found in grades nine (1.6 per cent) and 12 (1.7 per cent). Smart, Fejer and White found that 1.7 per cent of their 1972 Toronto grade seven sample claimed to have used heroin at least once in the six months preceding the survey; in grade nine use was 3.1 per cent; and both grades 11 and 13 had current use rates of 1.2 per cent.[242] The Bureau of Dangerous Drugs' most recent tabulations of known habitual narcotics users include 50 persons (or 0.6 per cent of the 1972 total) under the age of 17.

Although the heroin-using population in the United States is disproportionately non-white, this is not the case in Canada. Heroin users here are predominantly white and Canadian born, although there are a few native Indians and a similarly small number of elderly Orientals.

The sex ratio of known users is approximately seven males to three females. However, among occasional users the sex ratio appears to be more balanced. Russell found a 3:2 male to female ratio among high school students in British Columbia in 1969 who had used heroin more than ten times,[225] while a 1970 Vancouver study found the reverse ratio among the same category of users.[180] However, when all students who had ever used heroin were considered, the male to female ratio was approximately 1:1 in both surveys. Smart, Fejer and White found a 3:2 male to female ratio among heroin users in their Toronto high school sample.[242]

Most dependent heroin users either marry or become involved in a commonlaw relationship with a member of the opposite sex sometime during their life time. Some have multiple liaisons. They tend to marry persons who are also involved in heroin use and many of these relationships take the form of a kind of business partnership as well as supplying love and companionship. Marriages are often interrupted and sometimes terminated by long prison sentences.

Most heroin dependents who have been studied in Canada and the United States have done poorly in school in spite of average or better intellectual potential.[253, 263, 266] An analysis of Canadian heroin conviction statistics for the years 1967–1969 revealed that an average of 82 per cent of those whose grade level was stated had failed to reach beyond grade ten.[135] In Henderson's British Columbia study, more than 80 per cent had left school by age sixteen.[117] The reasons for leaving school were predominantly lack of motivation to continue, the desire to work and make money, or a reform school sentence.

Heroin users' difficulties in school carry over into their occupational adjustments, and only a minority have good work records. In a study of users in the United States, Vaillant found that not only dropouts from slum

schools, but also many middle-class users had had employment difficulties prior to opiate dependence.[263] Some have stated that they found their occupations to be uninteresting or not sufficiently remunerative, although some occupational problems may have been a result of juvenile or young adult criminal convictions and prison records.[95]

One of the controversies surrounding the so-called 'criminal addict' is the extent to which his criminal behaviour is due to his drug use (in support of his habit) or existed prior to his introduction to heroin and was likely to have continued regardless. The extent of anti-social behaviour before dependence varies considerably with the population studied in the literature.[149] The percentage *known* to be delinquent prior to heroin use ranges between 50 per cent and 75 per cent in most recent American studies.[266] Two British Columbia studies suggest that the range is similar in Canada. Of the patients admitted to the Narcotic Addiction Foundation in the first six months of 1970, approximately one-half had had juvenile or adult convictions,[127] whereas in an earlier study three-quarters had had such convictions prior to narcotics use.[253] Henderson, in a third British Columbia study, found that although three-quarters of his subjects were to some extent involved in youthful delinquency, less than one-half committed repeated infractions which lead to arrest and conviction, and that these were not markedly different from those reported in juvenile crime statistics throughout the Western World.[117] The study by Stevenson and associates found that about one-half of the British Columbia female dependents studied had engaged in prostitution prior to their use of heroin.[253]

Heroin consumption and trafficking is usually centred in dilapidated and overcrowded urban neighbourhoods in North America. This does not, however, mean that those who eventually become dependent on heroin are necessarily from lower-class families. Over three-quarters of those that Stevenson and his associates studied in Oakalla prison near Vancouver, had come from homes that were financially comfortable or at least marginally so, with an income sufficient to cover actual needs of the family. Only a minority of the subjects came from backgrounds of actual poverty.[253] Over forty per cent of the subjects in another British Columbia study had come from homes where the father or father substitute was a professional, a white-collar worker or a skilled labourer. Five per cent of the fathers had been unemployed or engaged in unlawful pursuits, but otherwise the occupational distribution was about the same as the population at large.[117, 167]

In studies of opiate dependents conducted in Canada and the United States in recent years there appears to be a higher incidence than in the general population of families which had been disrupted by death, desertion, separation or divorce.[58, 117, 253, 266] Many homes, however, were discovered to have been intact, stable and comfortable. Those who eventually become dependent on heroin tend to leave the family early, but this is undoubtedly due in some measure to their premature departure from the school system, and, in some cases, juvenile arrest and subsequent reform school terms.

Although much has been made of unhappy childhood experiences and the resultant personality problems which have been hypothesized to be related to opiate dependence, it has become evident in recent years that heroin users are not, for the most part, suffering from a crippling mental illness.[266] They have been said to be maladjusted, depressed, hostile, immature, manipulative, narcissistic, and to suffer from feelings of inadequacy. However, virtually nothing is known about these individuals prior to opiate dependence and it is difficult to determine if these diagnosed characteristics were present prior to the use of heroin or are a result of the life experience and stigmatization of the individual after dependence occurs.[152]

The studies involving psychiatric diagnoses are usually without an adequate control group and are most often conducted in an institutional setting where the individual is often being held involuntarily, stripped of his identity supports and compelled to make an adjustment to a foreign environment.[23] In a study of prisoners in Oakalla Prison Farm, those who had used heroin were no more likely to be transferred to the Provincial Mental Hospital than prisoners without heroin experience.[253] The conclusion of the Stevenson study was that "addicts are basically ordinary people", characterized by an absence of healthy resources rather than by the presence of demonstrable pathology. The relationship between opiate dependence and psychological problems is discussed in more detail in Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use.*

AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

Canadian intravenous amphetamine users tend to be in their late teens or early twenties. The age range of 218 speed users studied in Toronto in 1970 extended from 13 to 30, with the average age for both males and females being approximately 17.[148] Occasionally 'speeders' as young as 12 or 13 have been encountered, and it appears that the mean age may have declined slightly over the past few years as speed use diffused into the suburbs and urban high schools of some regions.

There are usually two or three males to every female in a speed community, although the sex ratio may be a nearly balanced one if all speed users (including those who live with their parents) are considered.[103, 237]

While some of the first members of North American speed-using communities were college educated, this is generally atypical in Canada.[179, 195] In a Toronto study, most speeders who did not reside with their parents had left high school before graduating, and between 60 and 70 per cent of the total speed-using sample had failed at least one grade.[148] Commission-supported field studies in Montreal and Toronto collected relatively similar data regarding academic performance and levels of achievement.[160, 188] Furthermore, only a small minority of intravenous amphetamine users are employed on a regular, full-time basis.[148] Some, of course, are students (up to one-third of the Halifax speed-using population in 1971, for example[248]) but among those

involved in the 'street scene' there is little desire to work, poor occupational training and, very often, a paucity of legitimate opportunities. Those who do work are engaged primarily in blue-collar employment[245] and the occupational histories of unemployed speeders usually consist of multiple short-term jobs of an unskilled or semi-skilled nature such as sign-painting, taxi-driving, construction labouring, go-go dancing, and restaurant kitchen work. It should be indicated, however, that working speed users are less likely to actively participate in a street scene and, therefore, were less likely to come under Commission observation.

Several studies of speed-using populations have confirmed the middle and upper-middle class origins of the majority of their members.[148, 195, 217, 248] It is probably important to note, however, that residents of Toronto 'speed houses' in 1970 were likely to come from lower-middle and upper-lower class families whereas visiting, purchasing, or transient speeders were more likely to have parents of higher social strata.[188] Commission field researchers found that street speeders described their familial relationships as unsatisfactory and generally expressed negative or hostile attitudes towards their parents. This same research, and another study in Toronto, found that a disproportionately high number of these individuals come from broken or foster homes.[148, 188] More than one-half of a speed group studied in Toronto had seen a psychiatrist at least once prior to their use of amphetamines.[69]

Although information about the social characteristics of speed freaks is somewhat impressionistic, the pattern of use—chronic, high-dose, intravenous—is fairly clearly defined. The survey data on oral amphetamine use, although perhaps obtained in a more rigorous manner, suffer from another problem: the lack of a clear definition of the type of use involved. Few recent surveys, with the exception of Commission-sponsored research, distinguish between prescription and non-prescription use. The data from surveys which do not draw this distinction should be interpreted with caution.

Commission studies found that in the case of high school students, the medical (i.e., drugs obtained by prescription) use of 'diet' and 'pep pills' was uncommon among those under the age of 15, and that the incidence of such use was relatively constant between ages 15 to 19. Medical use among those in university had its highest rate among those over 30 years of age, while non-medical use was most often found among those between 25 and 29. Fejer and Smart found that among adult drug users in Toronto, 'stimulant' use was most prevalent in the age group 18 to 25. (Data was not presented for those under 18.) The authors state that:

> There was no significant difference in age and the duration of stimulant use or in the number of tablets taken in a 24 hour period. However, more stimulant users age 18 to 25 obtained stimulants without a prescription than in the older age groups. About 55% of stimulant users 18 to 25 did not receive their stimulants on prescription compared to 23.5% of those 26 to 45 and none of those over 45.[88]

In the late sixties, the sex distribution of high school stimulant users in Montreal, Toronto and Halifax was about one and one-half males for every female.[272] In Toronto high schools in 1970 and 1972, the sex ratio of those who used stimulants within the previous six months was about 1:1, with females constituting a very slight majority of the users.[242] The Commission's study of a national sample of Canadian adults found that more than twice as many females (17 per cent) as males (8 per cent) had ever used 'diet' or "pep pills" "under a doctor's supervision", while about the same proportion of men and women had used them without such medical supervision.

Fejer and Smart, however, found that there was no significant difference between the proportion of Toronto male and female adult stimulant users, and while females were more frequent users than men, they had generally been taking stimulants for a shorter period of time.[82] They also found that while more than three-quarters of the females using stimulants received their drug through a doctor's prescription, only one-quarter of the men did so.

The Addiction Research Foundation of Ontario studies of 1968 and 1970 found that the use of 'stimulants' was most prevalent among high school students whose fathers held professional or managerial positions.[241] However, in their 1972 study, "no father" and "father not working" categories were added.[242] This changed the findings significantly as it was found that stimulant use was highest among those students who had no father. When those with no father and non-working fathers were excluded, a pattern similar to that of the 1968 and 1970 studies emerged. Commission surveys indicated that the non-medical use of 'diet' and 'pep pills' was not clearly or consistently related to personal income or to parental occupation or income. However, the Commission's national adult survey indicates that higher than average rates of 'diet pill' use occurred among persons employed in clerical and sales jobs and service and transportation industries, and among those not in the labour force. The incidence of 'pep pill' use, as reported in the same survey, was higher than the national average among professionals, managers and clerical and sales personnel.

HALLUCINOGENS

People from diverse segments of the North American population have experimented with hallucinogenic substances. The use of LSD and similar hallucinogens began in groups of highly educated persons who were largely from upper socio-economic levels and who experimented with these drugs in medical or quasi-medical settings. As information about these substances spread, a black market gradually arose to serve the needs of those whose curiosity had been aroused, and the non-medical use of hallucinogens diffused, thereafter, through every stratum of society.

The average age of initiation to non-medical LSD use has dropped steadily in the last 15 years. Disturbed children have had LSD therapy in hospital[16] and cases have been recorded of young parents giving psychedelics to their

pre-teen children.[26] Cases have also been reported of accidental ingestion by children as young as one year old.[259] However, voluntary initiation into non-medical hallucinogen use presently occurs most frequently during the mid- or late teens, and use is concentrated among adolescents and young adults.

Smart, Fejer and White found a strong inverse correlation between hallucinogen use and grade average among Toronto high school students between 1968 and 1972.[242] In their 1972 study they found that of those students having an average of 50 per cent or less, 16.3 per cent used LSD, while only 2.8 per cent of those with an average over 74 per cent claimed to use this drug. Whitehead, in his review of several Canadian high school studies, reported a similar pattern.[272]

In its beginnings, the 'hippie movement' appeared to be a middle-class phenomenon, primarily involving the sons and daughters of the *nouvelle bourgoisie*. Indeed, those who were in the vanguard of the 'love generation' had come primarily from the white middle classes of the United States, although there were a few blacks on the pheriphery of the movement.[279] Although the first LSD users were middle class, as early as 1966 it became apparent that LSD was being taken by young people in 'ghetto' areas of New York City[262] and that the urban 'hippie' communities attracted young people from all levels of society.

Smart, Fejer and White and Whitehead found a strong relationship in 1970 between father's occupation and the use of LSD and other hallucinogens.[241, 272] The use of these drugs was highest among the children of fathers who were professionals and managers. In a replicatory study conducted in Toronto in 1972, Smart, Fejer and White found that no significant relationship existed between father's occupation and the use of LSD or other hallucinogens.[242] The addition of two new 'father's occupation' categories in the 1972 survey may, however, have been responsible for this finding and, therefore, brings into question the previous correlation.

It appears that in the late 1960s there were many more male than female high school students using LSD and other hallucinogens, although all studies do not confirm this. In one sample, Russell, found an almost 1:1 sex ratio among LSD-using high school students in British Columbia in 1969.[225] Whitehead, on the other hand, found an almost 2:1 male to female sex ratio for LSD users and close to a 4:1 male to female ratio among other hallucinogen users in the same year.[272] Smart, Fejer and White found that the male to female ratio for the use of LSD and other hallucinogens among Toronto high school students was greatly equalized between 1968 and 1972.[242] In 1968, 5.6 per cent of the male students and 1.3 per cent of the female students used LSD, while in 1972 the rates of use were 7.1 per cent and 5.6 per cent for males and females respectively. However, this difference was still statistically significant. The male to female ratio for the use of other hallucinogens dropped from approximately 2:1 in 1968 to a statistically non-significant ratio of about 7:6 in 1972. Commission survey data gathered in

1970 indicates that the male to female ratio of hallucinogen users was about 3:2 in high schools, colleges and universities, and 2:1 among Canadian adults.

ALCOHOL

As most of the Canadian epidemiological studies concerned with alcohol consumption have sampled either high school students or adults, the data presented here will focus primarily on these two populations.

Data from a number of high school surveys show that older students (those in higher grades) are more likely to use alcohol than younger students.[108, 242, 243] Social class and academic performance do not appear to be significantly related to use of alcohol among high school students. Male students, however, generally display higher rates of alcohol use than their female counterparts.[241, 242, 272]

There are very few Canadian studies that provide reliable information on the social characteristics of alcohol users. One of these is a 1969 Addiction Research Foundation of Ontario survey of Ontario residents 15 years of age and over.[75] This study found alcohol use was most common among persons between the ages of 20 and 49 (about 90 per cent of this age category), and that the incidence of alcohol use declined relatively consistently in all age categories beyond 50 years of age. This same study reported that while 86 per cent of Ontario males used alcohol, only 75 per cent of the females did so. Alcohol use and income-level were found to be directly related, with the incidence of use rising from 60 per cent of those earning under $5,000 per year to 90 per cent of those earning over $15,000 per year.

A 1961 Addiction Research Foundation study of the alcoholic population, ('problem drinkers', 'alcohol addicts' and 'chronic alcoholics') in Frontenac County in eastern Ontario, indicates that 16 per cent of this population were women and 84 per cent were men. Seventy-one per cent of these alcoholics were between the ages of 30 and 59, and three occupational categories accounted for over one-half of the alcoholic population: "service and recreation", "craftsmen and production workers", and "unskilled labourers" (other than those included in other occupational classes).[1] However, the methodological problems involved in the detection of alcoholic populations—particularly women—limit the reliability of these findings.

BARBITURATES, MINOR TRANQUILIZERS AND OTHER SEDATIVE-HYPNOTICS

The Commission's national adult survey indicates that there are proportionately about twice as many adult females as males using tranquilizers under a doctor's supervision, and that for every two adult males using 'sedatives' under medical supervision there are about three females. Fejer and Smart found a similar adult male to female ratio for use of tranquilizers, but they found no significant difference between the proportions of male and female barbiturate users.[82] The fact that females are more likely to use these sub-

stances has been noted in the United States, and by other researchers in Canada as well.[52, 67, 171, 191, 236]

The Commission adult survey also found that the use of tranquilizers was highest among adults under 30 years of age and among those 60 years of age and over. However, Fejer and Smart, in a 1971 random sample of Toronto adults (aged 18 and over), found no significant difference in age between users and non-users of tranquilizers, although they do report a significant age difference between users and non-users of barbiturates.[82] The highest incidence of use was found among those between 36 and 50 and those over 60 years of age.

Fejer and Smart also found that adult tranquilizer users and non-users did not differ significantly in marital status, birth place, educational background and occupation.[82] Barbiturate use, however, occurred significantly more often among persons who were remarried, divorced or widowed than among those who were single, and barbiturate users had a significantly higher level of educational attainment than non-users. No significant difference between users and non-users of barbiturates was found with regard to occupation or birth place.

The Commission's survey of Canadian adults indicates that persons who use tranquilizers are most often employed in clerical, sales or professional and managerial occupations. Persons not in the labour force, including housewives, show an even higher rate of tranquilizer use than members of these occupational categories. These findings would seem to corroborate the generally accepted hypothesis that tranquilizer use is predominantly a middle-class phenomenon.

Barbiturates, tranquilizers and non-barbiturate sedative-hypnotics are used both medically and non-medically by high school and university students in North America. The Commission surveys indicate that Canadian college and university students have about twice as high a rate of tranquilizer use as high school students: about eight per cent of Canadian high school students at some time used tranquilizers obtained by prescription, and an additional three per cent claimed to use them without benefit of prescription; 14 per cent of college and university students had at some time used tranquilizers on prescription, and an additional five per cent had used them without any prescription. A large number of studies indicate that the use of tranquilizers is more prevalent among female than male high school students.[25, 81, 139, 180, 225, 240, 242, 251] The Commission surveys found this trend to be true for both medical and non-medical use of tranquilizers in both high school and college and university populations.

Whitehead, in a 1969 study of Halifax high school students, found that the highest proportion of barbiturate and tranquilizer users came from homes where the father or "male guardian" was a professional or manager,[272] while Smart, Fejer and White, in a 1970 study of Toronto high schools, found that the highest proportions of students who used these drugs came

from families where the father was employed as a professional or a skilled worker.[241] However, a 1972 Toronto survey found that the incidence of barbiturate use was highest among those high school students reporting "no father" and "father not working".[242] These occupational categories were not provided in the 1970 survey. Several surveys have discovered that there are much higher rates of student barbiturate and tranquilizer use if the parents of high school students, particularly the mothers, also used these substances or other psychotropic drugs.[240, 241]

Smart, Fejer and White and Whitehead found that the greatest proportion of high school barbiturate and tranquilizer users were found among those who had a grade average of under 40 per cent, that this was consistent over time (1968 to 1972), and that there was a statistically significant inverse relationship between grade average and the probability of barbiturate and tranquilizer use.[242, 272] For example, Whitehead, in his 1969 study of Halifax high schools, found that 17 per cent of those students with an academic average of under 40 per cent had used barbiturates in the past six months while only two per cent of those with an academic average of 75 per cent or more had done so.[272]

VOLATILE SUBSTANCES: SOLVENTS AND GASES

There are several differentiable classes of individuals using solvents in North America today. Adult use is rare, but not unheard of. Some housewives, for example, have been known to sniff nailpolish remover. The most common illustration of adult use of solvents, however, involves persons whose institutionalization (in jails or psychiatric hospitals, for example) deprives them of access to alcohol. It has been reported that they would gladly give up their use of solvents and drink alcohol if given a choice between the two.[202]

There is some use of solvents, chiefly gasoline, in rural areas.[68, 86] This activity usually takes place among young boys, and is much less common among adults. Gasoline sniffing is usually performed alone in these areas, a pattern differing from that seen in urban settings where a group situation is often the rule.[12]

Another group of solvent sniffers, and the one given the most publicity, involves pre- and young adolescents. Most American studies deal with lower-class children, who use solvents in 'gang' settings. Less information is available on children and adolescents of other social classes or the solitary sniffer. It appears that the emphasis on lower-class group use is because, "it is in [lower class] neighborhoods that cases come to the attention of police, school officials, etc., with resultant mass media publicity."[138] It should be emphasized, however, that the low visibility of middle-class solvent consumption does not necessarily indicate a lower incidence of use within this population.

Adolescents who are part of lower-class solvent-using groups are often from disorganized families.[2, 3, 11, 12, 29, 37, 138, 153, 202, 222] Only a minority are reported to live with both of their parents,[222] a third are said to have an

alcoholic parent,[12] and many are from large families, almost half of one sample having at least four brothers or sisters.[37] These individuals often do poorly at school and are frequently truant.[11, 222] They average one academic year behind their contemporaries.[11]

By the mid-1960s, Canadian solvent use became visible among middle-class pre-adolescents and young teenagers. Gellman reports that solvent sniffing was first noticed in Winnipeg in 1964 when teenagers began purchasing nail polish remover in quantity.[86] These youths were far from secretive about the purpose of their purchases and, in 1966, some Winnipeg high school principals estimated that up to five per cent of their students were using solvents.[86] Most of these student sniffers were not economically deprived but, rather, were from middle-income families. Canadian surveys of solvent users, unlike most of the studies conducted in the United States, have not restricted their focus to lower-class youth and, in general, have found that use of these substances is not particularly associated with the lower-classes. In fact, many studies found there to be no relationship between social class and solvent use.[81, 240, 241, 272]

Studies of solvent use indicate that such use in Canada is almost exclusively confined to young persons. However, adults are rarely surveyed as to their use of solvents and would, in any case, probably not admit to such an indulgence. From the information available, it appears that, in general, solvent users range in age from about 10 to 14, and that there is very little sniffing among university students and the general adult population. Rubin in a review of American studies conducted in the mid-1960s, found that the average ages of sniffers was reported to vary from a low of 11.9 years to a high of 14.8 years.[221] Unfortunately, studies of elementary school children under ten years of age have not been conducted and therefore it is impossible to determine the proportion of children under ten that use these drugs.

Rubin, in his review of American studies, indicates that the ratio of males to females in youthful solvent-using samples ranged between 22:1 and 5:1.[221] Recent studies of Canadian public and high school students have found a much more even distribution between male and female solvent users. In the late 1960's, there were slightly more males using solvents than females,[225, 272] while in 1972, at least in Toronto, this situation seems to have been reversed.[242]

Canadian solvent users do not do as well in school as their peers, are more likely than non-users to be from broken families or families where the father does not work, and they are more likely to have parents who use psychotropic substances.[240, 241, 242, 272]

TOBACCO

Department of National Health and Welfare statistics for the years 1964 to 1970 indicate that between seven and eight per cent of Canadian males aged fifteen years and over "smoke pipe and/or cigars" exclusively. These figures also indicate that less than 3.5 per cent of Canadians smoke cigarettes

at a level-of-use of less than once per day.[44] As about 80 per cent of Canadian tobacco users smoke cigarettes and do so at least once per day, the following discussion shall deal primarily with this population of "regular cigarette smokers".

As indicated in Table C.6, the proportion of teen-age males who smoke cigarettes regularly has remained fairly stable between 1965 and 1972, while there has been a substantial decrease (on the order of 15 per cent) in the proportion of Canadian males aged 20 to 64 years who smoke cigarettes. The greatest increase in the proportion of persons who smoke on a regular basis occurred among teen-age girls. In 1965, 18.8 per cent of the girls 15 to 19 years of age smoked at least one cigarette per day, while in 1972 28.5 per cent did so. This represents a 52 per cent increase in the proportion of regular smokers in this age group. However, most teen-age girls smoke less than 26 cigarettes per day, and the majority in each year from 1965 to 1972 smoked less than 11. This increase in the proportion of female teen-age regular smokers does not necessarily mean that there will be a substantial rise in the proportion of women cigarette smokers in the future as it may be due, at least in part, to increased female willingness to admit to smoking and to women starting to smoke at an earlier stage. There was little change in the proportion of female regular smokers in other age groups. Health and Welfare statistics indicate that about 40 per cent of Canadian women aged 20 to 44 years smoke regularly, while about 32 per cent of those between 45 and 64 years of age do so.[65]

TABLE C.6

DISTRIBUTION OF MALE AND FEMALE REGULAR CIGARETTE SMOKERS* IN CANADA, BY AGE GROUP, FOR PERSONS 15 YEARS OF AGE AND OVER, 1965 AND 1972 AND DIFFERENCES BETWEEN THESE YEARS†

	1965		1972		Differences: 1965–1972	
Age Group	Males	Females	Males	Females	Males	Females
	%	%	%	%	%	%
Total 15 years of age and over	54.6	31.2	47.4	32.4	−7.2	+1.2
15–19 years	35.0	18.7	35.0	28.4	0.0	+9.8
20–24 years	62.1	40.8	52.6	40.6	−9.5	−0.2
25–44 years	63.2	40.5	53.3	38.8	−9.9	−1.7
45–64 years	58.8	30.3	50.0	31.6	−8.8	+1.3
65 and over	32.3	8.0	30.4	10.4	−2.0	+1.5

* Regular cigarette smokers are defined as persons who smoke at least one cigarette per day.

† Estimates prepared by the Department of National Health and Welfare from data obtained from the Labour Force Survey Statistics Canada as based on the civilian non-institutional population 15 years of age and over, exclusive of residents of the Yukon and Northwest Territories, Indians living on reserves, inmates of institutions and members of the armed forces.

