A.10 TOBACCO

INTRODUCTION

In a relatively short time tobacco has become one of the most commonly used drugs in the world. Tobacco is prepared by drying and curing the leaves of *Nicotiana tabacum* or, less commonly, *Nicotiana rustica,* plants indigenous to the Western Hemisphere, and more recently grown in moderate climates around the world. The earliest documented use of tobacco occurred with American Indians, in what is now Arizona, a few centuries after the birth of Christ. Even earlier cultivation and use probably occurred in South America.[12, 91]

Jacques Cartier encountered the use of tobacco in Canada in 1535 and Samuel de Champlain recorded his experience with it in 1615. A major component of the history of tobacco in Canada involves two Indian nations, the Petuns and the Attawandarons, who lived on the north shores of Lake Erie and Lake Huron (Georgian Bay). The word Petun was often used as a name for tobacco in parts of North and South America, and later in England and France. The Petun Indians produced tobacco for trade and domestic consumption. Tobacco had a sacred as well as social character for the Indians and was used in ceremonial rites, in the treatment of diseases, and to ward off evil. Smoking the tobacco pipe was associated with peace and contentment, and was part of the ceremony in any tribal business.[90]

The Petuns were defeated in a war with the Hurons in 1649, and in 1661 the Attawandarons suffered the same fate by the Iroquois. These once prosperous and strong nations were later dispersed by the white colonialists and finally confined to reservations. The land they farmed was deserted for over 100 years until the British Crown bought it in 1784, surveyed it, and settled it by 1800. During the 19th century the tobacco industry began to grow and large plantations flourished in the areas where tobacco was formerly grown by the Indians.[90]

Tobacco use spread rapidly to Europe and beyond, soon after communication and trade was established with the New World, and within a few centuries tobacco became popular in most parts of the world. The rapid assimilation of tobacco smoking by societies with no previous acceptance or common experience with the intentional inhalation of smoke has few parallels, and is possibly the most dramatic 'epidemic' spread of drug use in history.[12, 18, 29]

The widespread use of tobacco did not occur without opposition. In 1604, not long after Sir Walter Raleigh and others popularized the smoking of tobacco in England, King James I published a now famous treatise entitled *Counterblaste To Tobacco,* in which he identified smoking as:

> A custome lothsome to the eye, hatefull to the Nose, harmefull to the braine, dangerous to the Lungs, and in the blacke stinking fume thereof, neerest resembling the horrible Stigian smoke of the pit that is bottomelesse.[92]

In other countries, tobacco users were threatened with imprisonment, fines, excommunication, torture, disfigurement, and, in China in 1638, beheading.[12] The sale of tobacco was prohibited in many parts of the United States. The use of tobacco was opposed in many areas of Canada and prohibition was considered in the early part of this century.[28]

As recently as January, 1884, the *New York Times* issued the following warning about the spread of tobacco use:

> A grown man has no possible excuse for thus imitating the small boy .... The decadence of Spain began when the Spaniards adopted cigarettes and if this pernicious practice obtains among adult Americans the ruin of the Republic is close at hand.[71]

None of these policies or warnings seem to have had much effect in the long run.

Today about 40% of Canadians over the age of 15 smoke tobacco regularly,[20, 27, 65] and Canada is now fifth in world production of flue-cured tobacco.[23] Tobacco is second only to wheat in agricultural exports.[23a] About 95% of the crop comes from Ontario in areas where it was originally grown by the Indians.[90] (See also Appendix B.9 *Sources and Distribution of Tobacco* and Appendix C *Extent and Patterns of Drug Use.*)

Restrictions on tobacco advertising have been implemented in parts of Canada and the United States. In 1971 an American government survey indicated that over one third of the general public favoured a complete ban on the sale of cigarettes.[93]

The main chemical constituent of tobacco possessing pharmacological properties is nicotine. The percentage of nicotine in tobacco varies considerably, but averages about 1.5% in cigarettes today. Even those cigarettes which are claimed to be 'denicotinized' still contain substantial amounts of the drug. In addition, more than 500 other compounds, many of which have some physiological effects, have been isolated from tobacco smoke. Tarry and phenolic substances, for example, contribute significantly to the irritation of respiratory mucosa.[1, 4, 87, 101, 102]

Concentrated nicotine is a highly toxic poison and was once widely used in North America as a pesticide (e.g., Black Leaf 40®), but such use has decreased, partly due to nicotine's hazardous nature and the availability of less dangerous substances. Nicotine insecticides are still available at garden supply stores.