There are some noteworthy regional variations in the proportion of Canadians who smoke one or more cigarettes per day (i.e., regular smokers). In 1970 (the latest year for which relevant data was available to the Com-

mission), about 41 per cent of the Canadian population 15 years of age and over smoked cigarettes regularly. The incidence of use in the Atlantic provinces was the same as the national figure, while 47 per cent of the Quebec population smoked regularly. The proportion of regular smokers in Ontario, the Prairies and British Columbia was about 38 per cent.[66]

The regional pattern for male regular smokers was similar to the above distribution. Forty-nine per cent of the national population smoked regularly. The proportion of male regular smokers in the Atlantic region (51 per cent) was slightly higher than the national figure while, in the three western regions, the rate was lower, about 44 per cent. The highest rate of regular use among males in 1970 occurred in Quebec (59 per cent). There were fewer regional variations in the distribution of female regular smokers. Apart from Quebec, where approximately 36 per cent of the female population over 14 years of age smoked regularly, the national and regional incidence of regular cigarette smoking ranged from 31 to 33 per cent.[66]

C.4 PATTERNS OF USE

In discussing the process whereby persons become introduced to and involved in, and depart from the use of drugs, it is helpful to employ the concept of a 'social career' as delineated by Becker and others.[15, 96, 268, 278] The notion of 'career' permits the understanding of behaviour patterns as developing in an orderly sequence that any individual may pass through—for example: 'experimental', 'occasional', and 'regular' drug user. Attainment of each step in the sequence is a necessary condition for further career advancement, although this developmental process may be terminated or reversed—with varying difficulty, depending on the drug—at any stage.

The concept of a drug career, however, does not necessarily imply that a particular variety of drug use assumes a predominant or determining role in an individual's life. In some cases, of course, this actually occurs—heroin, methamphetamine ('speed') and alcohol dependence being the archetypal examples of this development. In most instances, however, a person's drug-using career is subordinate to other aspects of his life (his academic, occupational and familial careers, for example) and patterned by these conventional demands and obligations. A drug-using career, then, is simply a natural history of drug use: that orderly sequence of stages through which any individual may progress between initial and chronic use of a drug.

It is possible to describe individual career routes for every psychotropic drug. This approach, however, would tend to hinder appreciation of the fact that the process of drug use socialization is basically the same no matter which drug or drug-type is considered. For this reason, the following discussion applies generally to all drugs. There are, however, junctures at which it is critically important to distinguish specific drugs and drug careers from this

general framework. In such instances, the differentiating properties will be discussed and, when necessary, particular career patterns associated with specific drugs or drug combinations will be more comprehensively developed.

Drug use—like any social, recreational or vocational activity—is learned behaviour.* Consequently, the process of becoming a drug user is essentially identical to the learning of behavioural patterns within any sociocultural context. In the case of drugs, a novice must first learn to accept the idea of his personal use of drugs. Subsequent use is likely to depend on learning to acquire, prepare and administer drugs, learning to subjectively appreciate their effects, and learning to accept their use as appropriate behaviour under certain circumstances. The regular use of a drug requires learning the role of 'drug user' and, in some cases, learning to become a member of a drug-using subculture. The discontinuation of, abstinence from and relapse to the use of drugs also involve learned behaviours. Learning, then, includes many aspects of drug use: ingestion, patterns of use (frequency, drug preferences, social contexts), meanings of the drug experience, ideology and values, and a host of esoteric skills related to the procurement of drugs and, in some instances, the maintenance of a drug dependence.

This socialization process can best be described with reference to a typology of drug users based on levels-of-drug-use (see C.1 *Introduction* above). These level-of-use distinctions—initial or experimental use, occasional use, and regular use—can be viewed as three identifiable gradations on a continuum of increasing personal involvement with drugs and drug-related activities. These level-of-use categories can also be conceived of as three stages of socialization into drug use, albeit with the caution that progression to any advanced stage is neither irreversible nor a necessary or inevitable consequence of entry into a preceding stage.

INITIAL OR EXPERIMENTAL USE

'Experimental' users of a drug are those persons who have not yet learned to effectively use and positively interpret the effects of the drug in question. They usually have no regular access to supplies of the substance, and they are unlikely to have assumed the definitions and evaluations of the using culture. Persons who try a drug but never learn to recognize or appreciate its psychotropic effects are unlikely to advance to occasional use of the drug. They will, instead, terminate their use after a few experimental sessions.

As was pointed out in the *Cannabis Report* with respect to marijuana and hashish, the initial use of a drug almost always depends on a willingness

* Dai, in his study of opiate dependency in Chicago, reached the same conclusion more than 35 years ago when he noted that the "... process in which this pattern of opium addiction is taken over by an individual is not very much different from that in which other cultural patterns are transmitted".[n]

to try that drug.* The exact motivating factors—whether psychological or sociocultural—that predispose an individual to drug use may vary from drug to drug and from individual to individual (see Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*). However, the willingness to initially experiment (whatever its etiological source) depends on the potential user's interpersonal and attitudinal situation (discussed on the following page) and his effectively dealing with three major social control mechanisms: limited availability, the need for secrecy, and the relative immortality of the act as publicly defined.[13, 14] Advancement through the stages of a drug-using career will only occur once any inhibiting effect of these controls has been successfully neutralized.

It is important to recognize, however, that the valence or strength of these controls varies from drug to drug, from reference group to reference group, and from time to time. Alcohol and tobacco products, for example, are much more readily available than are the illicit drugs—although access to these substances is still restricted by legal regulations and more informal familial rules that primarily affect use by children and adolescents. Similarly, the need for secrecy resulting from the fear of disapproval or other negative sanctions does not usually apply for most adult use of licit psychotropic substances, but would have some inhibiting effect on most illicit drug experimenters and those adults who dwell in communities which express and follow temperance values. It should be noted, as well, that conventional definitions of appropriate drug-using situations compel many adult users of licit drugs to be secretive about their consumption; for example, a business executive anticipating a tense conference may imbibe alcohol in the privacy of his office in order to keep his co-workers from learning of his indulgence and commenting unfavourably. The non-medical use of 'pep pills' by housewives, athletes and businessmen may also be hidden from friends and relatives for similar reasons.

Public definitions of various types of drug use also change over time and, consequently, alter the moral context of such use and the inhibiting force of these moral considerations. Cannabis use, for example, has recently been divested of many of its negative moral connotations, while the non-medical use of amphetamines has suffered increasing stigmatization over the past few years. Despite these variations, it appears that initial drug use depends on the neutralization of these three social controls—although some types of experimental use are more easily arranged and justified than others.

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* There are a relatively small number of persons whose initial drug use was unwitting rather than volitional. This category primarily includes non-medical drug users whose first use of their drug was under medical auspices or whose initial drug experience was accidental in the sense that they were unaware of the psychotropic properties of the substance they were ingesting. Individuals who first received opiates in the course of normal medical practice for the relief of pain and whose consequent dependence has been maintained despite the cessation of the medical condition that initially prompted such use, exemplify this first situation; while instances of unsuspecting persons being given LSD or other hallucinogens (as documented in the case of the 1966 Los Angeles 'Acid Test'[15]) illustrate the second of these rare initiation processes.

C *Extent and Patterns of Use*

The problems of availability, secrecy and stigma are usually resolved within the context of initial drug use. Obviously an individual's willingness to try a specific drug is at least partially a function of his previous drug experiences, if any,* and some degree of anticipatory socialization that predefines the event as relatively attractive or unattractive. Once one is open to a drug experience, however, his actual use of the drug is more likely to occur in an aleatory—although natural—rather than deliberate fashion. Furthermore, one's initial experience with a specific drug—regardless of the drug or previous drug experiences—is likely to transpire in a social situation in which such behaviour is both tolerated and typical. As Sadava has noted: "The crucial point to be made here is that drug-using behavior . . . is not [usually] a sudden dramatic change in the individual's life and values, but develops as a natural, i.e., not surprising, process within the sociocultural context."[229]

Alcohol use, for example, is likely to begin in early or mid-adolescence, with parental permission being granted to test small amounts of the drug in the household living or dining room. Alternatively, a teen-ager may be introduced to alcohol by his peers at a party or after school. In either case, the problems of availability, secrecy, and stigma are resolved by influential friends or relatives who sanction the activity, furnish the drug, and provide a setting relatively safe from legal intervention. The initial use of other drugs occurs in a similar manner, except that parental influence is often replaced by the influence of trusted drug-using friends, relatives or a single intimate (such as a spouse or lover) in the case of illicit substances.

The naturalness of this initiation process is clearly evident in the case of heroin—the most stigmatized and one of the least accessible of all currently used drugs. Many researchers report that a close, friendly association with heroin users almost invariably precedes first use of the drug.[36, 57, 73, 121, 147, 150, 253, 268] Initial use, when it does occur, is usually (but not always) a spontaneous and unanticipated event in which the experimenter is often gratuitously provided with an opportunity to try the drug.[57, 117, 121, 150] The novice's initiators are most often experimental or occasional users themselves who—by virtue of their non-dependent state—claim to be in control of their heroin use.† Thus, the initiators mitigate the new user's anxieties about the potential dangers of heroin use by presenting themselves as 'living proof' that dependence does not necessarily follow even extensive experimentation.[268] Further-

* The relationship between various types of drug use is extensivly considered elsewhere in this appendix. (See Annex 1 to this appendix and "Patterns of Multiple Drug Use" on page 726.) It should be noted, however, that both the opportunity and desire to try a personally 'new' drug are somewhat a function of one's appreciation of previous drug experiences and the extent of one's involvement in the world of drugs. First use of hallucinogens, for example, is almost always preceded by a period of 'successful' cannabis experimentation: the more extensive the use of cannabis, the greater the probability of hallucinogen use.[99, 170, 227, 363]

† Dependent persons do occasionally play an important role in introducing heroin use to others. The most typical of these situations is a love relationship, marriage or common-law union in which the non-using partner first tries heroin in order to experience their dependent spouse's or lover's drug of choice. A large proportion of female addicts were first introduced to heroin in a relationship of this nature.[70, 120, 178, 196]

more, the drug is sincerely offered to non-users as a pleasant experience rather than out of any desire to cause harm or injury. As Hughes and Crawford, in a recent study of heroin initiation and diffusion in Chicago, have observed:

> . . . initiation to heroin usually occurs in a small group setting, involving only the new user and one or two addicts or experimenters. Most frequently, the initiate is introduced to heroin when he meets a friend who is on his way to cop [purchase] or is preparing to "fix" [inject]; he rarely seeks out the drug the first time. Thus, initiation depends more on fortuitous circumstances than on a willful act by the new user.[121]

It should be noted, however, that—theoretically—the first use of a drug need not derive from social interaction with users of that drug. Initial use may also occur as a consequence of accidental discovery of a substance's psychotropic effects (as occasionally occurs with the volatile solvents) or as a result of exposure to media presentations or hearsay which leads to a deliberate decision to obtain and try the drug. However, except for certain licit drugs (such as most solvents, some hallucinogens such as nutmeg, alcohol, tobacco, and pharmaceutical preparations such as amphetamines and sedatives which may be removed from family medicine cabinets) and certain privileged populations (such as the medical profession), the problem of availability remains and, consequently, almost all initial drug use results from interpersonal introductions to the drug. The Commission's university survey, for example, found that only three per cent of Canadian college cannabis users had first tried marijuana or hashish by themselves.[144]

The one major exception to the social and fortuitous nature of this initiation process involves those persons who purposefully and privately employ drugs for self-medication or improved functioning. Members of the medical profession—who are familiar with the medical properties of drugs and who have constant access to them—constitute the best documented example of this practice. Whereas illicit drug users generally experience initiation in a primary group setting, doctors and nurses almost always first ingest or inject their drugs in isolation and attempt to maintain the secrecy of their use. By way of illustration, Winick found that not one of his sample of 98 physician-addicts had been introduced to opiate use by others, and that 25 per cent of the doctors' wives were unaware of their husbands' dependence.[277] It appears, then, that in the case of doctors, professional training and occupational access to drugs substitute for the interpersonal socialization that characterizes most types of drug initiation.

While availability is obviously a crucial factor in initial drug use, it is clear that only a fraction of those persons granted an opportunity to try a drug actually do so. Goode has reported that 46 per cent of his sample of 200 marijuana users had declined opportunities to try marijuana prior to their initial use,[99] and a Commission survey of Canadian adults found that only 25 per cent of those respondents who had been offered LSD had in fact used this drug.[142] Furthermore, it appears that the proportion of those who

accept an offer to try a drug is inversely related to the perceived danger or stigma of that drug: the greater the perceived danger or stigma, the lower the proportion of users among those who have access. Table C.7 illustrates this relationship for two British Columbia high school populations.

TABLE C.7

PERCENTAGE OF BRITISH COLUMBIA HIGH SCHOOL STUDENTS WHO HAVE ACCEPTED OPPORTUNITIES TO USE A DRUG

	VANCOUVER*			OUTSIDE VANCOUVER†		
	offered	ever used	acceptance ratio	offered	ever used	acceptance ratio
	%	%	%	%	%	%
Marijuana	64	47	73	49	20	40
LSD	47	21	45	27	7	26
Methedrine	27	7	26	18	4	22
Heroin	18	2	11	10	1	10

* Narcotic Addiction Foundation of British Columbia, Research Department. Drug use among Vancouver secondary students. Unpublished manuscript, Vancouver, March 1971.

† Russell, J. S. *Survey of drug use in selected British Columbia schools.* Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.

Goode has suggested that the decision to experiment with a new drug is dependent on the novice's perception of the relative danger involved in such use, his perception of the drug's benefits, his attitude toward users of the drug, and his closeness to both the drug's endorsers and those who have proposed the initiation.[99] Several investigators have reported that the most important determinant in regard to initial experimentation is the degree of 'trust' that an initiate feels for those offering him an illicit drug.[48, 59, 63, 230]

In some cases, a particular mode of administration may have as great —or even greater—an inhibiting effect on initial use of a drug as the novelty of the drug itself. Previous drug experiences play an important role in this regard: users of tobacco products are unlikely to balk at the prospect of having to smoke marijuana, hashish or opium, and the swallowing of a pill, capsule or tablet (as is the ordinary mode of ingestion in the case of hallucinogen and sedative use) is such a universal procedure that few, if any, novices would hesitate to use a drug because of this administration technique. However, other modes of administration—such as the 'snorting' (nasal inhalation) of cocaine or the use of plastic bags with certain volatile solvents—may be sufficiently alien to many persons to at least intially deter them from such experimentation.

The most dramatic illustration of the inhibiting force of administration techniques concerns the use of drugs that are usually used parenterally (i.e., by injection) such as heroin and 'speed' (methamphetamine). These substances may be snorted rather than injected, but an initiation opportunity is

most likely to occur in a setting in which experienced users are intravenously using the drug. Parenteral techniques (be they subcutaneous, intramuscular, or intravenous) are generally considered painful and, as such, are anathema to most persons whose modes of drug administration, if any, ordinarily consist of swallowing or smoking. For those individuals who have previously injected drugs (usually hallucinogens), the transition to intravenous use of speed or heroin is not difficult. But, for most, this style of use represents a critical departure from their normal drug consumption patterns. One Montreal speeder clearly expressed the significance of such usage:

> When you start using a syringe that indicates that you're using heavy drugs—that you're really into the drug scene. The syringe is the cutting off point between soft and heavy drugs.[100]

Despite these apprehensions, most persons who have an opportunity to try speed or heroin and have decided to do so will allow an experienced user to inject them once their fears have been verbally or demonstrably allayed.

It is reasonable to assume that someone interested in initially trying an illegal drug will usually take either the first one which is offered to him by trusted friends or that drug which he considers the least dangerous of those available to him in his social milieu. In many cases, cannabis is the first illegal psychoactive drug to which an individual will have access, but the use of one or more of a wide range of other drugs usually predates marijuana or hashish use. Various studies have shown that the use of prescription drugs, barbiturates and amphetamines, glue and other volatile solvents, tobacco and alcohol often precede the use of cannabis.

When questioned about their early drug history, the majority of non-medical users reveal that their first experience was with alcohol. In the mid-fifties, Stevenson and his associates found that almost all of the British Columbia heroin users they studied had used alcohol prior to opiates and most of them had never tried cannabis.[253] As noted earlier, it was not until the mid-sixties, when cannabis became readily available in western Canada, that heroin users indicated concurrent or prior use of marijuana.[127] Alcohol, as the first drug used by heroin addicts, has been reported by Henderson, Chambers, Robins, Darvish and Murphy, and Kosviner, *et al.*[52, 117, 137, 215] Hawks and his associates discovered that problem drinking predated the use of other drugs among amphetamine users;[113] Whitehead found that alcohol and tobacco use generally precede solvent use;[274] and cannabis-using college students studied by Goode had first used alcohol.[99] Moreover, two extensive surveys, one of a college population[238] and the other of high schools,[30] found that alcohol-using students were much more likely to want to try marijuana than were non-drinkers.

Heroin users have often consumed a wide variety of other drugs prior to opiate use.[268] In Vancouver, Johnston and Williams found that in one sample of 186 heroin users, 11 per cent had first used amphetamines, 20 per cent first used hallucinogens, and 32 per cent first used barbiturates, while

the remainder (37 per cent) had used cannabis first.[127] These respondents, however, were not questioned about their use of alcohol or tobacco. It is evident that for almost all adolescents, the first psychotropic drug used is either alcohol or tobacco.[260] Unfortunately, many investigators do not ask about these drugs when collecting drug-use histories of their subjects. Although tobacco and alcohol are legally distributed, the first use of these drugs is often by children or adolescents who are under the minimum legal age.

The use of a number of other legal substances may also predate illegal drug use. A number of studies have discovered that the non-medical use of codeine cough syrups has preceded the use of illicit substances.[149, 166] Barbiturate use has often been found to precede the use of other 'dangerous drugs' and heroin.[103, 282] Glue and solvent sniffing may often occur before the use of cannabis or other legally prohibited substances. The relationships among various patterns of non-medical drug use are further discussed in C.4 *Patterns of Use,* "Patterns of Multiple Drug Use".

OCCASIONAL USE

In the *Cannabis Report* occasional users were defined as those persons who consume marijuana or hashish once a month or less. Such operational definitions, however, are inappropriate to a discussion of patterns of drug use in general, as level-of-use distinctions based on frequency and regularity of use are a function of the effects of the drugs being considered, their relative availability, and their legal status. For our purposes then, occasional use will be understood as that using pattern characterized by episodic consumption dependent on fortuitous developments such as the sharing of another's drug in a social setting. Occasional users do not usually maintain a personal drug supply and the use of psychotropic substances has only a marginal role in these persons' lives. Generally speaking, the occasional use of drugs represents a recreational diversion that is approached with a 'take it or leave it' attitude.

The occasional consumption of a drug is usually the first stage of continued drug use beyond initial or experimental use and, as such, is dependent on learning to effectively use and positively interpret the effects of the drug. There are several learning processes which are generally considered prerequisites to any continued use of a psychotropic substance. These include mastering the modes of administration necessary to achieve a desired drug effect, learning to perceive these effects as drug induced,* and learning to subjectively interpret these effects as pleasurable or functional and, therefore, worth at least occasional repetition. These 'lessons' usually result from participation with more experienced users who educate the novice as to the

* The obviousness or subtlety of a drug's effect is a function of various factors, including the drug itself, the mode of administration, the 'set' and 'setting' of the using situation, and the dosage consumed. The psychotropic effects of small doses of cannabis, cocaine or a sedative, for example, may be 'missed' by a naive user, while an injection of heroin or methamphetamine will have immediate, profound and unignorable consequences.

most effective means of consuming a particular drug and sensitize him to those psychological effects which they value and which positively reinforce their continued use. This social education of an occasional user is also likely to include information about safe dosage levels, appropriate behaviour, legal precautions (if necessary), and those activities which are felt to be enhanced by use of a particular drug.

Apart from the desire to be stylish or to avoid embarrassing oneself or one's host, any continued use of a drug—be it occasional or more regular —depends, at least, on the internalization of these first lessons: learning to correctly use a drug, and learning to recognize and appreciate its effects. In the case of some drugs, however, an occasional—rather than regular—consumption pattern may reflect limited availability, prohibitive costs or fear of legal intervention, rather than the 'take it or leave it' attitude that ordinarily characterizes this level-of-use. Cocaine, for example, is often reported as a favourite drug by persons whose financial situation or range of drug-using acquaintances restricts their use to those infrequent occasions when they are fortunate enough to come into contact with persons who possess the drug. In cases such as this, the drug is strongly desired and a regular pattern of use is only avoided because of situational rather than motivational factors.

Finally, it should be noted that the occasional use of a drug may follow as well as precede a period of regular use. This possibility is discussed below in the context of termination and reduction of regular drug-using patterns.

REGULAR USE

Although many individuals remain on a level of drug use that is occasional, spontaneous and serendipitous, for others use becomes a regularized pattern governed by normative restraints. Alcohol is a case in point. For some, it is only used in exceptional circumstances; for others, alcoholic beverages will become a natural adjunct to certain activities or will be consumed on specific occasions in a regular fashion, before dinner or while watching sporting events on television, for example. This does not mean that alcohol will always be a part of these situations, but there is a higher likelihood that it will be used then than at other times.

Not all drugs are used regularly in the same way. Coffee, tea or tobacco are usually consumed throughout the day. Similar patterns of alcohol use are less common and generally restricted to those who are considered in North American society to have a 'drinking problem'. However, regular or ritualized daily use of moderate quantities of alcohol (taking wine with meals, for example) is not considered by most people to be an incontinent level-of-use. With regard to illicit drugs, recent studies of regular cannabis users tend to suggest that patterns of use of marijuana or hashish are somewhat similar to those of alcohol, and that for some users these substances are essentially social or functional equivalents.[187] Frequent use of LSD or cocaine, on the

other hand, is a comparatively rare phenomenon for reasons specific to the effects or the availability of these drugs.

The usual levels of regular use that are attained by non-medical drug users vary according to the kinds of substances that are consumed. In the *Cannabis Report* we operationally defined 'heavy-regular use' as smoking cannabis from twice per week to several times per day. For this substance this is a reasonable definition that would be accepted by most researchers as well as a proportion of users themselves. However, for a substance such as tobacco, even two or three times per week or one cigarette per day would be considered a moderate to light level-of-use compared to the use levels of most tobacco smokers. Similarly, 'moderate-regular use', as we have earlier defined it, may involve the ingestion of cannabis several times per week. This would probably be a reasonable and meaningful operational definition of moderate-regular alcohol use, as long as the doses were not excessive, but would represent a heavy use pattern for a drug such as LSD. Thus, each drug requires its own operational definitions of what constitutes 'light-', 'moderate-' or 'heavy-' regular use.

Some regular drug use patterns involve daily or even hourly administration; others entail less frequent use, but are nonetheless 'regular' insofar as the drug is usually taken in specific situations or under certain conditions. For our purposes, 'regular use' is any pattern of drug use that involves systematic consumption of a drug, even if the frequency of use is quite low. Regular drug use assumes that the individual has developed a set of norms or rules governing the appropriate times and places for drug use as well as the usual dosage levels. In many cases, official and unofficial rules not only regulate drug-taking behaviour, but also behaviour while under the influence of these substances. In the light of this definition, ceremonial or ritual use of drugs (such as alcohol and peyote) is one type of regular use pattern, even though it may only occur once or twice per year. Thus regular use may involve heavy or high-dose use, but these use levels are not necessary conditions of regular use patterns as we have defined them.

Becoming a Regular User

There are a number of factors which affect the likelihood of establishing a regular use pattern, the dosages likely to be consumed and the frequency and situations of drug administration. In the following section we will deal with those variables which govern the ease or difficulty of adopting behavioural norms of regular non-medical drug use.

THE LEGAL FRAMEWORK

Although alcohol is one of the most popular drugs in non-medical use in Canada, local laws and statutes restrict the times during which it can be purchased (in some 'dry' counties, banning purchase altogether) and the

situations in which the beverage may be consumed. There are also restrictions on the age of the users. Some of these restrictions are circumvented, disobeyed or rarely enforced (the public consumption of alcohol at sporting events, for example), but they still act as constraints on the drinking behaviour of most people. In addition to regulations governing when and where alcohol may be drunk, there are also restrictions on what activities an individual may participate in while under the influence of alcohol, from operating a motor vehicle to being 'drunk and disorderly' in a public place. The purchase of tobacco products is restricted to those over a certain age limit, but otherwise there are few legal restraints on its use other than forbidding smoking in certain theatres, public buildings or conveyances. Coffee, tea, and over-the-counter preparations are universally available and governed only by controls on their manufacture, advertisement and wholesale distribution. There are literally thousands of products on the shelves of retail stores which contain solvents or propellants which may be used for their psychotropic effects. They remain readily available for socially approved purposes, thus making legal control of their use for intoxication extremely difficult. Illicit drugs are much less readily available to most users.

AVAILABILITY OF DRUGS

In order to establish a regular drug use pattern, it is necessary to obtain a sufficient and relatively continuous source of supply. For some users, this source will necessarily be illegal or quasi-legal. Adolescents who have not yet attained the legal drinking age or are too young to purchase tobacco must rely on adults or older adolescents to obtain these drugs for them unless they appear to be older than their years or have been able to obtain forged or stolen identification certificates or those of older friends. For many substances, there is no legal source for the non-medical drug user.

Becker proposed that obtaining a regular source of supply of cannabis was one of the most important aspects of becoming a regular marijuana user.[13] The necessity of establishing a source of supply is an important factor in becoming a regular user of all illicit drugs, although some substances are more readily available than others. Over the past few years, many drugs which were once difficult to procure have become readily available from a wide variety of sources.

Most non-medical drug users are introduced to the use of their drugs by friends or acquaintances and these friends are also likely to serve as sources of access to the illicit market. In some cases the first regular contact with an illicit marketplace will occur when a group of friends pool their purchasing resources, thus reducing the unit price of the quantity each uses for personal consumption.[98] Cannabis and LSD users are particularly likely to purchase a specific amount for use over a period of weeks or months, thus reducing the frequency of their contacts with the illicit market, although taking on the additional risk of having 'stashed' drugs found in their possession. Regular

heroin and high-dose methamphetamine users are more likely to buy in smaller quantities and generally use up their purchases almost immediately.

Illicit drugs are not equally available to all drug users. Most individuals who have reliable contacts to obtain cannabis do not know—or care to know—anyone from whom they can purchase speed or heroin. The dealers of most drugs are understandably cautious about selling to strangers and usually require that a regular customer introduce any new purchasers to them. In the case of heroin, a dealer may ask for proof that a stranger is a user of the drug before he will sell to him.[47, 254] In a study of heroin users who did not become chronic users of the drug, Schasre discovered that over one-half of the ex-users stopped taking heroin as a result of losing their source of supply.[231]

For some drugs such as opium and cocaine, the expense of the drug and its relative scarcity in Canada militate against establishing regular consumption patterns. Except for a few wealthy dealers and 'rich hippies' who can afford these drugs and have access to a source of supply, cocaine and opium are considered to be 'treat' drugs, consumed only occasionally in Canada when they become available.[104]

Although many people begin the use of sedative-hypnotics, tranquilizers or oral amphetamines through doctors' prescriptions, if regular use ensues they may be forced to resort to diverted supplies of these drugs which are purchased on the illicit market. Others may first obtain pills from their friends or the illicit market and later attempt to obtain them legally by convincing doctors to prescribe them.

PSYCHOPHARMACOLOGICAL EFFECTS

One of the major reinforcing factors which encourages repeated administrations and regular use of drugs is derived from their specific physiological and psychological effects. For example, although unpleasant first reactions to heroin are common, some users of this drug claim that their first shot made them feel the way they had always wanted to feel.[148, 253] For others, a drug may simply be a pleasant experience that warrants repetition in certain social situations. Needless to say, not everyone finds each drug experience to be immediately rewarding, and negative reactions or side effects are a major factor in discouraging repeated use of most drugs.

Because of their dependence-producing effects, certain substances require daily use once a particular level of consumption has been reached. Dependence on the opiate narcotics is considered to be the 'classical' case of drug dependence, and a great deal of research has been conducted to determine the etiology or cause of this condition. (See Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use.*)

In the mid-forties, Lindesmith developed a theory of opiate dependence which he proposed would explain all cases. He concluded that opiate

dependence occurs when an individual learns the meaning of withdrawal distress and consciously uses an opiate to relieve these symptoms or prevent them from occurring.[151] After tolerance has developed, the organism requires the drug to function smoothly and, if it is not regularly administered, withdrawal symptoms of varying intensity are experienced. The appearance of these symptoms is crucial to Lindesmith's argument. If they are misinterpreted as some other ailment (a common occurrence when opiates have been medically administered in hospital and withdrawal discomfort is interpreted as a result of the original pathology) dependence does not occur. Similarly, persons who have been experimenting regularly with illicit heroin may interpret their first withdrawal symptoms as a common cold or the flu.[145] It is only when an individual experiences the distress, realizes or learns that it is due to the absence of opiates in his body, and administers the drug to relieve his condition, that the complex of attitudes and behaviour which constitutes dependence appears. According to Lindesmith, it is at this point that an individual first comes to see himself as an opiate dependent.

Whereas drug use is generally believed to be sustained by the positive, euphoric effects of the substance, Lindesmith's work suggests that dependent drug use is also negatively reinforced by withdrawal avoidance. In other words, dependent drug use may be seen as a form of continuous self-medication or anticipatory self-medication.[192] There is some difference of opinion about which drugs, at what use levels, can be said to be used this way rather than solely for their euphoric effects, but we assume that avoidance of unpleasant withdrawal symptoms is an important element of some levels of tobacco, alcohol, amphetamine, barbiturate, opiate narcotic and other drug use, especially, but not only, at daily levels-of-use.

Although the onset of physical dependence has a profound effect on use patterns and life styles of certain drug users, it is not a factor in the drug-taking behaviour of the majority of regular users of most drugs. For these, the frequency with which they indulge and the quantities of the substances involved are regulated by social interaction and normative restraints which are developed over time.

SOCIAL FACTORS

In an earlier section of this appendix we explained that initial and occasional non-medical drug use, like many other activities, is usually learned in a social context. In many instances, regular drug use patterns also become established and reinforced through social interaction. For example, an individual who is using cannabis, LSD or some other hallucinogen from time to time may acquire more friends who use these substances. This increases the likelihood that he will use more often and under more diverse circumstances. With an increasing number of opportunities to use and purchase drugs, the occasional user may be encouraged to use a drug more frequently and may eventually establish a regular use pattern by which he determines which situations are appropriate for cannabis or LSD consumption and which ones

are not, as well as the amounts to use to maximize the effects desired in specific instances. He may come to believe that cannabis use increases the enjoyment of eating and make it a regular pre-dinner ritual in the same way that others will enjoy an aperitif. He may be encouraged to take LSD during an excursion to the country and decide that this experience is much more rewarding than the use of hallucinogenic drugs in the city and should therefore be restricted to rural settings. On the other hand, he may determine that his friends or acquaintances seem to use certain drugs indiscriminately or to excess, and decide to limit his use to specific recreational contexts. A similar process can be observed with persons who decide, through interaction with friends and acquaintances, what situations are appropriate for drinking alcohol, inhaling solvents or taking a number of other substances.

The influences stemming from the drug taker's social milieu which will eventually help to determine his pattern of regular drug use can be summarized briefly as follows:

1. Information. Friends and relatives may offer information on situations in which certain substances may be used for specific purposes. For example, it may be suggested that cannabis or LSD would increase the enjoyment of certain movies or concerts or that an over-the-counter or prescription drug can be used to self-medicate adverse drug effects or potentiate the effects of other drugs.

2. Example. The occasional user may learn by watching the behaviour of his peers what sorts of situations are appropriate for certain kinds of drug use, and what levels of use can be deemed excessive. Others may show by their example that no observable harm or disruption is likely to result from certain levels-of-use.

3. Ideology. Participation in drug-using groups provides supporting ideologies which neutralize some of the negative opinions and attitudes surrounding illicit drug use and provide positive reinforcement and justifications for drug-taking behaviour. For example, cannabis users commonly rationalize their behaviour through the belief that legal substances such as alcohol and tobacco are much more harmful and that smoking cannabis is a minor vice in comparison.[13]

4. Opportunity. The more people in the environment who use drugs on a regular basis, the more likely it is that opportunities to use will arise at times when the individual may not otherwise have thought of consuming a drug, and that he will discover more sources of supply of illicit drugs.

PSYCHOLOGICAL FACTORS

Although levels-of-use are often largely determined by interaction with friends and relatives, certain people evidently establish regular use levels at variance with those of their peers or seek out peer groups which have quite different patterns of non-medical drug use. The personality variables which

may affect these decisions are discussed elsewhere in this report (see Appendix D *Motivation and Other Factors Related to Non-Medical Use*). It is sufficient to mention in this context that there are numerous personality factors and events in the personal life histories of some non-medical drug users which help to explain their regular use patterns as well as the inclusion of certain drugs in their pharmacological repertoire.

Patterns of Regular Drug Use

Patterns of non-medical drug use are numerous and varied, depending on the substances involved, their legal status and availability, their psychopharmacological effects, and a number of other factors. In addition, most substances are used in various ways by different people or by the same individuals over time. In the following pages we delineate three major types of regular non-medical drug use: functional, recreational, and dependent. Although each of these categories will be described separately, they are not to be understood as discrete types. Some drugs, alcohol for example, may be used in all three ways. Some people may use a specific drug in one or more of these ways at the same time or gradually shift from one pattern to another over a period of time. This typology does not necessarily constitute every possible drug use pattern, past and present, but is designed as a framework within which the major patterns of non-medical drug use may be described.

Functional drug use involves the consumption of a substance with the specific intention of utilizing one or more of its physical or psychological effects for reasons other than the pleasure or euphoria which the drug may provide. Some drug use may be considered functional in that it facilitates social interaction. However, for our purposes, instrumental or functional drug-taking behaviour will refer to those patterns of use in which the primary intention is to increase task-oriented efficiency or to relieve unpleasant mental or physical conditions. Functional drug use, then, is individual rather than social and specific goal oriented rather than recreational. Recreational drug use, on the other hand, encompasses those non-medical drug-taking activities which are primarily oriented to the pleasurable psychological effects of the substance and are usually restricted to social activities and leisure hours. Dependent drug use usually involves a degree of loss of control over use levels and a strong compulsion to use a drug; thus use may occur in any setting, regardless of the social situation or the immediate mental and physical state of the user.

FUNCTIONAL DRUG USE

Task performance. Drugs of the stimulant category are commonly used with the intention of increasing alertness in task performance. The most common of these are caffeine (which is consumed in coffee, tea, cola beverages and over-the-counter 'wake-up' preparations) and the nicotine in tobacco products. Although coffee and tea are also used in a recreational context,

their effects are employed for stimulation, both consciously and unconsciously, by most users.[35] The well-established institution of the 'coffee break' is usually a social occurrence, but the substance consumed also performs secondary energizing functions.

Stimulants are sometimes used by members of certain occupational groups whose jobs require intense physical activity, alertness or endurance. Amphetamines and amphetamine-like substances are most commonly taken for this purpose by waiters and waitresses,[104] taxi drivers and long distance truck drivers,[83, 104] and professional athletes.[50, 90, 91, 92] Students are also known to take them in order to stay awake and 'cram' for final exams.[21, 89, 249, 270] Certain medical practitioners have been accused of complicity in the development of this type of non-medical drug use. For example, cases have been reported of doctors who administer 'vitamin shots', virtually on demand, to their patients. These injections not only contain a number of vitamin supplements, but also quantities of amphetamines.[209, 210, 280]

It appears that any form of mood-modifier, whether a stimulant or a depressant, can be perceived by some users to be a means of increasing task-oriented efficiency or performance. Although such use is not well documented it can be assumed that in some cases tranquilizers, barbiturates and low doses of alcohol may be used in this way. Doctors and other medical professionals who become dependent on opiate narcotics often assert that they began use in order to counteract fatigue caused by overwork.[176, 277]

Self-medication. Self-medication is a form of non-medical or quasi-medical drug use which involves the use of psychotropic substances to ameliorate certain mental conditions or psychological discomfort, or to treat physiological problems. Usually there is little or no medical supervision involved. Alcohol is commonly used for self-medication—a drink before dinner for its tranquilizing effects after a busy day, for example. Cannabis is sometimes smoked to relieve the secondary symptoms of a cold or the flu (see *Cannabis Report*). A number of over-the-counter preparations, such as codeine pills or cough syrups, antihistamines and other substances are used not only for their stated purposes but also for reduction of nervous tension or to induce sleep.

This type of drug use may originate from medical supervision; a physician may prescribe a preparation for the treatment of an allergy and the patient may use it, either consciously or unconsciously, for tension management or sedation. People who initially obtain 'diet pills' to lose weight may take them to combat depression. Similarly, sedatives and tranquilizers are sometimes used for purposes not intended by the prescribing physician. It is often difficult to distinguish between medical use and this quasi-medical type of self-medicating drug use, but it is nonetheless clearly distinct from social or recreational drug use.

One of the more common forms of self-medication involves the treatment of drug effects or after-effects with the use of another drug. This type

of cyclical multiple drug use is discussed in a later section of this appendix. It constitutes an important type of functional drug use as well as a major pattern of multiple drug use.

RECREATIONAL USE

Recreational drug use involves the consumption of a substance, usually in a controlled or non-compulsive manner, during leisure hours. The drug is taken for the purposes of attaining a measure of euphoria, increasing the enjoyment of other leisure pastimes or as an aid to social interaction. Although some recreational non-medical drug use is solitary, in most cases it takes place in the company of family or friends.

Social recreational drug use usually takes place among people who share ideas, attitudes and friendship in addition to their preferences in pharmacological substances. Drug use of this type usually begins in a pre-existing peer group, and regular use levels are often maintained in this same context. Some drug users (heroin dependents and high-dose intravenous methamphetamine users, for example) are likely to move into new drug-using circles when regular use becomes established, but most recreational drug use takes place in groups of like-minded people who would have been associated even if they did not use drugs regularly.

Barbiturates and other sedative-hypnotics are sometimes taken by multiple drug users in social settings, for euphoria or to potentiate the effects of other drugs. Low doses of methamphetamine or 'diet pills' may be used to stimulate or prolong social interaction. Regular use of these drugs, however, is not usually confined to recreational settings.

Sniffing glue and other volatile solvents appears to be primarily a recreational form of drug use. There is little data available on the solitary solvent sniffer and, although this pattern of use is known to exist, most of the literature describes the social use of these substances by adolescents or children within a peer group context.[12, 37]

Heroin is usually initially used as a social and recreational drug, but this pattern of use is likely to disappear as daily use begins. Nonetheless, not all heroin users become daily users, and some establish regular non-dependent levels of recreational use.[7, 57, 132, 179, 231, 282]

In the majority of cases, regular, non-compulsive alcohol and cannabis use takes place in a social or recreational setting. These substances are usually perceived by those who use them to be aids to relaxation or communication or as a pleasant means to alter their mental atmosphere or attain a measure of euphoria. They may be used to relieve boredom or simply as a pleasant adjunct to other activities and appear to be a routine and normal part of the regular user's enjoyment of his leisure time.

Particularly in the early days of illicit LSD use, when the avowed sacramental and self-discovery qualities of the psychedelic experience were being publicized, consumption of this drug and similar hallucinogens was

seen as a special event—not only for recreation but also for self-improvement and enlightenment.* However, as hallucinogen use has become more widespread, LSD, MDA and similar drugs are more often taken in recreational settings in a more casual manner, to enhance other social activities rather than as the *raison d'être* of the gathering.

The use of alcohol as a 'social lubricant' is generally recognized and it is assumed by most people that the beverage is used, not solely for itself, but to stimulate social interaction and facilitate relaxation in a social context. Some groups of alcohol users, especially adolescents who are learning to use the substance, get together for the specific purpose of becoming intoxicated. However, as normative restraints develop and the consequences of excessive drinking are learned, there will be a higher likelihood that drinking will become secondary in the social context. Similarly, the 'pot party' where individuals gather specifically to become intoxicated may apply to some groups of new users, but as cannabis use becomes integrated into the life style of the user, it will usually become an adjunct to the ongoing social activity in the same way as recreational alcohol use is generally conceived to be.[187] In any case, most non-medical drug use has its genesis in social groups, and continues to be a social and recreational phenomenon.

DEPENDENT DRUG USE

Once dependence on a drug is established, a pattern of daily—or more frequent—use, regardless of the social situation or the mental or physical condition of the user, will usually begin. Most people who use dependence-producing drugs know that others have lost control of their level of consumption, but few believe at the outset that it will happen to them. Becoming dependent on a drug is usually a gradual process throughout which an individual believes that he has control over his level-of-use while, in fact, the intervals between administrations of the drug become increasingly shorter. During the early stages of dependence, most users would claim that they could 'stop anytime'.

Tobacco dependence is probably the least traumatic as well as the most common form of drug dependence in Canada. Smoking is widely practised and tolerated and readily becomes associated with many events in the user's daily routine: with coffee, after dinner, in various social settings. Many tobacco smokers, in fact, may smoke on a daily basis for a protracted period of time without realizing that if use were discontinued withdrawal effects and craving would be experienced.[33]

Dependence on alcohol is usually slow to develop, and during the beginning stages of use the pre-alcoholic's drinking behaviour may be indistinguishable from that of his peers. However, Jellinek suggests that the pre-alcoholic may find the beverage to be more rewarding for tension release than do other

* It could be argued that hallucinogen use which is oriented to self-improvement and awareness is actually a form of functional drug use.

drinkers.[125] A typical pattern of becoming an alcoholic involves daily use at increasing dosages and perhaps, after a period of months or years of heavy use, the occurrence of blackouts. Sometime thereafter, morning drinking will begin, and the individual and those around him will become aware that he has lost control of his drinking behaviour. This process may take many years, although in some cases it may develop quite quickly, in response to a personal life crisis, for example.[196]

Although most 'problem drinkers' are involved in a daily use pattern at high-dose levels, there are several "species" or types of alcoholism.[125] One of these, which may be called "periodic alcoholism", entails occasional, but severe drinking bouts. These "habitual symptomatic excessive drinkers"[163] may consume more alcohol over time than do daily drinkers, but they do not exhibit the same degree of loss of control.[125] Such spree drinking may be just a stage in a career of alcoholism, but some individuals remain at this level and do not become daily dependent drinkers.

It seems, therefore, that not all patterns of use which involve a compulsive relationship between the user and his drug of choice require daily use over long periods of time. Patterns of daily as well as spree use of amphetamines have also been observed. One type of intravenous methamphetamine user encountered by Commission field workers maintained a relatively constant and very high daily consumption level.[103] However, the more common 'speed freak' pattern consisted of a series of continual 'runs' and 'crashes'. This latter pattern involved daily use at increasing dose levels for periods of a few days to a week. When use of the drug was terminated, a withdrawal phase characterized by physical exhaustion and extreme irritability and depression ensued. The most popular and common remedy for the unpleasant symptoms of this 'crash' was a new injection of amphetamine, and the 'run' would begin again.

Dependence on the opiate narcotics, particularly in their more potent forms, usually develops much more rapidly than dependence on alcohol. For those who eventually do become dependent, the period between first use and daily use of heroin usually varies from a few months to about a year.[117, 212] Dependent use is most often preceded by a period of social and recreational use. At some point, use becomes more frequent, both socially and in private, perhaps, in the latter case, to cope with stress or tension.[204] Almost invariably, the user first becomes aware of his dependence when he experiences withdrawal symptoms and learns that they can be immediately relieved by the administration of an opiate.[117, 151, 223]

Sedative-hypnotic dependence usually results from medical prescriptions of these drugs. A general practitioner who does not fully appreciate the potential dangers of these drugs may provide his patient with a refillable prescription or the patient may go from doctor to doctor, complaining of the inability to sleep and, thereby, obtaining multiple prescriptions. Some alcoholics have been known to become dependent on sedatives. Barbiturates,

purchased on the illicit market, are sometimes used by heroin dependents, and in later years, when their ability to support a heroin habit declines, some of these persons become dependent on these less expensive pharmaceutical substitutes.[70, 109] Although youthful multiple drug users are known to occasionally take sedative-hypnotics (particularly barbiturates and methaqualone-containing substances), few cases of dependence in this population have come to the attention of the Commission. Should the use of these substances continue to diffuse, however, a pattern of youthful dependence on sedatives may emerge in the future.

Patterns of Multiple Drug Use

In recent years there has been a growing social awareness of and concern about 'multiple drug use' or 'poly-drug use'. Although this pattern of drug use is sometimes seen as new and, perhaps, exotic, the consumption of a number of psychoactive substances is not a recent development or one confined to a specific segment of contemporary society. Broadly conceived, multiple drug users are those who ingest a number of psychoactive substances, either simultaneously or at different times. Accordingly, a person who uses alcohol, tobacco and caffeine is a multiple drug user, as are those who consume a variety of illicit substances apart from or in addition to these. Certain patterns of multiple drug use, however, are seen as more dangerous or more cause for concern than others, depending on the drugs involved, the levels and frequencies of use or their relative potential for harm.

In the literature of multiple drug use, the concept is often reserved for only those who use more than one *illicit* drug in a non-medical context. This can lead to certain conceptual ambiguities—where under-aged high school students use alcohol and tobacco, for example—in addition to imposing limitations on interpretations of the data and the cogency of the research results. A meaningful operational definition of multiple drug use should specify what drugs are under consideration as well as the context of use. For our purposes, we are interested in patterns of multiple use of any substances used in a non-medical context.

A second dimension which must be considered in arriving at a workable definition of multiple drug use is the frequency with which psychoactive substances are used and the dosages employed. Most multiple drug use studies employ a minimal definition: the multiple drug user is one who has 'ever used' more than one substance. Such a definition appears to be quite uninformative and unsatisfactory since individuals who have had little experience beyond the experimental stages of use are included with chronic, high-dose users (see Annex 1). Definitions of multiple drug use, therefore, should specify at what levels of regularity and frequency the substances in question are employed and, if possible, supply relevant dosage information.

Multiple drug use may be examined from two perspectives: as either concurrent or sequential patterns of use. In the former case, the emphasis is

on the organization, patterning and interrelationships of the various substances in the life of the user at a particular time. The second perspective, that of sequential multiple drug use, involves the study of the temporal order in which each drug comes to be used or added to the pharmacological repertoire of the user. The concept of 'progression' is often subsumed under the general rubric of multiple drug use. However, sequential drug use may be distinguished from 'progression' insofar as the latter concept assumes that there is a hierarchy of drugs ranging from 'soft' to 'hard', weak to potent or less harmful to more dangerous, and that there is a tendency for drug users to move up this hierarchy to 'stronger' drugs. The emphasis of the term 'sequential' is on the movement from one drug to another without necessarily implying increasing danger or movement to more potent substances, both of which are connoted by the word 'progression'.

CONCURRENT MULTIPLE DRUG USE

Patterns of concurrent multiple drug use may be distinguished as intermittent, simultaneous, cyclical or interchangeable.

When two or more drugs are used, but not at the same time, this pattern may be called intermittent multiple drug use. Thus, an individual may use cannabis and LSD, but not in the same situation. Intermittent multiple drug use often involves two quite different use patterns: the functional use of amphetamines, for example, may not overlap with the recreational use of other substances.

Simultaneous multiple drug use, on the other hand, may be defined as the ingestion of two or more psychoactive substances in such close conjunction that the effects of the drugs are acting on the organism at the same time. Some simultaneous patterns involve the deliberate consumption of two or more substances to obtain a specific interaction effect. An illustration of this is the 'speedball', an intravenous combination of heroin and cocaine or methamphetamine. Others, however, may simultaneously use two or more drugs without being aware of their potential interactive or additive effects. For example, a daily user of a prescribed sedative-hypnotic may also use caffeine, alcohol or other drugs without taking into account his ingestion of the former.

When one drug is used as a substitute for another with similar psychopharmacological properties, interchangeable multiple drug use may occur. Thus heroin users may purchase barbiturates or, preferably, methadone when heroin is in short supply. Although they may find alcohol distasteful while using heroin, heroin users often drink to excess when abstinent from opiates.[253] A number of interchangeable drug use patterns are further discussed in C. 4 *Patterns of Use*, "Social Theories of Multiple Drug Use".

Cyclical multiple drug use is the ingestion of two or more substances consecutively such that the later ones modify or counteract the terminal effects

of the earlier ones. Those who have used alcohol to excess are familiar with the 'morning after' syndrome which often follows. 'Hangovers' are commonly treated by liberal amounts of caffeine, in the form of coffee, tea, or cola beverages. Codeine pills are sometimes used to relieve the accompanying aches and pain, and in some cases 'wake-up pills' or amphetamines are used to counteract post-alcohol drowsiness.

Cycles of stimulation and sedation are a common multiple drug use pattern. 'Diet pills' or other stimulants are sometimes used to banish the 'morning after' effects of sleeping pills. On the other hand, sedatives or alcohol may be used to induce relaxation or sleep after the effects of amphetamine begin to fade. 'Speed freaks' occasionally use barbiturates or heroin, if they are available, to self-medicate adverse withdrawal symptoms after a 'run' of high-dose, intravenous methamphetamine use. Commission research has confirmed that this form of cyclical multiple drug use has lead some speeders to a preference for heroin because of its capacity for stabilizing and tranquilizing without the adverse physical and psychological effects of the amphetamines.[104]

Some of the recent concern over concurrent patterns of multiple drug use has been given impetus by what is called the 'garbage head syndrome'. In the spring of 1972, Commission field workers discovered that observers of the youth scene were becoming increasingly aware of this problem in cities across Canada.[104] 'Garbage heads' have been described as the archtypal and extreme multiple drug users who consume a dazzling array of substances sequentially or in combination, with little regard to the consequences beyond 'getting stoned'. With the recent lowering of the legal drinking age, much of this multiple drug use activity has been observed in pubs or taverns where large quantities of alcohol are used in combination with one or more other drugs. Often these young people will have little or no idea what drugs they have consumed, stating that someone offered them a pill of a certain colour and promised that it would get them 'stoned'.

Some observers believe that the 'garbage head' is likely to be a transitory or short-lived drug use pattern in most cases. When some adolescents begin to use alcohol, they go through a period of excessive use, drinking to the point of drunkenness and sickness. Eventually, most of these develop normative restraints and the ability to control their intake and their behaviour under the influence of alcohol. The 'garbage head syndrome' has been observed most frequently in provinces which have recently lowered the drinking age. It appears that whereas most high school aged drinkers and illicit drug users formerly experimented with these substances out of the public eye, they are now readily observable in drinking establishments. It seems reasonable to assume that, particularly after a number of unpleasant experiences, most 'garbage heads' will exert some control over their drug intake and settle into more moderate regular or occasional patterns of consumption.