The practice of smoking tobacco is responsible for a significant proportion of the property damage and loss of life resulting from urban and forest fires. This must be included in any overall consideration of the consequences and costs to society of this drug use.

The characteristics of illicit tobacco in Canada are discussed in Appendix B.9 *Sources and Distribution of Tobacco.*

Medical Use

Although tobacco was used in various folk remedies and medicines in the past, neither tobacco nor nicotine have any established medical or therapeutic value and are no longer used for any medical purpose. Nicotine has been important in neurophysiology as a tool for studying nerve transmission. Although the B vitamins niacin (nicotinic acid) and niacinamide (nicotinamide) can be made from nicotine, this is not the usual mode of production, and these vitamins have none of the pharmacological properties of nicotine.

Administration, Absorption, Distribution and Physiological Fate

Today tobacco is mainly administered by inhalation. The amount of tobacco smoke inhaled by cigar and pipe smokers tends to be lower than that of cigarette smokers. In addition to being smoked, tobacco is also chewed and sniffed (as snuff). Nicotine is never injected, except in experimental situations.

Nicotine is readily absorbed from the entire respiratory tract, from oral and nasal mucosa, the entire gastrointestinal tract, and even from the skin. In fact, cases of severe poisoning have been reported after only skin contact with concentrated nicotine used as an insecticide. Approximately 15–35% of the nicotine in a tobacco cigarette is delivered to the smoker in the mainstream smoke.[61, 100] Deep lung inhalation provides the fastest and most complete absorption and is generally preferred by chronic users. Up to 90 per cent of an inhaled dose of nicotine is absorbed in the lungs, compared to 25 to 50% in smoke drawn only into the mouth.[10, 97] Depending on the cigarette and various smoking conditions, a smoker may absorb several milligrams of nicotine per cigarette (typically containing about one gram of tobacco).

In animals, nicotine or its metabolites concentrate initially in the central nervous system (CNS). After 30 minutes to one hour, nicotine concentration is higher in other organs such as liver, stomach, intestines, salivary glands and kidneys.[80] Nicotine crosses the placental barrier in pregnant females and a reaction to the drug can be measured in the fetus soon after the mother begins to smoke.

Approximately 80 to 90 per cent of a given dose of nicotine is metabolized in the body, mostly in the liver but also in the kidneys and lungs. Nicotine and its major metabolites are rapidly and completely eliminated in the urine. The milk of lactating mothers contains nicotine in concentrations proportional to their rate of smoking. As much as .5 mg of nicotine can be contained in each millilitre of milk of a heavy smoker.[97] Nicotine and its metabolites can be readily detected in body fluids and tissues using standard chemical techniques.[26, 89]

Physiological Effects

Acute effects

The effects of nicotine on the body are complex and often unpredictable due to the fact that nicotine has mixed stimulant and depressant actions. Thus the ultimate effect of the drug on a specific organ or system reflects a summation of various different and often opposing simultaneous effects. Nicotine is known to mimic certain effects of the neurotransmitter acetylcholine and is considered the prototype of a pharmacological class of compounds which stimulate certain basic neural functions.[41] Nicotine generally produces CNS arousal, as indicated by a flattening and speeding up of the EEG pattern, while higher doses may depress activity.[32, 70] Low doses of tobacco produce increased respiration, heart rate and blood pressure, and can decrease appetite. Constriction of the small blood vessels in the skin also results.[15, 18, 75] Nicotine produces increased tone and motor activity in the gastrointestinal tract, occasionally resulting in diarrhea. A state of reduced gastric motility usually follows the initial stimulation phase. Increased salivary and bronchial secretions also result from nicotine administration, although the possibility exists that the increased secretion is due in part to the irritating properties of the smoke rather than the pharmacological properties of nicotine alone. Nausea and vomiting may occur in inexperienced users.[83, 97] In some cultures when tobacco was introduced, smokers intentionally inhaled as deeply and rapidly as possible, producing unconsciousness by the combined effects of hyperventilation and nicotine intoxication.[12]

Nicotine is one of the most toxic drugs known and its speed of action can be comparable to that of cyanide. The onset of symptoms of severe nicotine poisoning is rapid, and death can occur within a few minutes. The initial symptoms are nausea and excessive salivation, followed by abdominal pain, vomiting and severe diarrhea. In advanced cases, headache, dizziness, disturbances of vision and hearing, as well as mental confusion occur. If treatment is not administered at this stage, general collapse may ensue, followed by terminal convulsions and death, usually resulting from respiratory arrest. The lethal single dose of pure nicotine for an adult is approximately 60 mg, although, as with other drugs, great individual differences exist. While overdose fatalities due to the acute use of tobacco are very rare, nicotine poisoning deaths have been reported following the accidental ingestion of insecticides containing nicotine, as well as after rectal infusions (enemas) of tobacco to combat intestinal parasites.[97]

In spite of the fact that a cigarette or cigar may contain more than the lethal nicotine dose for children, few deaths have occurred following the ingestion of tobacco. This is presumably because gastric absorption of nicotine from tobacco is relatively slow, and a significant amount initially absorbed usually triggers vomiting, which removes the remaining tobacco from the stomach. Tobacco is one of the more common causes of poisoning among

children. According to the Federal *Poison Control Program Statistics,* toxic reactions attributed to tobacco products in Canada numbered 547 in 1969, 474 in 1970 and 478 in 1971.[21, f] More than 90 per cent of these cases involved children under five years of age.

Chronic effects

While the main acute poisoning effects of tobacco can be attributed almost exclusively to nicotine action, the chronic, long-term health consequences of tobacco consumption are also a function of the tars and many other irritants which are present in tobacco and tobacco smoke. For example, nicotine itself is probably not the causal factor in cancer.[58] Cigarette smoke contains a number of carcinogenic substances including phenols, acids, aldehydes, and ketones, as well as irritant gases like carbon monoxide, acetaldehyde, acrolein, and hydrogen cyanide.[22, 101, 102] The clearest relation between cigarette smoking and health is that smokers have an increased overall mortality rate—an observation made in numerous studies in different parts of the world, independent of variations in diagnosis.[22, 46, 77, 94]

The 1969 Report of the United States Department of Health, Education, and Welfare indicated that the life expectancy of young men who smoke over two packs of cigarettes a day is reduced by a mean of eight years, while the life expectancy of those who smoke less than half a pack per day is reduced by a mean of four years.[94] After reviewing a massive amount of evidence, the authors concluded that significant correlations exist between cigarette smoking and general mortality, cardiovascular diseases, chronic obstructive bronchopulmonary diseases, cancer, several non-cancerous oral diseases, and reduction in birth weight of infants born to mothers who smoke during pregnancy. The 1972 report[96] added gastrointestinal disorders and allergies to this list. In addition, a public health problem is created by air pollution caused by tobacco smoke. The level of carbon monoxide in a smoke-filled room may exceed the legal limits for maximum air pollution allowed in some localities. Such conditions can adversely affect both smokers and non-smokers, in addition to often being decidedly unpleasant to the non-users present.

According to the 1971 report of the Royal College of Physicians of London, cigarette smokers are about twice as likely to die in middle age as non-smokers.[77] Those who quit smoking run a steadily diminishing risk of dying from its effects. The diseases to which smokers are most vulnerable are not only often fatal, but can otherwise cause illness and disability and decrease the smoker's chances of enjoying a healthy retirement.

The 1969 Canadian Report of the Standing Committee on Health, Welfare and Social Affairs on Tobacco and Cigarette Smoking accepted the findings of studies which showed that cigarette smokers have increased risks of lung cancer, chronic bronchitis and emphysema, and coronary heart disease, and that cigarette, pipe and cigar smoking have been linked to less

common diseases like cancers of the mouth, esophagus, and larynx.[22] They also noted a positive relationship between cigarette smoking by pregnant women and the incidence of premature birth, spontaneous abortion, still birth, and neonatal death. They stated that:

> . . . It is impossible to escape the conclusion reached by the overwhelming majority of health authorities and organizations throughout the world that cigarette smoking is one of the most important preventable causes of disease, disability and death in countries like Canada.[22]