SEQUENTIAL MULTIPLE DRUG USE

Various 'progression' or 'stepping-stone' theories have been advanced to explain why individuals, having established the use of a particular drug, will experiment further with other psychotropic substances. In order to understand the genesis of these theories and how they came to have currency today, a brief historical introduction follows.

The Prohibitionists in the United States were the first to propose any kind of progression hypothesis:

> The relation of tobacco, especially in the form of cigarettes, and alcohol and opiates is a very close one. . . . morphine is the legitimate consequence of tobacco. Cigarettes, drink and opium is the logical and regular series.[357]

Cannabis was not included as one of the drugs that was involved in this progression as it was not until the 1930s that consumption of marijuana became sufficiently widespread in the United States to receive public attention. The idea of the cannabis-heroin progression was first presented in 1931 by a Prohibitionist physician:

> [Marijuana users easily] become engulfed in the abyss of drug addiction, and end their miserable existence either on the gallows, or in penal institutions and insane asylums. The moral and physical resistance to narcotics and alcohol is not only weakened but often destroyed in persons of stabilized personality, who are addicted, even to a moderate degree, to marijuana.[84]

During the thirties and forties, the notion of the marijuana to heroin progression appeared in a few works on cannabis, but there was virtually no supporting evidence that such a relationship existed. Moreover, there was little consensus among these writers as to what factors 'caused' this alleged progression.[158] At this time, those authorities most familiar with drug use—police officials and medical professionals—strongly denied that such an escalation existed.

After the Second World War, there appeared to be an epidemic increase in the extent of heroin use in the United States, particularly among young men of racial minority groups in large urban areas. The popular press suggested that this new heroin 'epidemic' and the 'new breed of addict' had come to opiate use through the use of marijuana. The assertions that cannabis was an extremely dangerous, addicting and crime-inducing substance were beginning to lose credibility at this time due to the findings of the La Guardia Commission and a number of psychiatric studies which appeared between 1944 and 1946.[35, 55, 85, 161, 165] Some observers of the heroin scene came to the conclusion that cannabis use, *per se*, may not be as dangerous as they had thought originally, but that its use led to heroin and was thus responsible for the 'new breed' of user.

An examination of the social history of opiate use in North America reveals that the 'new addict' was, in fact, not a new phenomenon. The post-war users were seen to be quite different from the middle-class, middle-aged, medically dependent population of the turn of the century.[256] However, the

use of opiate narcotics by young delinquents was well established prior to the introduction and diffusion of cannabis. Although thousands of people who would otherwise be considered to be 'respectable' were dependent on patent medicines and home remedies containing opiates, there were also a number of 'underworld' denizens—gamblers, vagrants, and prostitutes—who were habituated to opium smoking or dependent on morphine. By the 1920s, when legal access to opiates had been restricted, a number of clinics were established in the United States to supply maintenance doses of opiates to those who were still dependent.[150, 234] One of the reasons why these clinics were eventually forced to close was the publicity given to the 'criminal element' in their patient populations.[246] Apparently, dependence on opiate narcotics was quite common among the young, the socio-economically disadvantaged and the 'underworld' before the onset of widespread cannabis use.[71, 136, 140, 250] There is good reason to believe that the post-war 'epidemic' was actually a reflection of a growing trend that had its roots in the changes which took place at or before the turn of the century and had only been interrupted temporarily by the war. The increase in heroin use in the late forties, according to this view, was due primarily to the re-establishment of overseas shipping and transportation routes, allowing once more for extensive illicit distribution of heroin.[158]

Once established in the late forties, concern about drug progression, specifically the escalation from cannabis to heroin, continued. However, with the diffusion of the use of LSD, barbiturates and amphetamines in the 1960s, the concept of 'progression' was broadened to take some of these substances into account, and thus the movement from cannabis to heroin is now often considered to be only one of a number of sequential drug use patterns.

Discussions of the relationship between cannabis use and the use of opiate narcotics may be found in Appendix A.2 *Opiate Narcotics and Their Effects* as well as in the *Cannabis Report*. In the latter document, the Commission majority acknowledge that certain individuals would engage in heavy multiple drug use whether they used cannabis or not, but asserted that,

> ... it is reasonable to assume that many would not engage in certain kinds of drug use if they did not use cannabis.[42]

They concluded that, although cannabis use may play some role in influencing subsequent use of other drugs, sequential multiple drug use was too complex a process to assign a strict causal significance to one factor or one particular drug.

A number of retrospective studies of heroin users and follow-up studies of marijuana users are also discussed in the *Cannabis Report* and Appendix A.2 *Opiate Narcotics and Their Effects* of this report.[9, 41, 54, 94, 199, 215] These studies have a number of methodological problems, the most important of which is their concentration on the most 'heroin-prone' populations, such

that the results may not be generalized to the cannabis-using population as a whole. On this subject, Appendix A.2 concludes:

> Specific pharmacological properties of marijuana (or any other drug) which might lead to a need or craving for other drugs have not been discovered. It would appear that dynamic and changing social and personal factors play the dominant role in the multi-drug-using patterns reported, and that the specific pharmacology of the compounds involved is secondary.

Historically, a number of varied, and often discrepant, theories have been proposed, all of which attempt to demonstrate that cannabis use is causally related to the subsequent use of other drugs. Although these explanations have differed radically in content as well as their level of sophistication, they will be presented, in the following pages, as a framework through which some understanding may be gained of the numerous mechanisms that may influence sequential drug use patterns or the movement from one drug to another.*

Psychopharmacological effects theories. The first and most classic type of explanation for the progression from marijuana to other drugs is the psychopharmacological effects model. Although these theories vary somewhat in their level of sophistication, the majority are naive and overly simplistic accounts of sequential drug use patterns. All of them single out the effects of cannabis as the determining cause of the progression.

One alleged effect of cannabis that was postulated to lead to heroin use was a loss of self-control or will power which was said to make the user more vulnerable to the use of other drugs.[157] However, although a loss of self-control was alleged, no attempt was made to verify its existence.

Another explanation postulated a tolerance-disillusionment type of progression mechanism. It suggests that the initial 'kick' that marijuana users experience tends to wear off over time due to tolerance. The user then looks for a more powerful substitute. It has also been proposed that cannabis users expect ever-increasing pleasurable effects from the drug and are thus compelled to turn to stronger drugs to satisfy their "taste for drug intoxication".[93] This particular theory did not specify why it was only cannabis that could create a taste for intoxication rather than alcohol or other drugs used prior to cannabis. A variation of this general theme suggested that the cannabis user becomes psychologically dependent on the drug and that this paves the way for his subsequent use of heroin.[164]

As we observed in the *Cannabis Report,* there has been no empirical verification of these theories, and no evidence that the effects of cannabis *per se* can be said to encourage later heroin-using behaviour.[43] If the psychopharmacological effects of cannabis do in fact influence the user to turn to stronger drugs, we would expect a relatively constant rate of progression

* Comprehensive discussions of various 'progression' theories may be found in several papers by Erich Goode[361] as well as the published and unpublished works of Jerry Mandel.[156, 157, 158]

from marijuana to the use of heroin or other drugs.* However, there is no evidence to date which would suggest that all cannabis users—or even all cannabis users at a particular level-of-use—are equally likely to use other drugs in the future.[29, 98, 126]

In addition, if one examines the processes by which people come to use heroin, it is difficult to single out cannabis use as a determining factor. There is no evidence to suggest that first use of heroin occurs when the individual has little power of resistance due to the direct effects of cannabis. Whether someone experiments with heroin or not depends on various aspects of his life style, his attitudes to the drug, as well as his past experience with heroin users. Finally, it is evident that the factors which influence first use or experimentation with heroin may be quite different from those which lead to opiate dependence (see Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use*).

Since cannabis is not a necessary precursor of heroin use (before 1965, few heroin users in Canada had taken cannabis prior to opiates),[117, 194, 253] the most we may assume is that the effects of the drug could only be influential on certain cannabis-using persons, and that others find another path to heroin dependence. This type of thinking brought theorists to the point where they began to look at personality variables for the motivating forces leading people from cannabis to the use of other drugs.

Personality abnormality theories. The basic assumption of this kind of theory is that the majority of those who progress from the use of cannabis to the use of other drugs are, to varying degrees, psychologically disturbed. It is sometimes suggested that the use of cannabis is, in itself, indicative of an underlying personality problem and that those with more severe problems will not find cannabis to be a sufficient solution. They will, therefore, go on to heroin use (or the use of other drugs) in search of a more adequate problem-solving drug.

Psychological investigation of multiple drug users is usually conducted on those subjects whose patterns of drug use are assumed to be a cause for concern. Most observers, for example, would not consider daily use of alco-

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* Some observers have tried to see if this hypothesis of a constant proportion of cannabis users later becoming heroin users is reflected in arrest statistics. The relationship between the arrest rates for cannabis and heroin have been used as a basis for both 'pro-progression' and 'anti-progression' arguments.[22, 107, 181, 156, 158] There are, however, major methodological problems involved in the use of this kind of indirect indicator. In the first place, heroin users are believed to be more vulnerable to arrest than cannabis users, and therefore heroin arrestees would represent a larger proportion of the real using population. In addition, heroin users are likely to experience multiple arrests, thus inflating their numbers.[40] Finally, it is generally believed that arrest data are most often reflective of law enforcement activity and emphasis than of incidence of use in the population (see C. 1 *Introduction* above).

Another approach that has been utilized is to search the records of heroin users to see if they were previously cannabis (or other drug) users. C. Hammond, late of the Division of Narcotic Control (now, the Bureau of Dangerous Drugs), supplied the Commission with statistics on those cases which came to the attention of this agency between January 1969 and October 1970. Although this data suggest what proportion of known Canadian heroin users were known to also have used cannabis, it fails to reveal what proportion of the cannabis-using population is likely to subsequently use or become dependent on opiate narcotics.

hol, caffeine and tobacco to be indicative of an underlying personality disorder because of the legal status and general social acceptability of these drugs. Attention, therefore, has largely been focussed on chronic or high-dose drug users and those whose multiple drug use patterns include the use of illegal substances.[64, 113, 141, 168, 284]

Although continuing to yield interesting data, psychological studies of multiple drug users do not provide us with precise information regarding the role of psychological variables in the choice of drugs in a drug-using career. Most of them are characterized by the same methodological problems as those studies which have attempted to discover the psychological dynamics of heroin dependence, the 'addict personality', or the 'alcoholic personality'.[38, 87] While some types of heavy multiple drug use would seem to indicate personality problems, many multiple drug users would clearly be diagnosed as psychologically normal. The relationships between psychological variables and the use of opiate narcotics, amphetamines and hallucinogens is further reviewed in Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use.*

Social theories of multiple drug use. Although it is reasonable to hypothesize that increasing use of stronger drugs reflects the existence of severe personality disorders in some cases, other evidence suggests that factors in the social background and environment of the drug user may influence his particular sequential drug use pattern. Patterns of drug use reflect different meanings attached to drugs by different groups of individuals, and drug-taking behaviour is interwoven with other activities of group life.[3] Orientation to and eventual selection of drugs, as seen from a sociological perspective, reflects a number of factors such as availability, information, and other influences in the immediate social environment.

With the use of one drug comes an increased likelihood of meeting others who use that drug and, perhaps, use other drugs, as well. That cannabis users are more likely than non-users to have drunk alcohol suggests that alcohol users have a greater chance of having friends who would be willing to offer cannabis to them. Similarly, the use of cannabis may introduce an individual to a wider range of persons who use a variety of legal and illegal drugs, and it has been hypothesized that this 'drug subculture' is a significant determinant of further drug use. However, the illicit 'drug subculture' is by no means a homogeneous entity and is better characterized as a mosaic of small 'drug subcultures'. Multiple drug users may have in common the use of one or more illicit substances, but they differ in terms of patterns of multiple drug use and in their orientation and attitudes to specific kinds of drug use. A number of studies have confirmed that the choice of drugs which are to be included in the pharmacological repertoire of the drug user appears to be mediated by the immediate social and cultural environment.[3, 29, 56, 126, 141, 195]

Many of the same factors which help to determine regular drug use patterns also influence the numbers and kinds of drugs included in any variety

of multiple drug use. As we have seen, availability of illicit substances plays an important role. Some degree of interchangeable multiple drug use is alleged to occur when an individual's current or favourite drug becomes unavailable or prohibitively expensive. The importance of this factor was emphasized by the R.C.M. Police in a brief submitted to the Commission:

> . . . the scarcity of marihuana would act as a catalyst in introducing the drug user to stronger drugs which may be available, such as L.S.D., amphetamines, barbiturates and heroin. . . .[220]

During the summer of 1969, a marijuana shortage was reported in the United States, and a study was undertaken to investigate its effects.[168] Interchangeable multiple drug use patterns were reported by over three-quarters of one sample and by 84 per cent of another sample. The most common substitutes were alcohol and hallucinogenic drugs.

Some juveniles may use cannabis as a substitute for alcohol when it is more readily available to them in their immediate environment.[3] It has also been suggested that volatile solvent users actually prefer alcohol as an intoxicant, but use solvents because they are too young to have ready access to alcoholic beverages.* It is evident, therefore, that sequential multiple drug use is sometimes encouraged by scarcity of the drug of choice and the substitution of a different intoxicant.

In our earlier discussion of the process of becoming a regular drug user, access to the illicit marketplace was emphasized as an important factor. Such access may also play a role in introducing an individual to new drugs which he might not have previously used. Some observers feel that the illegal status of cannabis and the consequent fact that one must resort to the illicit market to purchase supplies may introduce cannabis users to a wider variety of illicit substances:

> By transacting with, and making friends with, the marihuana "dealer"... one's values and attitudes toward drugs and drug-taking, will be influenced in the direction of an increased willingness to try and use a wide range of drugs. Moreover, one's dealer, offering as he does a pharmacological feast, provides opportunities to use other drugs.[221]

Heavy use of cannabis has been proposed as one condition that will lead to the non-medical use of other drugs. However, there are a number of intervening variables which come between heavy cannabis use and subsequent multiple drug use. The more cannabis used by an individual, the more likely it will be that he becomes involved in *both* buying and selling marijuana or hashish. Furthermore,

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* Cases have also been reported of older brothers introducing cannabis to their younger brothers in an attempt to provide what they see as a less harmful substitute for glue or other solvents.[89]

> Buying and selling push the individual into social relations that alter his conception of himself regarding drug use and provide opportunities for involvement with other kinds of drugs. The fact that the individual has bought and sold marijuana means that he has had contact with other individuals who are likely to be heavily involved in drug use and who define drug use in favorable terms.[99]

Thus, closely related to the buying and selling of cannabis is the contact with new acquaintances and friends who use other drugs and define such use positively.[25, 126]

> The original correlation between frequency of use [of marijuana] and the use of dangerous drugs is largely due to involvement in selling drugs, not use itself . . . . Thus the causal link between marijuana use and the use of dangerous drugs does not appear to be the use of marijuana at all. Use of marijuana is merely an external manifestation of something that underlies it—namely, involvement with and in a drug-using subculture, especially in the form of buying and selling illegal drugs, and having friends who use other dangerous drugs.[98]

We come, therefore, once more to the importance of the drug use patterns of one's peers in introducing an individual to any kind of drug use.

Johnson concluded that the less socially accepted a drug is in the immediate social environment, the more likely it will be that an individual will need to acquire intimate friends who use it before he himself will experiment with the drug.[126] The cannabis users in his sample used the 'harder' drugs of which their subculture or circle of friends approved. Without the acceptance of friends, the chances of cannabis users moving to other drugs was considerably decreased.

The influence of set and setting on multiple drug use. Some recent theories of sequential drug use have combined both psychological and sociological orientations. The 'set and setting' theory emphasizes individual circumstances, suggesting that it is an individual's psychological 'set', or complex of attitudes towards drugs, in combination with his particular environment, or 'setting', which determines subsequent drug use. This argument has been extended to suggest that some drugs may be no more than placebos, or that the psychopharmacological action of the substance is unimportant in comparison to the influence of set and setting.[271]

One study of juvenile multiple drug users discovered that within a single lower-class neighbourhood there co-existed a variety of adolescent drug-using patterns.[29] These patterns differed markedly from one another in terms of the types of drugs used, the degree of involvement in drug use, and in the attitudes and orientations of the users prior to and after first experimentation. The study concluded that there were different life orientations and both drug and non-drug career lines along which adolescent users could pass,

and that these would largely determine subsequent adult drug use behaviour as well as adult social adjustment.

The 'set and setting' approach to understanding multiple drug use patterns appears to be a most fruitful one. It is evident that there are strong relationships between the use of all drugs; that is, the individual who has used any one drug (including alcohol, tobacco and caffeine, as well as more exotic substances) has a higher likelihood of having used other substances and is also more likely to be favourably predisposed to experiment with other drugs in the future. Any non-medical drug use may contribute to or enhance a drug-taking set and may also introduce the user to a wider setting in which further drug use is accepted or positively encouraged. There are a variety of factors which contribute to a positive set towards drug use, but which are insufficient predictors of subsequent multiple drug use patterns unless a suitable setting, with drug availability and reinforcement from others, coincides with it.

For further information about the relationships between different kinds of drug use, the reader is referred to Annex 1 *Extent of Multiple Drug Use* of this appendix, and Appendix A *The Drugs and Their Effects.*

Life Styles of Regular Drug Users

Some levels of regular drug use have profound effects upon the social and economic relationships of users. Others, such as the use of coffee, tobacco and certain over-the-counter preparations, have little or no immediate influence, although long-term medical complications may occur. Daily use of sedatives, oral amphetamines and tranquilizers at moderate dosages may eventually interfere with day-to-day functioning, but high-dose use is generally responsible for most serious difficulties.

At light to moderate dose levels, regular alcohol use is both socially acceptable and unlikely to present problems for the user. In fact, in some social and economic positions, it may be more difficult to be an abstainer than a drinker. Moderate use may cause some degree of economic inefficiency due to hangovers or other potential medical problems, but is unlikely to disrupt social and familial relations as long as the user's behaviour under the influence of alcohol and his particular level-of-use are acceptable in his social milieu. At dependent or high dose recurrent use levels, alcohol usually produces extreme social, economic and family disorganization, probably more so than any other kind of drug dependence. Since alcoholism usually develops in middle age, it is likely that the alcoholic will have a career and family which will suffer as a result of his drinking habits, whereas heroin and high-dose methamphetamine dependence tend to occur among younger, unattached people. The consequences of the onset of dependence in the latter cases tend, therefore, to have less far-reaching disruptive effects.

The use of cannabis at social or recreational levels need not have any more effect on the life style of the user than similar use of alcohol, as long as use remains undetected by law enforcement officials. When cannabis first

became popular among certain youthful North American populations, its use appeared to reflect a distinct kind of life style, most commonly termed 'hippie'. However, as the use of cannabis has diffused, it has become evident that quite ordinary, traditionally employed persons consume it in recreational settings on a regular basis, and that cannabis use, although a concomitant of the 'hippie ethos', does not necessarily imply attitudinal or behavioural changes.

The case of LSD, mescaline and other psychedelic drugs is somewhat similar. When LSD was first gaining in popularity, both observers and users themselves claimed that taking these substances would change an individual's attitudes, outlook and style of life. The vanguard of the psychedelic movement found LSD use to be profoundly enlightening and the revelations experienced under the influence of the drug were believed to have lead to a re-evaluation of their lives and the adoption of new behaviour patterns and levels of social interaction. However, when use spread to younger or less philosophically-oriented populations, it soon became evident that this process was not inevitable. Less introspective or more hedonistic users were consuming these drugs for their euphoric effects rather than for personal, philosophical or religious purposes. Many of those who had sought personal change through these drugs were disappointed and stopped using them or began to use them more casually. For most, LSD became just another 'stone'.

In the early stages of use, both heroin and speed users usually have one source of supply of the drug, through the friends who introduced them to it. Those who continue to use these drugs discover that, due to the vagaries of the market, new contacts must be made.[268] Although some social relationships with non-using friends will be maintained,[117] it is likely that a gradual separation will be made from some of these as heroin or speed use becomes more regular, and new friendships will develop through the illicit market (see Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*). When heroin or speed use becomes a daily affair, the ritual of the 'fix' (administering the drug) becomes the central feature of the activity of everyday life, and many heroin dependents and compulsive speed users spend the majority of their waking hours searching for drugs or the money to purchase them.[20, 103, 162, 247, 268]

Much of the isolation of the speed user from conventional and non-speed society is due to the constant chatter, or 'rapping' of the speeder, his hyperactivity and paranoia. The pharmacological effects of the opiate narcotics, on the other hand, do not have such adverse influences on social relationships with non-users; however, the necessity of obtaining money to buy daily supplies of illicit heroin at inflated prices forces the user to become primarily involved in heroin-related activities and to lose contact with many aspects of his pre-heroin life. This situation does not apply to those who become dependent on opiate narcotics through access to medical supplies. A doctor or nurse who has become dependent will usually continue to function adequately in both professional and social roles. In one sample of dependent doctors, 25

per cent of the wives did not know that their husbands were dependent,[277] and friends and colleagues usually do not suspect that a medical professional is using opiates until he comes under scrutiny by narcotics investigators because of his prescribing practices or because his habit begins to exceed the amount of the drug that can be obtained by quasi-legal means without detection.

Some types of regular drug use—particularly alcohol, heroin and methamphetamine dependence—often generate a host of acute and chronic medical complications. Many of these are considered in a separate appendix (see Appendix A *The Drugs and Their Effects*), but it is worth repeating that the use of unsterile needles is particularly likely to result in physical problems. The personal risks involved in the utilization of 'dirty points' (unsterile, barbed, or often-used needles) are well recognized by most heroin and speed users, yet it is not uncommon to observe such persons borrowing someone else's 'set of works' (syringe and needle) despite the foreknowledge that the lender may have hepatitis or venereal disease. Howard and Borges after interviewing 50 parenteral drug users in San Francisco in 1968, suggested that needle-sharing served several social and psychological functions for the participants.[118] Among those functions delineated by their subjects were certain "pragmatic considerations" such as economical expedience, "sharing for the sake of sharing" (which is almost a normative imperative within some communities of intravenous drug users), providing "a sense of fraternity", as a "means of socialization" to the needle culture (novice users, particularly, are unlikely to possess their own equipment), as a "substitute for sex" (since the sexual connotations of injection are accentuated), and "gratification in self-destruction" either purposefully (masochism) or unconsciously. It should be additionally noted that, in the case of speeders, injection almost always occurs in a group setting such that one 'set of works' will be passed from user to user (much like a marijuana cigarette in a cannabis-smoking situation) and that speed dealers' rooms are ordinarily furnished with a communal needle and syringe so that clients may immediately inject upon completion of their purchase. Finally, the actual injection process itself, among experienced speeders, is highly ritualized to the point that parenteral proficiency and the ability to perform 'trick shots' has become a source of some status within this subculture.

TERMINATION OF USE

Once a particular level-of-use has been established, an individual will not necessarily stay with it indefinitely. Drug use, like other forms of social behaviour, is a dynamic process during which levels-of-use increase, decrease and, in some cases, cease altogether. In the following pages, we will present some of the factors which influence decreased use or termination of use.

Some social and recreational drug use is only experimental or occasional and never becomes established as a regular part of the individual's life style. Cannabis, LSD, speed, heroin and other drugs may be used a few times to

explore their effects or because of certain social pressures, but with no commitment made to their continued use. In addition, some levels of regular or occasional use may be a part of a given social context and will cease when the social situation changes. Termination or reduction of drug use may thus occur with graduation from school, change of residence or neighbourhood, a new job, marriage, parenthood or a number of events in the life of an individual. These events may influence drug-using behaviour in several ways: by removing a person from his source of supply of illicit drugs, by replacing an interpersonal environment in which there are social pressures to use with one where use is discouraged, or simply by offering a number of substitute activities. These conditions of termination are reversible, however, and if new drug-using friends or acquaintances are discovered or the social situation changes again, drug use may resume or increase.

Reduction or termination of use may take place as part of a general re-evaluation of an individual's personality and role in society or as a commitment to other endeavours or enterprises. Some drug users become involved with political movements that do not approve of drug use. Others may stop using because of involvement with religious groups, the 'Jesus Freaks'[111] or 'Hare Krishna' movement, for example. In addition, drug use may be temporarily or permanently terminated because of a personal identity crisis which leads an individual to question his values and behaviour in general. Some users may temporarily refuse to use cannabis or LSD, for example, because they feel they 'are not together enough to handle it' for the time being.

In an earlier part of this appendix, we suggested that most use of LSD and similar hallucinogens is usually self-limiting and transitory. Ex-users often cite 'bad trips' or uncomfortable experiences as their reason for stopping. This rationale is sometimes offered by ex-cannabis users as well. Others claim that they are no longer learning anything from LSD or that it is no longer possible to obtain unadulterated or 'pure acid'. The growing sensitivity of some illicit drug users to the dangers of pollution, chemical fertilizers and food additives is sometimes generalized to the drugs they consume, although this usually results in a move away from 'chemicals' to what are alleged to be more 'organic' drugs, such as psilocybin, mescaline or peyote, rather than to complete termination of drug use. The publicity given to the possibility of chromosome damage may have convinced some people to stop using LSD; however, it appears that users and potential users did not regard this to be a real danger, or, if they did so, it was only for a short period of time.*[22]

In most cases, solvent use is also a transitory drug use pattern. Children and adolescents may use these substances, sometimes quite heavily, for a period of time, but it is apparent that this use is usually abandoned when they become old enough to obtain alcohol, cannabis or other more socially approved drugs with fewer unpleasant side effects.[29] Ex-users usually report that they simply lost interest in these substances or became worried about

* See Appendix A.5 *Hallucinogens and Their Effects* for a discussion of LSD and chromosome damage.

their harmful effects.[241] There are certain rare cases of people who continue to sniff solvents long after their friends have stopped using. This chronic pattern of use is usually solitary and compulsive.

Because task-performance functional drug use is specifically related to certain role-oriented situations, it is to be expected that it will continue on some level until the user is no longer participating in the activity. Those who are not familiar with the recreational possibilities of prescription drugs will be likely to use them only in those situations in which they feel it helps them function, but not at other times. Although students may use stimulants at exam time to keep them awake while studying, they are less likely to take them at other times or in other social settings. Similarly, members of occupational groups who utilize psychotropic substances are unlikely to use them outside of their hours of work unless they are familiar with the recreational use of these drugs or, in rare cases, have become dependent on them. For example, waitresses on the fringes of the entertainment world may well continue in their use of amphetamines or amphetamine-like drugs during non-working hours. However, truck drivers or taxi drivers who are only familiar with their use in a functional context are unlikely to use amphetamines during their leisure hours or after changing to another occupation. Self-medicating functional drug use is bound to specific psychological and physiological conditions and is not likely to continue after the condition is ameliorated unless the user becomes dependent or learns that the drug can also be used recreationally. Finally, it should be noted that the loss of a regular source of supply may force a cessation of functional drug use. For example, the recent federal restrictions on the prescribing of amphetamines and some amphetamine-like drugs (see Appendix B.3 *Sources and Distribution of Amphetamines and Amphetamine-Like Drugs*) has likely reduced the availability of pharmaceutical forms of these substances and, consequently, may have reduced the prevalence of this type of use. We are not able to say at this time how these restrictions have changed patterns of stimulant use or whether users are turning increasingly to illicit supplies of these drugs.

The following discussion will review the special problems posed by termination of dependent drug use. Accumulating evidence suggests that drug dependence does not necessarily imply continuous, daily consumption of a substance throughout the lifetime of the user. Indeed, for most so-called addicts, periods of active dependence represent only a fraction of their life-cycle. Although there is a high probability of relapse, heroin dependents usually experience intermittent periods of voluntary and involuntary abstinence.[117, 185, 269] Alcoholics periodically 'go on the wagon', and many tobacco smokers make repeated attempts to rid themselves of their dependence on nicotine. In the following pages we discuss the factors which affect these cycles of abstinence and relapse.

There is little published data on the abstinence and relapse patterns of those who become dependent on oral amphetamines, barbiturates, tranquilizers or other sedative-hypnotics, and thus lengthy discussion of factors affecting

termination of use is impossible. Nonetheless, there are a number of aspects of prescription drug dependence which would appear to encourage rapid cessation and discourage relapse. Most of these cases originate from legitimate medical practice, and it is reasonable to assume that medical intervention may occur at an early stage. Unlike reformed alcoholics or tobacco smokers, former users of barbiturates or 'diet pills' are unlikely to be in continual interaction with current users and thus will have fewer temptations to relapse. Barbiturate dependence is often associated with heavy alcohol use, and although this complicates treatment of the condition, the pharmacological similarities of these drugs allow for a transfer of dependence. Unlike heroin or methamphetamine dependents whose lives have been dominated by drug-related activities, those dependent on prescription drugs, like the medical professional dependent on opiate narcotics, may have families or careers to turn to and need not radically change their life style to maintain abstinence. These conditions suggest that dependence on prescription substances may be less unremitting than other dependencies, although there are no available studies which test this hypothesis. Indeed, there is very little published data on termination of prescription drug dependence.

The life style of the 'speed freak' is so physically and psychologically demanding that few remain in the speed community for more than a couple of years. A few speeders learn to 'maintain', continuing to use at levels that do not interfere radically with their day-to-day activities, while getting enough sleep and nutrition to prevent profound physical deterioration, but this career pattern is rare. Other speeders may voluntarily withdraw from the life of intravenous amphetamine use, and a few are rescued by friends or relatives. For most, however, there is no place to withdraw to, and their eventual termination of speed use is dependent on their arrest or hospitalization (for a variety of ailments including malnutrition, psychosis, and hepatitis), or a change to the intravenous use of opiate narcotics or barbiturates as a drug of choice. The use of these depressants usually begins as a form of self-medication to counteract the depression and anxiety of the 'crash' at the conclusion of a prolonged speed 'run'. Some users alternate between stimulants and depressants for extended periods of time, and some of these eventually become dependent on heroin or methadone, or, in rare cases, barbiturates.

Most research on termination of drug dependence has concentrated on alcohol and opiate narcotics. We will therefore base the discussion which follows on the data drawn from these studies and insert comments on other dependence-producing drugs only where reliable information is available.

It is generally believed that it takes 10 to 20 years of drinking to become an alcoholic.[125] By the time an individual recognizes that he must change this pattern or suffer progressive disorganization and debilitation, morning drinking has usually begun. Upon arising, the alcoholic drinks to relieve his hangover, continues to drink during the day to ward off shaking hands and other withdrawal symptoms and lives in fear of being unable to maintain a readily

available supply of the drug.[163] A major portion of the alcoholic's life is divided between the consumption of alcohol and periods of sobriety which terminate in yet another binge of drinking. Almost all conditions and activities of daily life have been associated with drinking and it is thus very difficult to maintain stable abstinence in the face of numerous drinking-associated everyday events and activities.[60, 61] This 'habit' component of alcoholism, which is independent of the specific psychological or physical effects of the drug, is present in all forms of drug dependence.

Tobacco smoking is also integrally bound to most daily activities. Abstinent smokers often discover that they are tempted to take up the drug again at social gatherings, at times of stress, after a meal or on other occasions when a certain activity elicits the memory of and desire to smoke. Some ex-smokers claim to be particularly susceptible to relapse when they drink alcohol.

The 'habit' component of heroin dependence is particularly strong. Even after long periods of abstinence, actual physiological craving may reappear.[255] The smell of a burning match, which is associated with 'cooking up' an injection, or simply talking about drugs may elicit craving and even physiological withdrawal symptoms.[155, 268] Stevenson and his associates discovered that for some British Columbia ex-users, a return to Vancouver or a familiar neighbourhood where heroin is sold can spontaneously produce these symptoms.[253]

For the 'hard core' heroin or chronic speed user, drug-taking is not only associated with a variety of states of mind, people, places and sensations as it is with alcohol and tobacco dependents, but it is also an important motivating force in the majority of his daily activities. When abstinent, he no longer must 'hustle' for money to buy drugs and many of his normal day-to-day activities are no longer necessary. Thus simply finding meaningful activities to fill up the day becomes an important aspect of sustained or successful abstinence. Although all persons who have withdrawn from a drug on which they were dependent must build up a 'tolerance for abstinence' just as they built up a tolerance to the drug and the concomitant life of dependence,[4, 208] for heroin and speed users, especially, abstinence demands that a multitude of habits other than drug-taking must be broken.

It has been suggested that under some conditions it may be less difficult for the heroin dependent to discontinue the use of opiate narcotics than for the alcoholic to stop drinking.[253] Alcohol is legally available and used freely in most social environments and the ex-alcoholic will be exposed to drinkers or drinking situations wherever he goes. The opiate narcotic or methamphetamine dependent, on the other hand, has the possibility of taking a 'geographical cure', by relocating to an area where these drugs are not available or where he has no connections to purchase them. In British Columbia, for example, many heroin users have sought jobs in logging, mining or other occupations in remote areas.[117] This alternative may have become less pos-

sible as the availability of heroin has spread from Canada's larger metropolitan areas to smaller cities and towns.

Sustained abstinence is encouraged by reducing contact with those who are still using drugs. Thus, for the ex-alcoholic, avoiding his old 'drinking buddies' contributes significantly to continued sobriety. It has often been said that association with users is one of the most important factors in relapse into opiate dependence.[192] In order to avoid the temptation to use once more, those attempting to stay away from heroin—or speed—must no longer communicate with many former associates and, in some cases, life-long friends. New relationships must be established with 'straight' people, many of whom, if not scornful of heroin or speed users, may be insensitive to the problems they face.[255]

The ability to find satisfactory employment seems to discourage relapse to dependent drug use.[31, 252, 268] However, many 'ex-addicts' have severe impediments to successfully competing in the job market. For example, heroin use often begins during adolescence when the individual has not yet established stable social or economic relationships. In many cases, early termination of schooling and delinquent behaviour precedes drug use, thus delimiting future occupational opportunities. Once heroin dependence develops, the individual will begin to devote his energies to obtaining increasing amounts of money to support his habit, avoiding the police, and other activities which preclude working toward traditional goals through the educational and occupational structures. After years of 'hustling', it is understandable that many heroin dependents have few skills and little experience which could lead to lucrative or interesting legitimate employment.

Those who do manage to obtain and hold a regular job have a better chance of leaving the life of heroin behind.* [10] This factor seems to be most important for male heroin users who do not have the socially acceptable alternative of becoming a 'housewife', and must therefore find their 'ex-addict' identity in some sort of activity outside the household. But in addition to the problems posed by insufficient work records and low academic achievement, many former opiate dependents find prospective employers unwilling to hire people with criminal records, especially ex-heroin users.[252] Many alcoholics, on the other hand, manage to maintain some form of stable career pattern in spite of their drug use and may, indeed, be impelled into treatment by concerned employers. Those whose work record is poor, however, will find difficulty in obtaining a job which is rewarding enough to help keep them away from alcohol. Unlike heroin users, however, they are unlikely to have the additional obstacle of a criminal record to impede their chances.

The patterns of drug use of a wife or husband and overall marital or familial stability play a role in encouraging abstinence. If both partners in a marriage are alcoholics or heavy drinkers, the prognosis for successful ab-

* The prognosis for sustained abstinence from heroin is generally better for people who become involved with heroin after the age of 25, and undoubtedly the intervening variable in many of these cases in some sort of stable employment prior to becoming dependent.[207]

stinence is poor as termination of use depends on their mutual efforts to attain sobriety. Heroin dependents often marry or live in common-law relationships with one another, and the same kind of co-operation is required to ensure that relapse will not occur. Permanent abstinence from heroin use sometimes stems from establishing a meaningul relationship with a non-user, although relapse may come later if the liaison fails.

The family of the alcoholic plays a significant role in either helping him to stay sober or propelling him into further drinking bouts. In recent years, agencies dealing with the rehabilitation of the alcoholic have come to realize that treatment is most effective when the family is involved.[123, 206] After years of drinking and unsuccessful attempts to stay sober, the alcoholic may find that his family, who learned to function without him and not to count on his participation in family affairs, may be unable to reinstate him in the household and trust him with important responsibilities.[121] Successful abstinence may hinge on the ability of the family to "forgive and forget" and, thereby, encourage satisfactory domestic reorganization.

Periods of abstinence from heroin use may be prompted by feelings of responsibility to family members, especially children.[112] Similar sentiments may also precipitate attempts to quit smoking, particularly if a parent believes in the dangers of tobacco use and in the possibility that his children may follow his example.

Speed freaks are usually unmarried and rarely have children, but their parental family, if intact and willing to offer supportive assistance, can play a significant role in helping the speeder to remain abstinent. Unfortunately, many speeders come from broken homes and few express sufficiently positive attitudes toward or trust in their families to indicate a willingness to return to their parental homes.

A rewarding home and family life, the establishment of meaningful interpersonal relationships with non-users, and finding satisfactory employment are possible alternatives to a life of drug dependence; but some users turn to a pharmacological substitute. Alcoholics may switch to barbiturates or, conversely, barbiturate dependents may drink heavily when they lose access to their prescription drugs.[33] Barbiturates may be used, alone or with alcohol, by abstinent heroin users, although they are usually considered to be poor substitutes.[70, 109] Many former heroin users drink alcohol to excess,* especially during the first year of abstinence, and a large proportion become alcoholic.[232, 253, 267]

In some cases, abstinence will be initiated or sustained for personal reasons or because of chance factors. In one case, a fifty-pound weight gain was the reason given for not returning to heroin.[263] Another individual was motivated to stop after his daughter was killed in a fire which he accidentally started while under the influence of heroin.[232] For others, a number of ex-

* O'Donnell reports one case of successful heroin abstinence which led to compulsive eating.[184] Some people who try to quit smoking also complain of increased food consumption and weight gain.

traneous events, such as blindness and arthritic paralysis, prevented continuation of a career of opiate use.[33]

There are several factors which have been hypothesized to affect abstinence rates among heroin users that have not been clearly borne out in research. The severity of the habit, ethnic background, criminal involvement, alcoholism and family histories of dependence have not been found to be related to successful abstinence.[149, 252, 263]

In recent years, especially since the use of methadone maintenance therapy has become popular, a number of heroin treatment facilities, using a variety of modalities, have become available in Canada (see *Treatment Report*). Heroin users may voluntarily apply for treatment for a variety of reasons, although what they expect of the agency may be quite different from what the agency expects to do for them.[79] When the price of heroin on the street rises during periodic shortages, users may apply for withdrawal treatment or methadone maintenance, in order to avoid 'cold turkey' withdrawal, until favourable market conditions are re-established. Those whose hustling skills are minimal are most likely to respond to a 'street panic' in this way. Others may apply for treatment because of pressure from family or friends, with no real intention of becoming permanently abstinent. Some patients appear for methadone maintenance in the hopes that methadone will enable them to use less heroin and therefore reduce the cost of their drug use. Similarly, some heroin users ask to be withdrawn, not with the intention of remaining abstinent, but in order to reduce the *per diem* cost of their habits when they return to the street. Because of this disparity between the goals of treatment agencies and the intentions or expectations of the users themselves, some observers have recommended that patients should play an active role in determining the goals of treatment.[79]

It appears that the various alcoholism treatment modalities and services are differentially available to alcohol dependents according to their wealth and position as well as the degree to which alcohol has disrupted their lives. The indigent 'skid row bum' is likely to become caught up in 'the revolving door syndrome' involving periodic arrests and incarcerations (see *Treatment Report*). Although he may be contacted by social workers or religious organizations and channelled into some form of treatment, his life alternatives are usually few and, seeing little to gain from continued sobriety, he is likely to return to his old environment and drinking patterns.

More financially fortunate alcoholics, on the other hand, are likely to be impelled into treatment by impending family or occupational disorganization. The lower- or middle-class drinker may turn to the well-publicized Alcoholics Anonymous or other foundations or public agencies which can offer inexpensive treatment. The well-to-do alcoholic, like the medical professional who becomes dependent on opiate narcotics, may receive treatment in an expensive, but discrete, private hospital or clinic. Industries are becoming increasingly aware of alcohol problems among their employees, and a number of programs have been established to attempt to help the alcoholic worker.

Although most tobacco smokers will make an attempt to stop on their own, perhaps adopting one of a number of popular 'systems' to reduce or terminate their consumption, in recent years smoking control clinics have been established to treat tobacco dependence.[5] Statistics on abstinence and relapse patterns after such treatment are scanty, but it is evident that, like alcohol and heroin dependence, a pattern of heavy tobacco use is difficult to break and relapse may occur even after years of successful abstinence.

Insofar as the correctional system has a 'rehabilitative' component in that it demands abstinence from most drugs,* incarceration can be seen as a form of involuntary treatment. Among alcohol dependents, the 'skid row bum' is most likely to be arrested and jailed for at least as long as it takes him to 'dry out'. More financially fortunate alcoholics are unlikely to come to the attention of law enforcement officers unless arrested for public drunkenness, violent acts under the influence of alcohol, driving violations or other alcohol-related offences. As these offences are also committed by non-alcoholic drinkers, they rarely lead directly to any form of alcoholism treatment.

Most daily heroin users, on the other hand, have a high likelihood of being arrested—either for drug-related activities or offences committed in order to obtain money to buy heroin. Multiple convictions and prison terms are often expected by those deeply involved in the life of illicit opiate use, and jail is considered by many to be a 'part of living', or a 'lousy vacation place from your habit'.[201, 232, 255] One would expect, therefore, that there is a better opportunity for therapeutic intervention in the institutional setting for heroin users than for those dependent on other substances, if indeed, effective treatment programs could be developed within that setting.

In the past, heroin users did not usually receive any special treatment in North American prison systems. However, in recent years, specific treatment programs for opiate dependents have been instituted in penal settings in both the United States and Canada. These programs are discussed elsewhere in this report (see Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada* and Appendix L *Civil Commitment in California*).

An analysis of follow-up studies of drug dependents suggests that the proportion of people who are 'cured' and achieve a stable drug-free state after treatment or prison may not be much different from the proportion of individuals who become abstinent without professional or paraprofessional assistance, that is, those who 'mature out' on their own. In a ten-year follow-up study of heroin dependents who were incarcerated in Oakalla prison in British Columbia, it was discovered that only five to eight per cent of those who had made contact with the Narcotic Addiction Foundation in Vancouver were presumed to be abstinent, whereas 34 per cent of those with no contact

* Since tobacco is the only drug sanctioned for non-medical use in prisons and is thus an important form of currency as well as a diversion from the prison routine, it would appear that, if anything, incarceration encourages increased use of nicotine.

had achieved this end.[211, 213] This does not necessarily mean that the agency itself encouraged relapse, for those who did not appear for treatment, although they were similar to those who did on a number of significant variables, may well have been more marginally dependent or less involved in opiate narcotics use.

In some cases, it appears that abstinence becomes easier to sustain as a dependent person grows older. This process is usually referred to as 'maturing out', and although the concept was originally developed to describe cessation of opiate dependence, it has since been applied to other kinds of drug use. While success rates of tobacco-smoking clinics seem to be around 20 per cent, probably 15 per cent of regular smokers, including those not as highly motivated to quit as clinic patients, eventually stop using without treatment.[224] Accumulating evidence suggests that alcoholism may be a self-limiting condition for some proportion of alcoholics and reduced intake, a change to non-problem patterns of use or total abstinence may occur without benefit of formal treatment in up to 25 per cent of the using population.[38, 178, 214]

The concept of maturing out of heroin dependence, although previously postulated by Scher,[232] was popularized by Winick[276] who concluded from his analysis of the records of the United States Federal Bureau of Narcotics (now the Bureau of Narcotics and Dangerous Drugs) that heroin dependence was a self-limiting process for perhaps two-thirds of the dependent population. There are a great number of problems with Winick's study, most of which centre around the U.S. agency's tabulating procedures.* Some of the persons that Winick assumed to have matured out may have been dead or in prison; others may have become 'hidden addicts' insofar as they acquired the skill or resources to avoid encounters with law enforcement agencies. Henderson suggests that Winick's sample may not have been representative of even the *known* heroin-using population and that a significant proportion may have been only marginally dependent.[117]

Although Winick's data do not satisfactorily support his theory,[268, 269] maturing out does occur in a proportion of cases according to other studies. It appears that age is correlated with the frequency and duration of abstinence periods among heroin dependents,[77, 122, 213, 264] although Waldorf suggests that the number of years of heroin use is a stronger predictor of long-term voluntary abstinence than is age.† [268, 269] Vaillant found two out of five subjects in their forties to have accomplished stable abstinence, although a similar proportion were dead or institutionalized. [265] Similarly, there is a higher probability that tobacco smokers over 30 will be successful in abstaining from

* At the time of Winick's study, the Bureau of Narcotics and Dangerous Drugs had not described its data collection procedures in sufficient detail to evaluate the accuracy of its figures. Apparently no uniform instructions were given to the reporting agencies, and Lindesmith, after analysing the Bureau's register, concluded that the enterprise as a whole appeared to be more of a public relations effort than a serious attempt at enumeration.[180]

† Other studies, however, do not support this contention.[266]

this drug, and this probability rises with increasing age. The average daily consumption of cigarettes tends to decline in middle age.[65, 224] Cahalan's follow-up of a national sample of U.S. drinkers reveals that drinking problems decreased with age, with a sharp drop at the age of 50 and another after age 70 for men. He found few women with drinking problems after the age of 50.[38]

'Spontaneous' recovery from problem levels of alcohol use is most likely to occur when the drinker becomes fully aware of the extent to which alcohol is causing progressive dissolution in his life situation.[119] Alcoholics are said to reach their lowest point in their own eyes as well as in the opinion of their friends and family in their late thirties.[62] Cahalan and his associates concluded that lower levels of drinking among older people are probably attributable to voluntary cessation or decrease in alcohol consumption rather than generational or cohort differences in alcohol use.[39]

Although tobacco smoking has no effects comparable to alcohol on the life style and self-conception of the user, it is reasonable to assume that fear of the harmful physical effects of tobacco use, particularly on a body weakened by advancing age, must play some role in the decision to terminate use, particularly if cessation of tobacco use has been recommended by a physician.

Although there are no systematic data on the cessation of chronic methamphetamine use, it appears that many speed freaks voluntarily refrain from further intravenous consumption of this drug after a year or two of sustained use. In many cases, the physical and psychological demands of the drug, coupled with increasing reflection on these problems and the viability of alternative life styles, are responsible for the decision to abstain.[103] However, the relative newness of this phenomenon renders it difficult to generalize about the reasons for cessation of speed use or the chances of successful abstinence.

There is no question that, for some, a life style of heroin dependence becomes unbearable after a period of time, especially among those whose ability to support their habits has declined to such a point that even other users no longer have respect for them.[269] Women tend to disappear from the known dependent population around the time that a career as a prostitute would be coming to an end, that is to say, in their late thirties and early forties.[112, 117] That the way of life of the heroin user on the street, in jails and in treatment facilities should become prohibitively demanding in later years is not surprising; what is more remarkable is that some individuals manage to survive and stay actively dependent, even after decades of heroin dependence.

It is evident that there are a number of variables which affect abstinence and relapse patterns. 'Spontaneous' loss of craving for a drug, although it may conceivably occur in some cases, is probably mediated through one or more of the economic and social conditions we have described above. Maturing out is most often a complex phenomenon and should be understood as such. Abstinence, even for prolonged periods, usually does not imply loss of desire

for the drug of dependence, and craving often continues for the lifetime of those who are ostensibly 'cured' of their dependence.*[33]

Termination of dependent alcohol, methamphetamine, or heroin use usually represents a desire to seek out a new value system and a different way of life. As Vaillant suggests, relapse to heroin use may be more due to a poverty of life alternatives than to the extent to which the drug may appear to have answered the needs of the individual.[207] The struggle against relapse begins immediately after detoxification when the individual begins his attempt to become an 'ex-' or 'non-addict', and to re-order his life style and his relations with others.

The response of relatives, friends and employers to those who are trying to stop using dependence-producing drugs is crucial, not only to their success in this endeavour, but also to the likelihood that they will be able to take on the identity of a 'normal' person. Heroin relapse often occurs when obstacles to this process necessitate a re-definition of self as a 'junkie'.[208] Similarly, the reformed alcoholic, although not faced with the additional problem of becoming an 'ex-criminal' as well as an 'ex-addict', must constantly reaffirm his self-image as a responsible and self-controlled abstainer.†

Life is bitter and the prognosis is poor for most heroin dependents and alcoholics. Although the daily life of tobacco smokers is not radically affected by their use of nicotine, it may well be shortened, and their attempts to cast off this dependence do not appear to have met with dramatic rates of success. However, the termination of non-dependent use or the use of non-dependency-producing drugs does not engender the host of problems faced by chronic users of opiates, alcohol, tobacco, or methamphetamine, and, consequently, is much easier to accomplish.

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* Some drug dependents do not achieve permanent abstinence until medical complications or death interrupt their drug-using careers. The mechanisms by which this occurs are discussed in detail in another appendix (see Appendix A *The Drugs and Their Effects*).

† Ex-smokers are often accused of over-enthusiasm in this regard, regaling their friends—especially those who have been less successful in their attempts to quit—with detailed analyses of their smoking careers and the precise period of time which has elapsed since their last cigarette.

ANNEX 1

Extent of Multiple Drug Use

Multiple drug use is the rule rather than the exception among those who use drugs, whether their use is medical or non-medical, licit or illicit. Data drawn from Commission surveys in the spring of 1970 provide an overview of drug use in the Canadian population aged 12 and over in terms of seven *classes* of drugs: hashish and marijuana are combined as cannabis; 'pep pills' and 'diet pills' form a second group; 'sedatives', tranquilizers and 'sleeping pills' form a third group; LSD and 'other hallucinogens' form a fourth group; and tobacco, alcohol, and solvents are each treated as a distinct class.[142, 143, 144] The Commission surveys did not gather any data on the use of opiate narcotic drugs, and consequently, there is no 'opiates' category in this classification. Our data do not address themselves directly to the hypothesis of 'progression' from one drug to another. Rather, they provide information regarding the context of what may be termed normal multiple drug use in the Canadian population.

A major difficulty with most of the data published on multiple drug use is that frequency of use is not taken into account. The regular user of several drugs is often lumped together with, for example, someone who has used the same substances only once. The number of respondents in the Commission surveys does not allow a particularly fine analysis of frequency of use. We have, however, distinguished use of a substance *ever* from use *once a month or more in the last six months*. For most substances, this latter frequency cannot be called 'frequent use'. For example, someone who uses tobacco, alcohol and cannabis, but each only once a month, cannot be described as a heavy user of any of these substances.