They concluded that the avoidance of cigarette smoking is the most effective way to prevent most cases of lung cancer, chronic bronchitis and emphysema, and that it is probably the most practical step to reduce the risk of a heart attack in cases of coronary heart disease. Furthermore, they noted that:

> There can be no question that if cigarettes were a food or drug [*sic*] or being newly marketed, their sale would have to be prohibited or strongly regulated on the basis of evidence now available, the known constituents of the smoke and the express purpose for which they are sold.[22]

The vasoconstrictive effect of smoking can have an especially detrimental effect on persons suffering from certain cardiovascular diseases such as arteriosclerosis, and, under some circumstances, may be a contributing factor in the development of gangrene.[17, 53] Furthermore, chronic heavy smoking has been associated with increased wrinkling of facial skin.[30]

In Canada, the Department of National Health and Welfare attributed approximately 13,800 deaths in the year 1966 to chronic tobacco smoking.[22] It is clear that tobacco and alcohol are the leading causes of drug-related morbidity and death in our society. No other drugs are significant factors in comparison.

Psychological Effects

No clear, concise picture of the effects of tobacco smoking or administration of nicotine upon psychological functioning exists. Tobacco effects may be very different for experienced users as compared to novices. Nicotine is usually classified as a stimulant, yet paradoxically, regular users most often report that they use tobacco because of its pleasurable relaxing or tranquilizing effects.[51] Since the physiological response to nicotine, as described above, is quite complex, it is not surprising that confusion exists about psychological effects. It should also be noted that the psychological and physiological effects of pure nicotine may not be exactly the same as those produced by crude tobacco.

As a test of the proposed stimulant effect of nicotine upon human intellectual and motor performance, Heimstra and associates compared the performance of smokers, non-smokers and deprived smokers in the operation of

a simulated driving device.[48] They found no significant differences between smokers and non-smokers on the various measures involved. The smokers going through withdrawal, however, showed significantly more tracking and vigilance errors than the other two groups. Other findings may also be related to driving safety. Of possible relevance to night driving is a reported decrease in light sensitivity in the dark adapted eyes of subjects after smoking standard cigarettes.[82] In addition, carbon monoxide alone in levels typically absorbed by heavy cigarette smokers may have detrimental effects on certain psychomotor abilities.[11, 81, 98] It has been shown that smokers have higher crash rates than non-smokers, although such a correlation does not necessarily demonstrate a causal relationship.[2]

Both common experience and laboratory studies indicate that nicotine and tobacco smoke possess strong reinforcing properties, in that they will be repeatedly self-administered by both humans and laboratory animals.[42, 59] Monkeys prepared with chronic intravenous catheters will spontaneously begin to self-administer nicotine.[31] In addition, some monkeys will learn to puff on lighted cigarettes. It is interesting to note that in one study pretreatment with oral doses of nicotine did not dramatically reduce the number of cigarettes smoked by experienced human subjects,[60] although, in other experiments, intravenous nicotine lowered cigarette consumption.[66, 79] Varying the nicotine content of cigarettes sometimes, but not always, produces predictable changes in the rate of smoking.[3, 36, 39, 43, 79] Some heavy smokers reportedly crave the sensation of deep lung inhalation. Much data suggest that although the maintenance of tobacco smoking is primarily due to the effects of nicotine, there is a large learned component to cigarette smoking by humans which is to some extent independent of the pharmacological properties of nicotine. This effect may be analogous to the reinforcing or reward characteristics of the hypodermic syringe which often develops in chronic intravenous users of heroin, amphetamines or barbiturates, as discussed elsewhere in this report.

Much has been written in the psychiatric literature on the oral gratification involved in most tobacco use. In an extensive study of the use of heroin and other dependence-producing drugs in Canada, Stevenson and associates summarized the psychoanalytic position as follows:

> Psychoanalysis has emphasized that the mouth, tongue and lips are highly erogenous zones, not only for love-making in its various forms, but from earliest infancy in the taking of food. The crying infant ceases to cry the moment his lips encircle the mother's nipple, his whole body relaxes, he obviously gets great contentment long before the nourishment actually relieves his hunger. This close oral relationship between the lips and relief from distress carries over from the infantile nursery period to adult years. At any age, something between the lips and the mouth tends to relieve tension and anxiety, whether it be solid food and drink . . . (or) chewing gum, a toothpick, a cigarette, cigar or pipe.[88]

Although such arguments are often ridiculed, there exists some scientific evidence supporting the oral-erotic hypothesis, and, for example, linking severity of cigarette use with infantile weaning experiences.[67] Many heavy smokers, in a simpler fashion, merely say they smoke because they need 'something to do with their hands'.