Our data involve six sets of patterns of multiple drug use: the two sets of patterns given by two different definitions of multiple drug use ('ever used' and used 'once a month or more in the last six months') for each of three populations (adults, college and university students, and high school students). Table C.8 shows the number of *classes* of substances used in each of these six sets. Tables C.9 to C.11 show the most common patterns of multiple drug use, and Tables C.12 to C.14 show the correlations between pairs of classes of substances.

The only general statement that can be made about these data is that the choice of combinations of substances is not at all random. There are 128 possible patterns of multiple drug use for the seven classes of substances. If respondents chose among these seven classes on a random basis, we would expect each pattern to represent about ten respondents in the high school

and university samples and about 22 respondents in the adult sample. In fact, only one out of ten patterns contains at least these numbers of respondents. In all cases, the four most common of the 128 patterns account for approximately 50 per cent or more of the respondents in each sample, involving no more than three of the seven classes of drugs. In no case does it require more than the top 12 of the 128 patterns (involving no more than five of the drug classes) to cover 80 per cent of the sample. Multiple drug use, according to either level-of-use definition, and in any of the three populations, can thus be largely accounted for in terms of a relatively restricted number of patterns of multiple drug use. But the particular patterns that occur, and the proportions of the population that they cover, differ from sample to sample, and, equally importantly, differ in terms of whether one is using the 'ever used' or used 'once a month or more in the last six months' level-of-use definitions.

We are dealing with seven classes of drugs. How many are used by our respondents? Not surprisingly there is a sharp difference in all three samples between the number of classes of drugs ever used, and the number used on the average at least once a month in the last six months. Table C.8 shows that in the high school sample, 93 per cent of the respondents have never used more than three types of drugs, and 89 per cent only one type or none at all on a more regular basis. In the college and university and national adult samples, the numbers of drug classes used by 90 per cent of the sample or more are four 'ever' and two on a more regular basis.

These data indicate the importance of distinguishing levels-of-use. Even our relatively weak measure of levels-of-use halves the number of respondents who are defined as multiple drug users when we move from those who have ever used any of these drug classes to those who have used the classes once a month or more in the last six months.

The most notable features of the national adult sample (see Table C.9), in terms of use once a month or more in the last six months, are: the primary position of 'no use' of any of the seven classes of substances (30 per cent of the sample); the secondary position of alcohol and tobacco, alone or in combination (a total of 48 per cent of the sample); followed by sedatives, tranquilizers or sleeping pills alone or together with alcohol or tobacco (16 per cent of the sample); followed by pep pills or diet pills, alone or together with sedatives, tranquilizers or sleeping pills, alcohol, or tobacco (three per cent of the sample).

Patterns of multiple drug use in the college and university sample (see Table C.10), with use defined as use once a month or more on the average in the last six months, are similar to those of the national adult sample, with one notable exception. Patterns involving cannabis appear where patterns involving sedatives, tranquilizers or sleeping pills are found in the adult sample. Table C.11 indicates that, in terms of more regular use, high school students are remarkable for their abstemiousness when compared to adults and college and university students. Furthermore, high school students remain

primarily committed to the traditional non-medical drugs of our society, tobacco and alcohol. Only eight per cent of the sample uses any other substance on a relatively frequent basis, medically or non-medically, licitly or illicitly.

The probability of future use of any given drug is greater among persons who have at some time used a drug than among those who have not. This observation is represented statistically by a positive correlation coefficient—a numerical summary measure of the degree to which two quantitative variables are interrelated such that an increase in one variable is associated with a corresponding increase in the other variable. Tables C.12 to C.14 present matrices of point correlations for all possible pairs of drug classes in the three Commission surveys. Most of the pairs of drugs are positively correlated, with the degree of correlation varying from very weak to moderate. The highest correlation is 0.55, that between cannabis use and LSD use in the high school survey (see Table C.14). Correlations of this order, although indicating a strong relationship betwen two variables, do not suggest that the variables are so closely related as to make it possible to predict an individual's use of one substance on the basis of his use of another substance.

As we move from the high school survey to the college and university and national surveys, we note that corresponding correlation coefficients tend to be lower. High school students are at an age where they are developing adult patterns of drug use, and older students tend to have more experience with a variety of drugs than younger ones. Thus, the variation in age in this high school sample, correlated as it is to the use of most drugs, would account for most of the stronger relationships found in the high school sample than in the other samples.

We note further that correlations tend to be lower when we define drug use as use 'once a month or more in the last six months', rather than 'ever used'. The phenomenon of multiple drug use changes its character when we more strictly define the level-of-use of the substances involved. The relationships among the drugs tend to be diminished since there are proportionately fewer frequent users of any combination of drugs than there are persons who have 'ever used' these combinations. Consequently, it becomes less possible—rather than more possible—to explain the use of one drug in terms of the use of another drug. Hence, correlations that do not consider level-of-use data are not only unsophisticated but, more importantly, can often prove misleading.

The Commission data indicate that multiple-drug use is in fact normal drug use in our society. This observation has also been made by other researchers who have observed that all drug use is related to all other drug use, and that an individual's use of any one psychotropic substances makes more likely his use of any other psychotropic substance.[28, 82, 190] The values of these correlations, however, are never so strong as to serve as adequate predictors of drug use.

TABLE C.8

NUMBER OF CLASSES OF DRUGS USED BY FREQUENCY OF USE, AND BY SAMPLE, COMMISSION SURVEYS, CANADA, SPRING 1970

Number of Classes*	National Adult Survey		College and University Survey		High School Survey	
	Ever Used	Once a month or more in the last six months	Ever Used	Once a month or more in the last six months	Ever Used	Once a month or more in the last six months
	Percentages					
None	14	30	9	29	43	66
One	19	34	25	39	25	23
Two	31	28	29	25	16	8
Three	27	7	20	6	9	2
Four	7	1	12	1	4	2
Five	1	—	4	†	2	†
Six	†	—	1	—	1	—
Seven	—	—	†	—	†	—
Total	100	100	100	100	100	100
N	2749	2749	1213	1213	1213	1213

* Classes: Alcohol; tobacco; marijuana or hashish; sedatives or sleeping pills or tranquilizers; pep pills or diet pills; LSD or other hallucinogens; solvents.
† Less than 0.05 per cent.

TABLE C.9

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS, BY FREQUENCY OF USE, COMMISSION NATIONAL ADULT SURVEY, CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE			
Ever Used		Once a month or more in the last six months	
*Pattern**	*Per Cent*	*Pattern**	*Per Cent*
1. sed, alc, tob	20	1. no use	30
2. alc, tob	16	2. alc, tob	20
3. no use	14	3. only tob	14
4. sed, alc	8	4. only alc	14
5. only alc	7	5. only sed	5
6. only sed	6	6. sed, alc, tob	5
7. ups, sed, alc, tob	6	7. sed, tob	3
8. only tob	5	8. sed, alc	3
9. sed, tob	4	9. only ups	1
10. ups, sed, alc	2	10. ups, sed	1
11. ups, alc, tob	2	11. ups, tob	1
12. ups, sed	2	12. ups, alc, tob	1
13. ups, alc	1	13. ups, sed, alc, tob	1
14. only ups	1	14. ups, sed, alc	†
15. ups, sed, tob	1	15. ups, sed, tob	†
16. can, alc, tob	1	16. ups, alc	†
17. can, sed, alc, tob	1		
18. can, ups, sed, alc, tob	1		
19. ups, tob	1		
22 remaining patterns	2	15 remaining patterns	2
Total	100	Total	100
N	2749	N	2749

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills; tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.
† less than 0.5.

TABLE C.10

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS, BY FREQUENCY OF USE, COMMISSION COLLEGE AND UNIVERSITY SURVEY, CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE

Ever Used		Once a month or more in the last six months	
*Pattern**	*Per Cent*	*Pattern**	*Per Cent*
1. only alc	19	1. no use	29
2. alc, tob	12	2. only alc	28
3. sed, alc	9	3. alc, tob	18
4. no use	9	4. only tob	8
5. sed, alc, tob	7	5. can, tob, alc	3
6. can, alc, tob	5	6. can, alc	3
7. can, sed, alc, tob	5	7. sed, tob, alc	2
8. can, alc	4	8. sed, alc	2
9. only tob	3	9. only can	1
10. can, sed, alc	3	10. only sed	1
11. only sed	3	11. can, tob	1
12. ups, sed, alc, tob	2		
13. can, LSD, alc	2		
14. ups, sed, alc	2		
15. ups, alc, tob	2		
16. can, LSD, alc, tob	2		
17. ups, alc	1		
18. can, sed, LSD, alc, tob	1		
19. can, ups, sed, alc, tob	1		
20. sed, tob	1		
21. alc, can, ups	1		
24 remaining patterns	6	16 remaining patterns	4
Total	100	Total	100
N	1213	N	1213

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills; tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.

TABLE C.11

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS, BY FREQUENCY OF USE, COMMISSION HIGH SCHOOL SURVEY, CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE					
Ever Used			Once a month or more in the last six months		
*Pattern**		*Per Cent*	*Pattern**		*Per Cent*
1. no use		43	1. no use		66
2. only tob		11	2. only tob		16
3. only sed		6	3. alc, tob		5
4. only alc		6	4. only alc		4
5. alc, tob		6	5. only can		1
6. sed, alc, tob		3	6. only sed		1
7. sed, alc		3	7. can, tob		1
8. sed, tob		2	8. can, alc, tob		1
9. can, alc, tob		2			
10. can, alc		1			
11. can, sed, alc, tob		1			
12. ups, sed, alc		1			
13. ups, sed, alc, tob		1			
54	remaining patterns	14	21	remaining patterns	5
	Total	100		Total	100
	N	1213		N	1213

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills; tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.

TABLE C.12

Point Correlations Between Pairs of Seven Classes of Drugs for Two Frequencies of Use, Commission National Adult Survey, Canada, Spring 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
Ever Used:							
Alcohol		0.40	0.09	0.01	0.11	0.18	0.04
Tobacco			0.09	0.03	0.05	0.13	0.03
Marijuana or Hashish				0.42	0.08	0.01	0.03
LSD*					0.06	†	−0.01
Pep Pills or Diet Pills						0.16	†
Sedatives or Tranquilizers or Sleeping Pills							0.05
Used once a month or more in the last six months:							
Alcohol		0.25	0.03	0.01	†	0.05	0.06
Tobacco			0.01	0.05	0.01	0.06	0.01
Marijuana or Hashish				0.37	0.04	−0.02	−0.01
LSD*					−0.01	0.02	†
Pep Pills or Diet Pills						0.14	−0.02
Sedatives or Tranquilizers or Sleeping Pills							−0.02

* Includes other hallucinogens.
† $r < \pm 0.005$.

TABLE C.13

POINT CORRELATIONS BETWEEN PAIRS OF SEVEN CLASSES OF DRUGS FOR TWO FREQUENCIES OF USE, COMMISSION COLLEGE AND UNIVERSITY SURVEY, CANADA, SPRING 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
Ever Used:							
Alcohol		0.19	0.25	0.12	0.08	0.12	0.05
Tobacco			0.22	0.31	0.13	0.10	0.10
Marijuana or Hashish				0.45	0.11	0.09	0.12
LSD*					0.07	0.02	0.04
Pep Pills or Diet Pills						0.17	0.04
Sedatives or Tranquilizers or Sleeping Pills							0.01
Used once a month or more in the previous six months:							
Alcohol		0.15	0.13	0.05	0.04	0.07	†
Tobacco			0.12	0.08	0.05	0.05	†
Marijuana or Hashish				0.26	0.03	0.06	†
LSD*					0.13	0.10	†
Pep Pills or Diet Pills						0.12	†
Sedatives or Tranquilizers or Sleeping Pills							†

* Includes other hallucinogens.
† Insufficient variation in one or the other variable.

TABLE C.14

Point Correlations Between Pairs of Seven Classes of Drugs for Two Frequencies of Use, Commission High School Survey, Canada, Spring 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
Ever Used:							
Alcohol		0.33	0.41	0.30	0.21	0.29	0.22
Tobacco			0.25	0.14	0.12	0.13	0.13
Marijuana or Hashish				0.55	0.19	0.14	0.23
LSD*					0.21	0.12	0.18
Pep Pills or Diet Pills						0.23	0.07
Sedatives or Tranquilizers or Sleeping Pills							0.09
Used once a month or more in the previous six months:							
Alcohol		0.27	0.23	0.12	0.10	0.09	†
Tobacco			0.18	0.14	0.03	0.05	†
Marijuana or Hashish				0.51	0.12	0.11	†
LSD*					0.06	0.17	†
Pep Pills or Diet Pills						0.14	†
Sedatives or Tranquilizers or Sleeping Pills							†

* Includes other hallucinogens.
† Insufficient variation in one or the other variable.

ANNEX 2

"Habitual Narcotics Users" Known to the Bureau of Dangerous Drugs (1972)

The tables in this annex were compiled by the Bureau of Dangerous Drugs of the Health Protection Branch, Department of National Health and Welfare.

TABLE C.15

KNOWN HABITUAL NARCOTIC DRUG USERS IN CANADA FOR 1972 BY CLASS, PROVINCE AND SEX

	Yukon		B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Illicit	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958
Licit (Medical)	—	—	14	14	6	5	2	3	1	2	21	40	12	20	2	2	—	7	—	1	—	1	58	95	153
Professional Persons	—	—	14	3	3	—	5	2	5	3	31	14	26	11	4	1	4	2	1	—	2	—	95	36	131

I ILLICIT: Includes all cases where we have record of the person since 1963 and where the source was initially illicit. Not all of these persons have been convicted under the Narcotic Control Act.

II LICIT (Medical): This group might be referred to as therapeutic drug users. These are persons who have some medical condition upon which dependence has become superimposed or to persons who became dependent through medical treatment. Few persons in this class have any criminal background. Names are deleted from this group if we have no record from a Narcotic standpoint during the past five years.

III PROFESSIONAL PERSONS: Members of the medical and allied professions. In this group also, names are dropped after a period of five years with no information being received.

TABLE C.16

KNOWN HABITUAL ILLICIT NARCOTIC DRUG USERS 1972 BY SEX AND AGE GROUPS

Years	Yukon		B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Under 20	—	—	223	164	63	25	12	3	18	10	86	28	30	13	—	—	6	1	—	—	—	—	438	244	682
20-24	1	—	1,010	357	172	76	30	10	76	22	323	108	218	66	2	—	17	4	—	—	1	—	1,850	643	2,498
25-29	—	1	648	275	73	20	24	6	35	5	146	102	61	20	1	—	3	2	—	—	1	—	992	431	1,423
30-34	—	—	471	225	43	10	13	1	14	2	126	99	16	7	—	—	4	—	—	—	—	—	687	344	1,031
35-39	—	—	379	115	24	9	8	1	9	—	115	77	21	8	1	—	—	—	—	—	—	—	557	210	767
40-49	—	—	464	116	30	8	9	6	15	4	175	68	28	8	1	—	—	—	—	—	—	—	722	210	932
50-59	—	—	195	37	8	1	8	—	5	1	80	17	8	2	—	1	1	—	1	—	—	—	306	59	365
60-69	—	—	99	14	4	—	1	—	5	1	42	4	5	1	—	—	—	—	—	—	—	—	156	20	176
70 and over	—	—	22	1	—	—	—	—	2	—	6	1	6	—	—	—	—	—	—	—	—	—	36	2	38
Not known	—	—	518	163	42	30	27	21	23	6	80	37	77	21	1	—	3	—	2	—	—	—	773	278	1,051
TOTAL	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958

Note: Age is taken in 1972, and not when first encountered.
Some groups are in 10 year intervals.

TABLE C.17

KNOWN HABITUAL ILLICIT NARCOTIC DRUG USERS 1972
Under 18 years of age

Age	B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
17.....	28	26	3	—	4	1	—	4	9	3	1	1	—	—	—	—	—	—	—	—	45	35
16.....	5	18	6	1	—	1	—	—	5	—	1	—	—	—	—	1	—	—	—	—	17	24
15.....	2	4	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3	4
14.....	1	1	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	2	2
13.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0
TOTAL	37	49	9	1	4	2	1	4	15	3	2	2	—	—	—	1	—	—	—	—	68	65

TABLE C.18

Known Habitual Illicit Narcotic Drug Users 1972 by Name and Source of Information

Narcotic Drugs	Yukon		B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Heroin	—	1	3,563	1,297	358	151	92	29	179	48	990	460	397	113	2	—	29	6	2	—	2	—	5,614	2,105	7,719
Opiates	—	—	48	6	24	5	11	3	8	—	64	18	17	11	4	1	3	—	—	—	—	—	179	44	223
Cocaine	1	—	26	10	21	3	—	—	2	1	40	8	7	1	—	—	2	—	—	—	—	—	99	23	122
Synthetics	—	—	265	101	47	19	28	15	7	1	82	30	45	17	—	—	—	1	1	—	—	—	475	184	659
Not known	—	—	127	53	9	1	1	1	6	1	3	25	4	4	—	—	—	—	—	—	—	—	150	85	235
TOTAL	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958
Source																									
Licit	—	—	595	65	23	9	14	12	2	1	26	13	17	10	3	1	—	—	—	—	—	—	680	111	791
Illicit	1	1	3,384	1,397	436	170	118	36	196	49	1,153	524	453	136	3	—	34	7	3	—	2	—	5,783	2,320	8,103
Not known	—	—	50	5	—	—	—	—	4	1	—	4	—	—	—	—	—	—	—	—	—	—	54	10	64
TOTAL	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958
Source of information																									
Pharmacy Sales reports	—	—	529	223	70	36	22	19	6	3	134	38	162	55	—	—	16	5	1	—	—	—	940	379	1,319
Police reports	1	1	2,585	966	339	112	87	21	158	37	930	442	250	72	1	1	15	—	2	—	—	—	4,368	1,652	6,020
Other means	—	—	915	278	50	31	23	8	38	11	115	61	58	19	5	—	3	2	—	—	2	—	1,209	410	1,619
TOTAL	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958

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Motivation and Other Factors Related to Non-Medical Drug Use

D.1 GENERAL

The Commission has available numerous sources of information concerning the causes of non-medical drug use, the motivation of users and the factors associated with this phenomenon. Among these sources are the testimony presented at the public hearings of the Commission and in private meetings with the Commissioners and staff; reports from our participant observers and other researchers who worked with the Commission; evidence and comments presented at special symposia organized by the Commission to which a number of world experts were invited; and the results of surveys that have been carried out by the Commission, universities, drug foundations and individual scholars. In addition the Commission has studied and critically analysed the major psychiatric, psychological and sociological literature dealing with the motivational and other factors associated with the non-medical use of drugs.

There has been a very great increase in the volume and quality of research and interpretation available. Many aspects of non-medical drug use can be described with accuracy, and we can make reasonable attempts at explaining the phenomenon. However, as for any other human phenomenon, it is not possible to provide final, comprehensive and definitive explanations. Our understanding will improve as more research is completed.

Causes, Motivations and Associated Factors

In the context of our existing knowledge of non-medical drug use the term *cause* must be used with caution. In general usage, cause is taken to mean that which is invariably and unconditionally followed by a certain specific effect. When the term is used in this sense we know of nothing that can be demonstrated to inevitably produce non-medical drug use at either the group or individual level. We can, however, point to various factors that are frequently associated with the phenomenon. A number of these conditions

(social, psychological, political, economic, philosophical, etc., in nature) can be seen to be frequently and intimately associated with non-medical drug use. They may or may not have an underlying role in producing it or in increasing the probability of it occurring.

The term *motive* refers, generally, to that which induces an individual to act. While motive may be held in common by members of a group or social category, a discussion of motivation must take account of the idiosyncratic. It is never possible to be certain that we can accurately describe, let alone fully comprehend and understand, the motivation of another person. Data about an individual's motives can be gathered from his own statements about the reasons for his conduct, as collected in interviews and questionnaires. Data can also be gathered by means of various projective tests which seek to probe beneath the level of consciousness. Data concerning motivation can be taken from the interpretations of those who observe or analyse behaviour. But there is never an ultimate check on the validity of the data. The individual reporting his motives may or may not want to divulge the most important ones and may or may not truly understand himself.

Even were it possible to fully understand and explain the use of some drug by an individual or group in some community in a particular year, we would not be in a position to posit universally applicable generalizations about the use of that drug. The context of drug use necessarily varies from person to person, place to place and through time. The use of heroin, for instance, has often been associated with the ghetto conditions of ethnic minorities in the United States, but heroin use in Canada and England is not as frequently related to these conditions. A few years ago an explanation of marijuana use would stress the religious and philosophical quest associated with its use by some cannabis smokers, while a contemporary description might well give only passing reference to these searchings.

Necessary Conditions

While we cannot accurately point to the specific causes of non-medical drug use, we can indicate certain conditions which must be present for the phenomenon to occur. For example, the availability of heroin and the presence of a population of heroin users in a community are almost always preconditions for the spread of the use of this drug. Needless to say, an interest in the drug or a willingness to experiment with it may be present without the drug or users, but this interest *per se* cannot lead to use. However, availability alone does not necessarily produce use. Thus, availability is a necessary but not sufficient condition for increased use of a drug.

Supply often precedes demand. For example, when new drugs are introduced for research purposes or appear on the market for the first time, there may be a considerable timelag before an interest in the drug is generated. To a large extent this interest appears to be fostered by word

of mouth or example. As knowledge of the existence of the drug spreads, some individuals become curious about its effects or otherwise interested in using it themselves. They may then either deliberately seek a supply or wait for an opportunity to fortuitously arise. Historically the commercial production, advertising and marketing for medical purposes of opiates, barbiturates, LSD, amphetamines and a number of other drugs played a role in generating an interest that eventually led to their widespread non-medical use. In turn, information about non-medical use spread, creating new curiosity and interest and fostering new demand. Once this availability-interest chain of individual and social factors is established, the prevention of continued or expanded use of a drug is extraordinarily difficult.

Macro-Social Conditions

There have been many suggestions that social conditions such as poverty, ghetto or slum residence, unemployment or frustrating, dull and repetitious work, and minority or ethnic group status are among the important factors underlying the non-medical use of certain drugs. These conditions, for example, have often been found to be associated with the use of alcohol and the opiate narcotics. A number of scholars have hypothesized that the war in Vietnam fostered an alienation among many young people that, in turn, provided fertile soil for the spread of the use of cannabis and LSD. Alienation from what is perceived to be an overly bureaucratized society that seems to offer little scope for emotion and feeling has also been noted.

Keniston and Roszak in the United States, and Zijderveld and Crook in Canada, have made notable contributions to relating broad, macro-social forces to the non-medical use of drugs. Keniston deals with drug use as part of a pattern of passive responses to the alienation experienced by university students.[188] Roszak sees drug use developing as part of an evolving counter culture that rejects the contemporary "technocratic society".[231] Zijderveld, in a similar manner, treats drug use as an aspect of some persons' rejection of our presently "abstract society".[424] Crook, in a paper prepared for the Commission, stresses the failure of the major social institutions to provide situations and opportunities for meaningful and satisfying social participation by the young.[96]

None of these approaches find the source of drug use in the traditional social and individual problems of economic deprivation or minority status. Rather they stress the psychological problems of the well-to-do and socially privileged who cannot find satisfaction or meaning in the relatively affluent life offered them by their parents.

Keniston was one of the first writers to deal with broad social conditions as background causes of student drug use, relating them to alienation, counter culture and, eventually, the non-medical use of drugs.[187, 188] The causes he notes vary depending on the level-of-use being discussed. Occasional users

("tasters" or "seekers") are said to be motivated by a variety of factors, including their intellectual orientation, the high value accorded by them to the search for truth, and their privileged social background. He argues that the pressure of sophisticated academic institutions, insofar as they attach priority to conventional success goals like high marks and scholarships, is an additional stimulus to the creation of a counter culture. The occasional users may give a higher priority to values such as expressiveness and immediate experience than to the conventional success goals. In contrast, Keniston sees the heavy user ("the head") as highly alienated to the point of rejecting many fundamental American values, such as material success, far more than does the occasional user. The latter, he suggests, has merely rearranged his priorities. Keniston also refers to the activists who believe in the traditional values of justice and equality and realize them in actuality. However, he feels that the activist alternative became increasingly inappropriate for white alienated college students with declining opportunities for their participation in the civil rights movement and their conclusion that the war on poverty was a false promise. Hence, the probability of turning to the passive drug alternative increased.[188] The heavy user is said to feel estranged from others and from his own experience. Drug use in a counter cultural context, then, provides him with an alternative to facing certain pressures, and may even give him a feeling of union with others from whom he would otherwise feel estranged. Keniston also argues that students with psychological problems are more likely to turn to heavy drug use than better adjusted students at times of depression or anxiety, although he does not suggest that this accounts for a significant amount of student drug consumption.[187]

Roszak emphasizes the technocratic nature of society as the source of alienation.[321] He suggests that the quality of contemporary life is woefully deficient in terms of subjective satisfactions, and neither economic accomplishments nor equality can substitute for these dissatisfactions. He describes contemporary social conflict as occurring between generations rather than classes, and the response is the making of a new culture rather than a new class or political movement. Sensuality, immediacy, emotion and mysticism are valued in the counter culture. Drug use, if not actually conducive to these values, is certainly compatible with them and, hence, encouraged.

Drug use, according to Zijderveld, is part of a protest against an abstract society with its emphasis on objectivity, rationality and routine, and its refusal to allow people to live as complete beings with human emotions, beliefs and needs.[424] Three "ideal-types" of protest are posited: "gnostic" (in which drug use is prominent), "anarchist" and "activist". The gnostic response involves the rejection of western rationality and a withdrawal into subjective experience which, in a consumption-minded society, can be precipitated with least effort by the use of drugs. A deeper absolute sense of reality is sought, which cannot be obtained with the plodding scientific method of the abstract society. Drug use is also part of the anarchistic response, but, in this case, it is not intended for consciousness expansion but, rather, symbolizes rejection of the

establishment and an attempt to return to a more natural, individual and less routinized style of life.

Crook sees young people rejecting a society which they perceive as devoid of human concerns and dominated by a bureaucratic social system.[96] He also emphasizes a more traditional conflict of generations. He suggests that many young people feel that they are being denied opportunities for a meaningful participation in their society. He argues that these are feelings which they share with the poor but that they feel this denial much more strongly than do the members of the lower social classes and have more opportunities to rebel. Crook also notes that in industrial societies such as Canada there is a tendency for childhood to be shortened but for adolescence to be prolonged. The young child, he suggests, may be indulged, but high standards and expectations are set for the adolescent who is also expected to have learned to postpone immediate gratification for later rewards. In Crook's view many parents who grew up during the Depression attempt to live vicariously through their children, and this further heightens the demands that are made on the adolescent. These factors collectively increase the probability of conflict between the members of different generations. He argues that a number of these problems are particularly acute in Canada. Many Canadian parents are themselves alienated due to the rather recent shift of this country from a predominantly rural to an urban, industrialized culture—a shift to which many parents have not wholly adapted themselves. Moreover, the potential for conflict between generations is enhanced because many of these parents hold values that are anachronistic and inappropriate to the urban setting in which their children are growing up.

According to Crook, young people today must submit themselves to a dehumanizing system of education without the compensation of being assured of security, let alone "happiness", when their studies are over. Their parents, raised during the Depression, had even less security, but they could not even imagine escaping the "system". Also, thanks to a longer period of education and their extensive consumption of television, the young of today are far more aware of problems of the world than were their parents.

The result, according to this theory, is a rejection of the bureaucratized, industrialized society, including its rationalism. To a great extent, this rejection of the conventional western intellectual approach to life also includes the rejection of political ideology and political activism. Repudiation of a political activist response, then, leaves only retreatist modes, such as drug use, 'hippie' styles of life, and experiments with other life styles like communes.

Many of the same aspects of the counter culture are described in another, but somewhat different, position. Marijuana use is seen as related to adherence to a "hang-loose ethic", a positively valued alternative set of values, goals, beliefs, norms and attitudes, held by certain young people.[250] The

hang-loose ethic emphasizes irreverence for the dominant institutions of church and state (marriage, pre-marital chastity, and wealth, for example) and expresses a lack of faith in the competence of the government, schools and parents to fulfil their functions.

Several authors focus on the positive attractiveness of drugs, without reference to any of the "problems" which are often said to trigger drug use. For example, Fort explains drug use as a learned behaviour of persons who have accepted the high value placed on pleasure in their society.[127] The user is not necessarily responding to problems and need not have more problems than non-users. Rather, he is following a well entrenched mode of finding satisfaction.

The theory of alienation has, on occasion, been tested empirically; there are methods of finding out and measuring the degree to which a person feels alienated or estranged from, or unable to act in response to, existing social institutions. Replication of studies conducted with these instruments some years ago could throw needed light on the discussion that is now taking place about the changing character of the youthful drug-using population.

These broad theories, of which the work of Keniston, Zijderveld, Roszak, Crook and Fort are examples, have more to say about the use of mild and strong hallucinogens (even their heavy use) than about the use of 'speed' and the opiate narcotics. A detailed analysis of the factors involved in the use of these latter drugs will follow and may help us provide some *specific* insight into the dynamics involved in the use of some of those drugs that have a considerable potential for harm. We will also discuss studies immediately pertinent to the factors associated with and motivations involved in the use of strong hallucinogens.

Drugs of Concern

Alcohol, tobacco, the barbiturates, tranquilizers, and cannabis certainly account for more than ninety per cent of all Canadian psychotropic drug use, and the Commission has at many times examined the factors that account for their use. In its deliberations and recommendations it has carefully considered these underlying dynamics, as well as the data available on the extent of use and the effects of these drugs. Yet we do not think, at this stage, that the Canadian public needs detailed analysis of the factors and motivations leading specifically to the use of these substances. They may be drugs of concern in the sense that we are justifiably overwhelmed by our understanding of the quantities consumed, the fact that they are, in some cases, capable of producing dependence, and the number of persons involved in their use (from all age groups and social strata); but the desire for an understanding of cause focuses on three categories of non-medical use which appear particularly threatening: namely, the *opiate narcotics*, the *amphetamines* and the *strong hallucinogens*. Hence we will focus our analysis

of factors and motivations on these three drug categories of greatest immediate concern. Those who are concerned with the etiological dynamics of other types of drug use may turn to the bibliography for references in these areas.

There was a time, some three or four years ago, when it would have been legitimate to try to state the reasons behind the use of a particular drug. Indeed, although the majority of us used at least alcohol (often in combination with one or more other drugs), the upsurge in the use of cannabis, for instance, was such a major cause of concern during a certain period that it appeared to need specific explanation. The alienation and counter-culture theories discussed above were given impetus by this concern about cannabis use. However, a drug-by-drug analysis has become less useful as time goes on, and it is obvious that a wide variety or combination of products is used by many of us, and that multiple drug use is, indeed, the most common pattern of use (see Appendix C.4 *Patterns of Use*, "Patterns of Multiple Drug Use"). Yet, the opiate narcotics, strong hallucinogens and amphetamines (especially the intravenous use of the latter) lend themselves to a specific analysis of the motivations and factors involved in first and continued use, and, because of their relative potential for harm, they will be discussed separately below.

Whenever possible, psychological and psychiatric theories will be reviewed under "individual factors", whereas macro-social and group conditions that are felt to lead to the use of a particular drug will be analysed under "social factors". However, in order to understand the realities of drug use, it must be noted that this distinction is an arbitrary one for purposes of analysis. It is both difficult and, on occasion, misleading to separate individual from social factors as they are inextricably linked in any comprehensive explanation of the causative dynamics regarding the non-medical use of drugs.

D.2 OPIATE NARCOTICS

The opiate narcotic drugs include opium, its active alkaloids and derivatives, and related synthetic compounds. In the following discussion attention is directed primarily to that population of users defined by the Bureau of Dangerous Drugs as "habitual illicit narcotic drug users". While other opiates are occasionally used (for example, opium, codeine, propoxyphene and morphine), of the more potent opiate narcotics heroin is the most commonly used for non-medical purposes. Similarly, although other populations are known to use opiates illicitly (for example, members of the medical and para-medical professions), "habitual illicit narcotic drug users" account for most of the dependent users of this class of drugs in Canada.

While most theories of opiate narcotics use are concerned with the problem of "addiction", it is important to realize that the causes of initial use

of heroin may be different from those related to continued or dependent use. In Appendix C.4 *Patterns of Use*, we review the process whereby persons come to use drugs, including heroin, for the first time and on an experimental basis. Beyond the social dynamics of this initiation process, there are several additional factors which various theorists have presented as responsible for beginning heroin use.

Two important factors in this regard are availability and association with those who are already using the drug. While it is true that demand for a drug increases its availability, it is apparent that access to, and use of, opiate narcotics is greatest at those times when, and in those communities or situations where, it is most readily available. For example, American epidemiological research has consistently found the highest rates of heroin use in urban ghettos in which there is easy access to the drug. For similar reasons, the rates of opiate use are inordinately high among members of the health-related professions and among American servicemen in South East Asia.[237, 267, 345] In both of these latter cases opiate narcotic drugs are readily available at little or no cost. Furthermore, it is noteworthy that the extremely high incidence of opiate use and dependence in North America during the late 19th and early 20th centuries was primarily due to the virtually unrestrained commercial and pharmaceutical production, distribution and promotion of these drugs.[7] Availability, as a factor in explaining why persons in some groups are more likely to use opiate narcotics than persons in other groups can, thus, be considered in terms of Cloward and Ohlin's concept of the "differential distribution of illegitimate opportunities".[86] It should be noted, however, that availability is a necessary but not a sufficient condition for either initial or dependent use, as many of those who are exposed to illicit opiates do not take the opportunity to use them.

Many studies have found that initial use of heroin almost always occurs in a peer group setting involving a person or persons—almost always friends—who are already using the drug.[27, 79, 121, 123, 171, 274, 310, 365] While it is not clear to what extent "peer group pressure" is involved in this initiation, it appears that heroin-using friends play an important role in arousing and satisfying a non-user's curiosity about the drug, in explaining its effects in favourable terms and in instructing them in the techniques of administration.[78, 121, 276, 333, 365]

The role of friends in introducing non-users to the use of opiates is further described in de Alarcon's study of the diffusion of heroin use in Crawley, an English new town close to London, in the mid-1960s.[104] De Alarcon identified three stages in the process whereby heroin use spread in Crawley. First he identified three Crawley residents who, between 1962 and 1965 experimented with heroin, and in some cases became dependent on it while living elsewhere. Second, two individuals, one from the first group and one from outside Crawley, introduced seven Crawley residents to the drug during 1965 and early 1966. From these sources, use spread to a further 38

Crawley young people during 1966 and 1967. De Alarcon identified a further eight users in Crawley who began using heroin during 1966 or 1967, who could not be shown to have been introduced from this network. In summary de Alarcon states:

> ...it appears that heroin abuse was introduced to Crawley by local boys who had acquired the habit whilst visiting or living in another town. They then spread the habit among their peers. In every case between the initiators and the initiated there had been a long-standing or current link of common chool and neighbourhood, or common haunts of amusement.[104]

De Alarcon's findings about the stages of the diffusion of heroin use in a community have been confirmed in a replicatory study conducted in a Detroit suburb in early 1970.[219] It appears, then, that the kind of friends an individual has is an important determinant of his eventual decision about whether or not to try heroin.[171] Unfortunately, the factors which determine self-selection of and admission to various friendship-groups have not been adequately explored.[179] It is clear, however, that heroin use is often only part of a complex of delinquent activities and attitudes.

Continued use of opiates depends on both continued availability and, usually, continuing peer group reinforcement of use. The supposed euphoric effects of heroin have also been posited as a factor in the continuing use of this drug, although its role in the maintenance of use and dependence is a matter of some dispute.[111, 175, 224, 403] Double-blind studies of the subjective effects of opiates have found very few subjects who report feelings of euphoria after initial use.[212, 387] Euphoria may be, to some extent, a conditioned or learned response to opiate use rather than a universal psychopharmacological effect of the drug.

Continued use of opiate narcotics, at frequent intervals over a varying period of time, will almost invariably result in physical dependence on the drug. The concept of "dependence" (or "addiction") is more fully developed in Appendix A.1 *Introduction* and A.2 *Opiate Narcotics and Their Effects*, but, at this point, it is important to note that dependence on opiate narcotics is operationally defined in terms of the "withdrawal symptoms" that result from a termination of opiate narcotic administration. Lindesmith has argued that becoming an addict is dependent on the user learning to recognize these withdrawal symptoms (which are subject to various interpretations) as a consequence of a lack of opiates in his body, and consciously deciding to alleviate his condition by re-administering the drug and, thereby, avoiding further withdrawal distress.[224] The specific dynamics of this process, and its physical, psychological and social consequences, are also reviewed in some detail in Appendix C *Extent and Patterns of Drug Use.*

Theories concerned with the causes of dependence on opiate narcotics can generally be divided into two schools of thought: those that deal with

individual characteristics of the user (be these biological or psychological), and those that direct their attention to social or social-psychological factors that increase the likelihood of dependence on these drugs.

Individual Factors

Some theorists have suggested that certain individuals are genetically or metabolically predisposed to opiate dependence. Research with animals has found that a "liability to morphine addiction can be bred in rats",[279] and that rhesus monkeys display individual differences in their desire to self-administer morphine.[82] Dole and Nyswander theorize that some persons are neurologically susceptible to the use of opiate narcotics and that it is these persons who are most at risk to dependence on heroin or other opium-related drugs.[111] Dole also suggests that the sustained use of opiates may produce a permanent "hunger" for opiate narcotic drugs.[110] Based on experimental studies with animals, he has stated that,

> Months after withdrawal of narcotic drugs, previously addicted animals will show a drive to ingestion of nacotic drugs. If human beings are similar to rats in their pharmacological response to narcotic drugs—as seems likely—then exposure to narcotic drugs in humans also leaves a pharmacological residue... My opinion is that a heavy exposure to heroin induces... metabolic changes.[110]

Most individual-factor theories of opiate dependence are psychiatric or psychoanalytic in origin, and rest on the assumption that persons who become dependent suffer from some psychological or personality malfunction or inadequacy. The psychoanalytic theories of addiction originated with Freud's suggestion in 1897 that drug dependence was a substitute for sexuality.[11] This theme was adopted and further developed by numerous other psychoanalysts and psychiatrically oriented writers.[307, 410] We will not attempt to survey this extensive literature, which is reviewed elsewhere, but only mention a few of the more important contributions.[11, 97, 327, 422] Briefly these include notions of oral fixation,[306] an "archaic oral longing",[124] and regression from genital sexuality to infantile or more primitive stages of development.[124, 410] The role of depression has been noted as an immediate precipitating factor,[305] and the difficulties of dealing with sex and aggressive drives, in adolescence particularly, have also been cited as more immediate precipitating circumstances.[425] While a fair amount of evidence has been amassed to support some of these theories, most of this, in our view, does not stand up to critical assessment.

Among the common clinical diagnoses noted are those that conceive of addicts as psychopathically predisposed,[123, 196, 292] psychoneuoritic,[122, 123, 195, 196, 292] psychotic with latent schizoid tendencies,[122],[196] immature,[19, 77, 99, 194] or having an inebriate[193, 196, 292] or inadequate personality.[194, 246, 263, 286, 293]

Unfortunately, most of the studies from which these psychopathological diagnoses derive are the result of clinical observations which have not been empirically tested, thus, limiting our confidence in their conclusions. Jamison, in reviewing the problems associated with this type of theorization, has noted four major types of "imperfections in design".[179] The first problem is that clinical evaluations of addicts are conducted on an *ex post facto* basis, after they have been dependent for a period of time, thus making it extremely difficult, if not impossible, to determine whether a personality maladjustment was a cause of opiate dependence or an effect of this dependence and its associated life style. Related to this is the problem of attributing causative value to a diagnosed psychopathic condition which may very well have been a post-dependence consequence of extensive hospitalization or incarceration. Hill and associates, for example, found that institutionalized addicts were, on the average, more psychopathic (as measured by the MMPI test) than members of the non-dependent, general population, but were no more psychopathic than institutionalized alcoholics or prison inmates.[161] A third problem is that "the pre-established expectations of the interviewing psychiatrists . . . bring into the evaluation a 'set' or complex of stereotypic notions which are likely to bias the results in a predictable direction"—particularly since there have been no controlled studies in which the clinical investigator is unaware of whether or not his patients are dependent on opiates.[179] And finally, the almost universal lack of standardized, objective measures, the use of vague diagnostic categories to describe psychological conditions (for example, "inadequate personality" or "inebriate personality"), and the lack of operational definitions of the explanatory concepts (which, in fact, in many cases cannot be objectively defined or operationalized) has made it difficult, if not impossible, to replicate these studies or compare their results.

While these methodological problems render it impossible to evaluate the reliability or validity of investigations of this type, it is useful to briefly review some of the more widely accepted theories since they represent important hypotheses about the causes of opiate dependence which, in some cases, warrant more sophisticated research in the future.

One type of theory sees opiate dependence as an escapist or retreatist response to psychologically stressful situations. It is suggested that persons anticipating failure may resort to opiate narcotic use as a means of coping with this situation, and then use their dependence to rationalize their inability to succeed in a legitimate career, thus preserving their self-esteem.[77, 133, 311, 312, 347] Others maintain that heroin dependents are unable or unwilling to confront the prospect of maturation and, consequently, have escaped into addiction as a means of delaying this process.[19, 77, 194, 415] And finally, a third theoretical position suggests that adolescents who are unable to assume socially prescribed sex roles may use heroin to escape from the psychological and social difficulties that this situation produces.[77, 133, 175, 307]

Another psychologically oriented approach to the causes of dependence sees addicts as persons who use opiates either to suppress their inner feelings

of hostility or rage,[19, 414] or to relieve their frustrations for which they are presumed to have a low level of tolerance.[133, 246] Somewhat related are other theories which conceive of heroin dependence as one manifestation of an antisocial psychopathology. Addicts are viewed as being resentful of both authority figures and society generally, and as using heroin as a rebellious or defiant response to this resentment.[19, 161, 263]

The "inadequate personality" theories suggest that opiate narcotic dependents have a weak, unstable, passive or underdeveloped personality structure, and that heroin serves a compensatory function in regard to these inadequacies.[195, 246, 263, 286, 293] Unfortunately, however, "inadequacy" is rarely defined with a sufficient degree of precision to permit a useful comparison of these studies, and, as with most clinical research, most of these diagnoses are based on psychiatric interviews without benefit of control groups or objective methods of evaluation.

Generally speaking, these theories suggest that a diverse range of psychological variables may be responsible for dependence on opiates. Several of the authors of these theories have proposed that there is a dependence- or "addiction-prone" personality type. However, two carefully conducted Canadian studies indicate that heroin users cannot be characterized as having an addiction-prone personality insofar as they do not differ significantly from non-users who share similar social and criminal histories. In a study of dependent and non-dependent prisoners in British Columbia, Stevenson and his associates found that although heroin users may have been slightly less stable, objective and purposeful than other prisoners, their personality traits resemble those of non-using prisoners more than they differed from them.[363] They found few actual psychiatric disorders among the heroin dependent prisoners and concluded that the "tendency to classify addicts in various psychiatric categories is, in our opinion, unwarranted. Addicts are basically ordinary people...".

Gendreau and Gendreau,[132] in an attempt to provide a methodologically sophisticated answer to the question of whether or not there is an addiction-prone personality, carefully compared Canadian heroin dependents with a control group matched for age, intelligence, socio-economic background, criminal experience and opportunity for drug use, and found that the two groups did not significantly differ on the twelve personality scales of the MMPI. This result led them to reject the concept of an addiction-prone personality and to suspect that improper sampling and matching techniques were responsible for any differences that emerged in earlier studies. Nyswander, reviewing all efforts to discover a personality type predisposed to opiate use, concluded that dependence may exist within any type of psychic organization.[284] It seems, therefore, that the attempts to identify the addiction-prone personality have met with no more success than those directed toward finding the "alcoholic personality".[64]

Social Factors

Several Canadian studies have attempted to determine those social and social-psychological characteristics that differentiate heroin dependents from non-dependents. The Stevenson study discovered no differences between heroin-using and non-using prisoners when they were compared on such variables as their childhood and family life, their sexual history and behaviour (with the exception of female heroin users who were more likely to be prostitutes) or their cultural attitudes and beliefs.[365] They had similar attitudes to religion and superstitious ideas, and shared a delinquent orientation to crime, prison and the police. In a closely related study, these same investigators found that the sole variable that distinguished addicts from their non-dependent siblings was a friendly, close and continuous relationship with opiate-using delinquents.[365]

In another British Columbia study, Murphy found no differences between matched dependent delinquents and non-dependent non-delinquents on such factors as ethnic background, religious affiliation, fathers' or mothers' education, absence of the father from the family, whether or not their mothers worked, or their vocational or educational ambitions.[275] A more extensive discussion of social characteristics of heroin users is presented in Appendix C.3 *Characteristics of Users.*

With a few exceptions, sociological investigation of the causes of opiate dependence did not occur until the 1950s. One of the earliest theories focussed on the frustration of the black male in the urban ghettos of the United States.[125] A later version, along similar theoretical lines, saw black drug use and dependence as an inward turning of rage, which could not be directed to what was said to be its proper source—the privileged whites.[100] The effect of race, through its association with reduced economic opportunity, is seen also in an explanation of heroin dependence among Puerto Ricans in New York.[302]

Several researchers, employing a revised concept of 'anomie' (a discrepancy between a society's cultural goals, such as material success, and the socially prescribed means of achieving those goals), have shifted the emphasis from race to class.[83, 86, 262] Merton was the first to specifically view drug use and dependence as a "retreatist" adaptation to an anomic society.[262] For Merton, the American social structure tends to restrict the legitimate opportunities to attain cultural success goals to members of the middle and upper classes. He argues that those in the lower classes who are unable or unwilling to employ illegitimate means (for example, criminal enterprise) to obtain these same material ends may renounce both the prescribed goals and means, and "retreat" or escape from the personal frustrations imposed by this situation through alcoholism, mental illness, career vagrancy or opiate dependence. A development of this theory by Cloward and Ohlin allows for several means of reaching this retreatist response.[83, 86] An individual may have a too deeply

entrenched moral code to indulge in criminal activities, or he may lack the necessary capabilities or references and introductions to join a successful criminal gang, or he may simply have been inept in his early criminal exploits. Drug use may then be viewed as a response to "double failure"—in both the legitimate and the illegitimate worlds.

These anomie-type explanations have been generally discredited as a useful explanatory orientation to most cases of opiate dependence. Lindesmith and Gagnon point out that the distribution of opiate narcotics users over most of American history is contrary to that which would hold under any anomie theory.[227] Prior to World War I, users were disproportionately respectable, non-deprived, middle-class women. Regarding the double failure hypothesis, there is no lack of evidence that heroin users, far from failing at crime and abandoning it, often become persistent and successful thieves.[78, 273] In fact, considering the exorbitant price of heroin in the illicit market and the high risk of arrest, a heroin dependent must be an agile and diligent criminal entrepreneur simply in order to maintain his habit.[203, 370]

Despite these reservations, a general theory of economic deprivation, in some form or other, has had more popular acceptance than any other theoretical approach, as well as having strong acceptance in the academic and treatment communities. The lower-class image of the opiate user portrayed in the media seems to be an almost universally accepted one. Even people who subscribe to a notion of emotional disturbance or inadequate family background are likely to incorporate economic deprivation or low status of some sort into their image of the user. However, a critical examination of the Canadian, British and American data which can be brought to bear on the subject fails to support this view.

For example, studies of both treatment and imprisoned populations of heroin dependents in British Columbia have found that the social class origins of these persons is not significantly different from that of the general Canadian population.[157, 363] Similarly, British studies of opiate users report that the socio-economic status distribution of their parents was approximately that of the general population—with the exception that persons of higher social class origins were slightly over-represented in some samples.[45, 152, 366, 423] This is in direct contradiction to the economic deprivation theory. In the United States, opiate users and dependents come disproportionately from ethnic groups that are disproportionately lower class (blacks, Mexicans and Puerto Ricans), which would superficially support the economic deprivation theory. There is no evidence, however, to suggest that, within these groups, the worst off are most likely to become users, and there is some evidence to the contrary. Studies in St. Louis, Missouri,[218] Chicago,[2, 99] and New York,[78, 234] and among persons who had been patients at the U.S. federal treatment facility in Lexington, Kentucky,[103, 296] have found that the social class origin of these persons does not differ significantly from that of the general population or, in other cases, the social class distribution of

specific ethnic populations involved in the study. Consequently, it appears that socio-economic status is not clearly or directly related to opiate dependence, and the theory of economic deprivation must thus be discarded as a universal explanation of dependence.

One of the few theories to combine social-psychological and social factors explicitly may be found in the *Road to H* study by Chein and associates.[78] This theory also deals with the stages of opiate use from experimentation through occasional and regular use or dependence. The investigators found that basic demographic characteristics were the major determinants of exposure to heroin: young males in poor, non-white, high delinquency areas in New York City (where the study was conducted) were at the greatest risk. However, within high availability areas, users could be distinguished from non-users by the age they dropped out of school and their non-involvement in legitimate school and extracurricular activities. They also tended to belong to less cohesive families, were less likely to have someone to go to for help with personal problems (particularly a father or adult male), and appeared to be subjected to extremes of treatment as children (over-indulgence or excessive frustration). The authors of this study concluded that:

> ... the one factor which we have found to be distinctly related to drug use and apparently unrelated to delinquency per se is the experience of living with a relatively cohesive family. The users have, on the average, been more deprived in this respect, than the non users.[78]

Disturbed relations between children and parents and between parents have been cited as important factors in the background of opiate narcotic dependents by several other American and Canadian researchers as well.[73, 157, 311, 365, 380, 384]

A more recent study has confirmed many of the findings of the *Road to H*. Ahmed studied juvenile drug users from the lower socio-economic classes in Oakland, California, and found that they did not constitute a homogeneous group.[5] He identified four types of juvenile users and discovered that drug use had a different function and meaning for each of them:

> They ... differ in their orientation towards drug use before using [drugs] —in the way they were induced into its use, in their general and daily activities, in their conventional-unconventional orientations, in their future perspective, and finally in the nature of their interpersonal relationships.[5]

One type of unconventionally-oriented juvenile was similar to the type described as a "player" in another study.[52] For these adolescents, relationships with representatives of the conventional world were almost non-existent. They usually had been brought up by unconventional adults in a milieu which fostered unconventional standards. For them, drug use was an integral part of a larger complex of unconventional activities and 'hustles': pimping, prostitution, robbery, etc. It became evident to the investigator that these adoles-

cents were most at risk to access to heroin-using circles and to eventually using, and perhaps becoming dependent on, opiate narcotics.[5]

It appears that once an individual becomes physically dependent on heroin, his continued use of the drug may well be as much a function of certain social and cultural influences as it is a result of the simple desire to avoid the symptoms of opiate withdrawal. Involvement in a heroin-using subculture (which is almost obligatory for all opiate dependents except those very few who are independently wealthy or members of the medical and paramedical professions) is said to provide the individual with a positive self-image and identity, a sophisticated set of justifications for his activities, and an education in the skills and strategies required to financially maintain a 'habit', secure drugs, avoid detection and arrest, and preserve his health.[8, 84, 121, 309, 323, 324, 404] Heroin use thus becomes a totally involving, subjectively meaningful, and self-reinforcing way of life. In this regard, Preble and Casey have observed that:

> Heroin use today . . . provides a motivation and rationale for the pursuit of a meaningful life, albeit a socially deviant one. The activities these individuals engage in and the relationships they have in the course of their quest for heroin are far more important than the minimal analgesic and euphoric effects of the small amounts of heroin available to them. If they can be said to be addicted, it is not so much to heroin as to the entire career of the heroin user.[309]

Conclusion

The material discussed so far has shown that persons dependent on opiate narcotics do not radically differ on basic dimensions of personality or attitudes from non-users, especially those who are delinquent. Thus it appears that the reasons why some persons become dependent and others do not must be sought elsewhere.[275]

A combination of social circumstances and chance factors appears to be the best explanation of why heroin use is begun. Typically, the eventual user does poorly at school and loses interest in school work.[14, 157, 160, 213, 314, 318, 384, 423] He appears to have the same aspirations as the non-user, but due to a lack of skills is much less likely to achieve his goals.[275] The fact that he often has greater intelligence than the non-user makes this lack of achievement especially frustrating.[384] Because of his want of education and occupational experience, he is usually not able to get a satisfactory job and is frequently unemployed. Consequently, he is likely to spend much of his time hanging around the street, perhaps participating in delinquent activities, and usually coming into increasing contact with delinquents and heroin users. Friendships with the latter provide a source of supply and arouse his interest in the drug.

Friendship with heroin users seems to be the crucial precursor to heroin use.[365] Influence of friends and curiosity (the latter undoubtedly derived from the former) are the most commonly cited reasons for heroin initiation.[88]

Males are likely to be initiated in the presence of one or more of their peers, whereas females more often use the drug for the first time with a lover or husband.[113]

Chance factors are accorded great importance by the American authority Alfred Lindesmith in his explanation of use in the United States.[223] He argues that the desire to try heroin seems to be more motivated by a lack of other activities and gratification in other areas of life than a seeking out of a solution for any particular problem. The reasons given by opiate narcotics users for initial use are usually not very esoteric: curiosity, as generated by using friends and acquaintances, and a desire for new experience. These are essentially the same motives reported for the voluntary, non-medical use of any drug.

The would-be user becomes increasingly involved with people to whom opiate use is important and less involved with those in the 'straight' world,[121, 213] although even after becoming dependent he is likely to maintain some kind of contact with members of conventional society.[157] If arrested for a criminal offence, he usually meets users in prison and often establishes contact with dealers. Many have reported that they first used heroin while in prison or jail.[52, 272] In this case, the individual gains a reputation as a user which facilitates his access to opiate narcotics after his release.[272] Once he has used these drugs, there is less reluctance on the part of dealers to accept him as a customer. If the first prison experience comes after heroin use on the street, the time in prison still serves the same function of facilitating contact with other users and dealers.[390]

A new user usually takes the drug on an occasional basis for a while, for instance on weekends, with use being stepped up when particular crises or social situations encourage it. Some continue on an occasional basis for years before becoming regular users, and some never become dependent. It is not unreasonable to assume that it is at this stage, between occasional use and dependence, that individual personality factors are most likely to come into play. However, it seems that occupational circumstances and interpersonal relationships also account for some becoming dependent and others stopping or continuing at only an occasional level.[332] Those lacking these important conventional sources of satisfaction and ways of spending time seem to be the ones who use more frequently, until they must use on a daily basis to avoid withdrawal distress.

Opportunities for conventional involvements are determined by certain social and personality characteristics, but chance factors play an important role. Being caught and charged for a minor property offence has a large element of chance; most reported offences of this kind do not result in arrest or conviction. Living in a poor neighbourhood and being unemployed and frequently 'on the street' make one more liable to investigation. And, for those who are caught, these same factors increase the likelihood of being charged, convicted and given a stiff sentence.

The prison experience obviously limits opportunities for involvement in the 'straight' world during incarceration and, due to the stigma of being an 'ex-con', may indeed continue long after release. The prison experience, of course, at the same time increases contacts with the illegitimate world. Both of these processes are prone to make continued heroin use more likely.

Later phases of heroin use, the cycles of attempted abstinence and relapse, seem to involve the same kind of circumstances. Most people dependent on heroin make a number of attempts to abstain voluntarily and, of course, in prison are more or less forced to abstain. Abstinence is most likely for the person who marries, gets a steady job, makes non-using friends, breaks off contact with users, and moves into a community in which heroin is relatively unavailable.[105, 157, 384, 391] The chances of these circumstances occurring, however, are affected by the individual's background characteristics insofar as the person with the better school and job history is more likely to obtain steady and gratifying employment than the person with a less adequate educational and occupational history.

This evidence suggests that a career of heroin dependence is primarily determined by social factors and a lack of viable and satisfying life alternatives. As with other drugs, friendship patterns strongly affect the chances of initiation into heroin use, but after this, some users control their consumption level or stop using altogether, while others go on to daily use, dependence, and a life style dominated by heroin use.[332] The most crucial period appears to occur between initiation and dependence, and although the causal role of psychological variables is unclear, it may be assumed that it is at this stage that they are most likely to have influence. Few heroin users, however, are seriously psychologically disturbed and, as the Stevenson study observed, opiate dependents are characterized more by an absence of healthy resources than by the presence of demonstrable pathology.[365]

D.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

This category of drugs principally includes amphetamine, methamphetamine and amphetamine-like drugs such as phenmetrazine and methyphenidate. Those who use these drugs non-medically tend to fall into three categories. First, those who use these drugs orally, on a rather regular basis, in small to moderate doses, without prescription or as a result of 'prescription shopping', and usually to elevate mood or relieve fatigue or depression. Second, those who use these drugs orally in moderate to relatively high doses, on an occasional to regular basis, typically for recreational purposes. The first category tends to be drawn from the adult middle classes and is not usually associated with illicit drug experiences—most often amphetamine use will have begun for a medically authorized purpose. The second category is largely composed of younger people, many of whom will have had experience with other

illicit drugs. The third category contains a population who take amphetamine or methamphetamine (known in this context as 'speed') by intravenous injection, at high-dose levels and usually on a chronic basis (see Appendix C.2 *Extent of Use*, "Amphetamines and Amphetamine-Like Drugs"). It is this latter category which has received the greatest amount of attention in the psychiatric, psychological and sociological literature and in the popular press, although numerically it is by far the smallest of the three categories. To a considerable extent, the motivational patterns and factors associated with the use of amphetamines and amphetamine-like drugs (hereafter referred to as 'amphetamines') are similar for members of all of these categories, although some important differences will be noted.

Without doubt the widespread use of these drugs has been facilitated by their ready availability. While both Canada and the United States have recently introduced tighter controls on the legal distribution of these drugs, during the 1950s and '60s legitimately manufactured amphetamines were easily available to almost anyone who expressed an interest in obtaining them. Overproduction and overprescribing characterized the licit market and, for many oral users, the transition from medical to non-medical use was a function of both their introduction to the drug in a therapeutic context and their easy access to additional amphetamine supplies (either through 'prescription shopping' or diversionary channels) once an appreciation of the drug's stimulating effects or a compulsive habit had evolved. Similarly, the development of the first intravenous speed-using communities was abetted by both the overproduction and lax prescribing of injectable methamphetamine, and the relative ease with which methamphetamine could be illicitly produced.[358] These matters are discussed in Appendix B.3 *Amphetamines and Amphetamine-Like Drugs*, "Legal Sources and Illegal Distribution".

The motivations for initial use of amphetamines are significantly different from those factors that affect the continued use of these drugs. First oral use of amphetamines most often occurs within a medical context, the amphetamines having been obtained on prescription. Alternatively, amphetamines may be used initially without benefit of prescription, on the advice or at the suggestion of friends. In most cases this use will be of an instrumental or functional nature, such as facilitating the completion of arduous tasks, providing needed energy, curbing appetite, or counteracting fatigue or depression. In other instances the motivation for first non-medical use of amphetamines is similar to the motivation for first non-medical use of most psychotropic substances: simple curiosity precipitated by the favourable comments of friends and acquaintances, and the desire for a new and euphoric experience.[144, 145, 156, 220]

The initial intravenous amphetamine experience is usually engendered by a more complex set of factors than those affecting first oral use. Robbins has suggested four possible avenues to the regular intravenous injection of these drugs.[316] The first of these begins with the moderate oral consumption of stimulants to combat depression, fatigue or obesity. As tolerance and

psychological dependence develop, the user steadily increases his dosage until he shifts to intravenous administration. Although almost all 'speeders' have previously used amphetamines orally, it appears highly unlikely that this progression would occur in the absence of some involvement with intravenous users. As Robbins himself notes, "housewives habituated to amphetamine pills . . . do not graduate to injection because they have no contact with a deviant drug culture." [316]

A second, and more plausible, avenue suggested by Robbins involves the merging of oral amphetamine consumption and hallucinogenic drug use. As he puts it:

> A habituated user of [pep] pills [may] progress to intravenous usage if he has contacts within an underground drug scene (often dominated by psychedelics) . . . . College students abusing amphetamines are more likely [than most oral amphetamine users] to progress from oral to intravenous abuse by virtue of their greater proximity to an underground drug scene.[316]

Both of these initiation routes include the notion of graduation through oral to intravenous use of amphetamines. While both are theoretically possible, only the latter has been encountered by Commission investigators[144, 145] and has been well documented by other sources.[94, 198]

Robbins' third avenue of entry is through the prior intravenous use of heroin.[316] Several American studies have noted that heroin users will occasionally inject amphetamines when opiates are unobtainable, too costly or "too likely to invite prosecution".[126, 198, 308] Heroin users may also use amphetamines to facilitate their criminal 'hustles' or to avoid the risk of opiate dependence through the rotation of heroin and methamphetamine, or by switching to the exclusive use of speed.[70, 126, 308] Commission researchers and other Canadian investigators have discovered only a few speeders with a prior history of heroin use or dependence, and these were mainly Americans who could not secure opiate supplies in Canada. Involvement with opiates, when it does occur, has generally been found to follow rather than precede the intravenous use of amphetamines.[94, 241, 287, 288]

Robbins' final intravenous amphetamine initiation route is through the prior use of hallucinogenic drugs.[316] This is the pattern that has been most often observed in Canada. Robbins, Pittel and Hofer, and several other researchers, suggest that compulsive methamphetamine users are primarily recruited from among those persons who have been depressed, disillusioned, or disoriented by their use of hallucinogens.[231, 295, 316, 346] Speed use, then, since it provides sensations of enhanced self-assurance and competence, is seen as a reaction to repeatedly unpleasant hallucinogen experiences. As Pittel and Hofer describe this transition:

> . . . psychedelic drugs [are used] . . . to compensate for certain long-standing impairments in ego functioning . . . [These] psychedelic drug experiences lead to further impairment of ego functions and to an even greater inability to

> resolve psychological problems . . . . It is at this point that the transition to amphetamines may occur.
>
> The typical rationalization for this transition is that amphetamines provide needed energy and motivation for constructive problem-solving . . . . Other desired effects of amphetamines are their ability to counteract increasing anxiety and depression and the sense of pervasive emptiness that results from continued failure to deal with persisting or exacerbated personal problems.[206]

Nearly all Canadian intravenous amphetamine users studied by the Commission had a history of previous hallucinogen consumption and many of them claim to have been depressed when they initially injected amphetamine.[145] A psychiatric study of seven female speeders in Toronto concluded that "the compulsive use of speed in all cases was preceded by a depressive state . . .".[231] Another Toronto study described these drug users as "usually chronically depressed",[376] and the authors of a third Toronto study state that "there is no doubt that a very high percentage (perhaps 75 per cent) of the amphetamine users were depressed."[220]

Depression has often been cited as a precipitating factor in both the initial and continued non-medical oral—and intravenous—use of amphetamines. However, the sources of the depression have not yet been ascertained. Housewives, particularly, have often been reported to have used amphetamines, sometimes to the point of habituation, in order to counteract feelings of depression.[146, 151, 189, 190] Depression also plays an important intervening role in the 'speed cycle' which typifies patterns of intravenous methamphetamine use.

There have been several important studies of the relationship between psychological problems and the use of amphetamines. As with alcohol and the opiate narcotics, it has been suggested that there is a particular type of personality that is predisposed to the use of these drugs. However, before reviewing the information pertaining to this hypothesis, it is crucial to note, once again, that the relevant data are primarily based on clinical studies (involving unrepresentative samples and without control groups or objective measures) and surveys of volunteer respondents whose social and psychological characteristics may or may not resemble those of the total amphetamine-using population. Furthermore, these studies are often based on populations institutionalized in hospitals or jails and, consequently, are likely to reflect the more extreme elements of whatever using group is being considered. Finally, in almost all cases, it is uncertain whether diagnosed psychological disorders have preceded the use of amphetamines (and, therefore, may be causally linked to their use), or follow the use of these drugs (thus indicating the possibility of a psychopharmacological effect or the influence of life in a speed-using community).

Beamish and Kiloh described a series of oral amphetamine-using adult patients who showed evidence of psychopathic personality and had a high incidence of use of other drugs.[41] Furthermore, these patients had displayed

symptoms of abnormal personality prior to their use of amphetamines. Studies by Bell and Trethowan and Hampton also report the existence of underlying personality disorders among oral users of amphetamines, ranging from neurotic or prepsychotic traits to paranoid schizophrenia, psychopathic personality and manic-depression.[43, 44, 151] However, in Hampton's study no specific psychological disorder or complex of disorders seemed to consistently characterize amphetamine users.[151] Cockett and Marks found that among a group of young English offenders, the amphetamine users scored significantly higher on personality tests measuring hostility, guilt and self-punitive attitudes than non-amphetamine users from similar backgrounds.[87]

Hekimian and Gershon studied the psychiatric characteristics of 112 randomly selected non-medical drug users admitted to New York's Bellevue Hospital in 1967.[156] Of the 22 oral or intravenous amphetamine users, nine were diagnosed prior to their initial use of amphetamines as suffering from schizophrenia, six displayed neurotic patterns and four were described as sociopathic. These patients, however, likely represent only the more extreme types of amphetamine users as their mean duration of use was 3.4 years, their mean daily dose was 780 milligrams, and all "were psychotic, in a toxic condition, or came for drug withdrawal" when admitted to the hospital. Levine, *et al.* interviewed a non-random, volunteer sample of 218 speed users in Toronto in 1971.[220] Only 19 per cent were found to be free of psychiatric disturbance. Eleven per cent displayed psychotic symptoms and between one-third and one-half of the sample showed evidence of personality disorders. The authors identified four basic themes in the lives of their subjects: *unhappiness*, as manifested in feelings of depression, existential dissatisfaction and anxiety; *escapism* (via drugs) from the unpleasant reality of their lives; *communality*, an ethos of sharing and antimaterialism which appeared to be related to their need for company, and *social disintegration*, as evidenced by their disproportionately high rates of broken or unstable homes, parental drug use and crimino-legal involvement as well as poor academic and occupational records. As with most other studies of the psychological characteristics of drug users, however, it is impossible to determine whether the diagnosed psychiatric disorders were either a cause or effect of the use of amphetamines.

Connell, based on his clinical investigations of English amphetamine users and extensive reviews of other studies, has stated that, "persons likely to become amphetamine addicts cannot easily be distinguished from those who are not",[90] and,

> although both adult and adolescent drug addicts are likely to be unstable personalities before taking the drug it is by no means certain that individuals with normal previous personalities are free from the risk of becoming addicted to amphetamines or other drugs.[90]

However, Levine and his associates, on the basis of their study of Toronto speeders, conclude that "it appears that those youngsters who are attracted

to these dangerous chemicals [i.e., amphetamines], as opposed to a drug such as cannabis, are emotionally vulnerable *a priori*."[220] It seems then, as is the case with alcohol and the opiate narcotics, that there is conflicting evidence regarding the hypothesis that a particular personality structure predisposes certain individuals to either occasional or compulsive use of amphetamines. The possibility, however, remains, and warrants further investigation.

Social and social-psychological factors have also been considered as contributing causes to the use of amphetamines, particularly intravenous speed use. One theory holds that amphetamines are chosen over other drugs (notably the hallucinogens) in accordance with the broad values and goals of the user's social class.[101, 357, 421] Briefly, it is argued that the typical speed user is of working-class origin and prefers amphetamines to other drugs for their immediately pleasurable physical effects. The middle-class young person, by contrast, seeks greater self-understanding and other insights over idle pleasure. His drug use, then, is motivated by and consistent with the values with which he has been brought up—self-improvement and the pursuit of knowledge. Unfortunately, however, this working-class choice hypothesis appears never to have been empirically substantiated. Where class differences between amphetamine and hallucinogen users have been referred to, no data have been reported, and the assertion appears to have been based only on casual observations.[101, 357] Data collected subsequent to these assertions, in the same area (San Francisco), showed no class differences among multiple drug users, between those who used amphetamines and those who did not.[295] These data, however, were of volunteer subjects, and did not include very heavy users. Heavy users may differ in social class background from more moderate users, although Canadian evidence would suggest that this is not the case.[94] Data from two Toronto studies further contradict the class-values hypothesis, with findings that about 80 per cent of speed users come from middle- or upper-class homes.[94, 220] Similarly, a British study found young people from upper-class homes (as indicated by the type of school they attended) over-represented in its samples of methamphetamine users drawn from four different settings in London.[153] Indeed, the only available hard evidence which indicates that working-class people are more likely to use amphetamines is in Swedish studies of incarcerated populations.[371]

Most investigations of social and social-psychological characteristics that may be associated with speed use have concentrated on the social class origins of the users. However, Anderson, in a clinical investigation of Hamilton speeders, has observed that many of his subjects had experienced personal, family or legal trouble prior to their use of drugs, felt socially or personally inadequate, had an alcoholic parent, and had few close friends during their formative years.[12] These observations suggest important hypotheses that should be empirically tested in a methodologically sophisticated fashion. However, from a review of the current literature, it appears that social characteristics, generally, have little predictive value as regards the likelihood of

an individual eventually beginning speed use. As Roger Smith, in his analysis of the San Francisco methamphetamine-using subculture, has noted:

> It appears that the many individual variables which predate involvement in the drug scene are less important in determining the direction which drug use will take than such factors as the prevailing community attitudes, peer sanctions imposed on certain kinds of behavior, drug availability, subjective interpretations of the drug experience, the quality of social interaction, and the structure of the illicit drug marketplace.[358]

Some of those factors and conditions which affect the continued and chronic intravenous use of speed are sufficiently complex to warrant special discussion.

While a very few individuals have an unpleasant first experience with speed, most report that their initial amphetamine injection was a highly exhilerating if not an ecstatic experience.[359] It is this immediate physical gratification that distinguishes the initial intravenous use of amphetamine from that of heroin, and may prompt the repeated use of the drug. Those who conceive of their first intravenous amphetamine experience as pleasurable, particularly those who remain in close physical proximity to veteran speeders, are likely to engage in further experimental use of the drug. At this stage a user's consumption pattern can be described as intermittent. Abstinent periods of days or weeks may intervene between brief 'sprees' during which relatively small doses of amphetamine are injected a few times over one to two days.[197] Speeders usually report that this occasional use elicits feelings of confidence, optimism, verbal facility, insight, increased ability to communicate with others, improved self-image, relief of fatigue, and general physical and mental well-being—all which serve to reinforce the pattern of continued use of the drug.[94, 358, 359]

Some speed users stabilize their consumption at this level, becoming 'weekenders' who indulge in episodic amphetamine use. This pattern, however, is difficult to maintain as the user is likely to be noticeably depressed and fatigued the day after use and may try to alleviate this condition through an additional administration of amphetamine. While this procedure will temporarily mask the physical exhaustion, it aggravates the unpleasantness of the 'come-down' when the spree is eventually terminated.

Some persons maintain their episodic use of speed or permanently discontinue use at this level of involvement. However, others—particularly those who do not have or cannot perceive of any viable life-alternatives—may advance from occasional to regular and compulsive use of amphetamines. As this process occurs, the duration of the intervals between sprees declines and there is an increase in the frequency of injections, the length of the 'runs', and the amount of speed consumed. This progression is usually justified by the pleasure gained from use of the drug and the perceived enhancement of the user's ability to both cope with personal problems and relate to others.

A social ambiance which condones or encourages such use, estrangement from meaningful relationships outside of the speed-using community, and persistent feelings of depression or despair further contribute to this process.[358]

Throughout the course of this progression the speed user typically becomes increasingly involved in the 'speed scene' and increasingly divorced from those persons and institutions that made up his pre-speed social milieu. Eventually he may find that he is no longer able to meaningfully communicate with his earlier acquaintances and comes to identify himself as a 'speeder' or 'speed freak', and is so perceived by others. At this point, which may take anywhere from a few weeks to several months to reach, an individual is likely to be injecting very large doses of speed several times a day.

At this juncture the speeder, if he has not already done so, will usually physically join a community of 'speed freaks' who live together in 'speed houses', and adopt the life style of this group. This membership provides him with understanding and acceptance from others, a sense of belonging, and group support in times of need. However, it also serves to almost totally isolate the intravenous amphetamine user from persons in conventional society and even from non-speeding members of other drug-using subcultures.

By this stage, the continued injection of speed must be explained in terms of social as well as pharmacological factors. The lives of speeders are totally organized about the use of amphetamine; speed becomes the focus of their existence and its subjective meaning is a function of both the drug's physical and psychological effects and the speeder's almost exclusive involvement with other amphetamine users. This subcultural involvement provides the speeder with a distinct social identity and 'something to do'. For chronic speeders, there is little recreational aspect to their amphetamine use; the drug is not a 'stone' but, as in the case of heroin dependents, a way of life. The compulsive use of speed necessitates a constant schedule of collecting money (usually small amounts obtained through petty drug trafficking or other criminal 'hustles') finding and purchasing speed (i.e., 'scoring'), using the drug, and then repeating the sequence again and again until the speeder is forced to 'crash' and sleep. Upon awakening this pattern is resumed.

In almost all cases, to be a speeder is to be a member of a speed-using community. Apart from such persons as landlords, grocers, waiters, the police and non-speed-using motorcycle gang members, confirmed intravenous methamphetamine users rarely interact with anyone but other speeders. The continual use of speed is the primary condition of acceptance into and maintenance of membership in a speed-using group. Individuals who attempt to terminate, or even severely curtail, their amphetamine consumption are likely to be initially coaxed back, then ridiculed, and eventually ostracized from their group of peers. To discontinue speed use, then, is extremely difficult. This is not only because of the dependence that develops such that further injections of amphetamine are required to ward off the unpleasant

effects of withdrawal, but, even more importantly, because termination of use necessarily entails leaving one's only community of friends. While the continuance of amphetamine use during any particular 'run' is usually rationalized in terms of a desire to avoid the eventual 'crash' or 'come-down', the chronic use of speed is more a function of group involvement, subcultural pressures and the lack of any viable alternatives.

The injection of amphetamines is the primary activity engaged in by speeders. This consumption is ordinarily patterned in 'runs', periods lasting from a few days to more than a week during which the speeder rarely eats or sleeps and administers increasingly large doses of the drug, finally terminating in the 'crash'. Each injection provides a brief (five to fifteen minutes), highly pleasurable sensation, known as a 'rush' or 'flash', which is sometimes described as orgastic. While the perceptible effects of such injections are likely to last from eight to twelve hours, additional large doses of amphetamine must be injected within three to five hours (the duration of the more positively interpreted effects) in order to forestall the unpleasantness of the inevitable come-down. Since a regular speed user rapidly develops tolerance to the drug, the dose must be increased with each injection, if at all possible, to insure continued pleasurable sensations and to avoid any feeling of physical or psychological strain. This process is likely to continue, in a relatively uninterrupted fashion, for up to two weeks. Eventually, as paranoia and hallucinations begin to escalate, the speeder terminates his run because of his desire to end the confusion, anxiety about his own sanity or physical health, the unavailability of additional amphetamine, or the lack of funds or sufficient physical mobility to purchase more of the drug.

As the final 'hit' (dose) of speed starts to lose effect the inevitable crash begins. The severity of this withdrawal is "directly related to the length of the run, the dose level, and the physical and psychological condition of the user".[358] This phase is characterized by physical exhaustion, and extreme irritability and depression which is sometimes counteracted by the use of opiates or barbiturates. A period of sleep lasting from 12 to 36 hours ordinarily follows the termination of the drug's stimulating effects but, upon awakening, the speeder is physically weak, ravenously hungry, and may suffer from intolerable depression for several days. If available, minor tranquilizers, barbiturates, other sedative-hypnotics or heroin are often employed for self-medication at this juncture. But the most common remedy is the renewed injection of methamphetamine. As one Halifax dealer put it,

> It's a vicious circle. You do speed because you're depressed and you're even more depressed after. So then you have to do more speed to overcome that depression. And so on.[376]

Thus everyday life, for many intravenous amphetamine users, is a 'speed cycle' composed of a series of amphetamine runs interrupted by periods of profound sleep and depression.