In the past, psychological damage due to tobacco use has been the subject of much controversy. In summarizing the Canadian 'tobacco debate' which took place in the first decade of this century, Cook quoted the following different statements made in the House of Commons and the Senate regarding the physiological, psychological and social effects of tobacco:

> There is scarcely a town or city in Canada where you will not find boys, the sons of respectable parents, who have not dwarfed their bodies, ruined their intellect and damaged their moral perceptions to such an extent that they do not know the difference between right and wrong, and consequently many of them have had to be sent to reformatories.
>
> It is found that 9/10 of those [in the elementary schools] who lag behind, are cigarette smokers, and many of these are brilliant youths who otherwise would be ahead in their classes. In our high schools it is even worse, and the boys who make the failures there are most certainly those who are addicted to the use of cigarettes.
>
> These young people became 'moral and physical wrecks'.... A Quebec judge was quoted to the effect that 'all children that he was obliged to condemn to gaol, or the reformatory school had their fingers stained by smoking so many cigarettes'.[26]

Over the years, no permanent psychological damage has been scientifically demonstrated to result from the use of tobacco, although an association between chronic use and poor academic performance, anti-social tendencies, and various other personal and social disabilities has been frequently documented.[6, 7, 63, 74, 85, 99] It would appear that in certain populations, delinquents and various maladjusted individuals are more apt to use tobacco (and other drugs), although no causal relationship between tobacco use and anti-social behaviour is now considered likely.

Tolerance and Dependence

Some tolerance to nicotine develops in regular tobacco smokers. These individuals seem to be unaffected by quantities of the drug which would produce marked toxic reactions in the novice.[97] Regular use usually results in a tendency to increase dose. Some heavy users have been known to 'chain smoke', and deeply inhale several packs of cigarettes a day and, consequently, except when asleep, are never without significant quantities of nicotine in their tissues.[54] Spiralling increases in dose do not always occur, however, and many chronic users are able to stabilize their consumption of the drug at some intermediate level. Most persons who smoke at all use tobacco daily.[20, 27]

There is a consensus among experts that psychological dependence does develop to tobacco.[16, 49, 56, 58] In fact, in the sense that it produces cravings, repeated and compulsive self-administration, and preoccupation with obtaining the drug, it is probably the most clear-cut and common example of 'psychic dependence' as the term is defined by the World Health Organization.[33] The nature of the physical dependence component in chronic tobacco use is less clear.[62] Although no severe physiological withdrawal symptoms have been described, restlessness, nervousness, sleep disturbance, sweating, gastrointestinal changes, fall in heart rate and blood pressure, irritability, headache, EEG changes, inability to concentrate, tremors and weight gain have been reported in early abstinence. Furthermore, as mentioned earlier, impaired psychomotor performance during tobacco withdrawal has been demonstrated.[16, 48, 79, 92]

The strength or persistence of tobacco dependence is well known. The recent Consumers Union Report makes a strong case that tobacco should be considered an "addicting drug", and that tobacco dependence is almost exclusively a chronic condition.[16] The majority of those who smoke more than a few cigarettes become regular users, and very few people who have ever become daily smokers are able to quit tobacco permanently. The pattern of relapse displayed by heavy users attempting to stop smoking, is quite similar to that seen with persons dependent on opiate narcotics and alcohol.[50] Because of the high frequency of relapse among cigarette smokers after withdrawal, it would appear that positive reward aspects, as well as the avoidance of unpleasant withdrawal symptoms, are important in motivating continued use. Most ex-smokers claim that they are never really free from the desire to use the drug—even after years of abstinence, the smell of burning tobacco reportedly can produce strong cravings in some individuals. Relapse during periods of psychological stress commonly occurs.

As with other drugs, tolerance and dependence seem to develop most rapidly and strongly when the frequency and quantity of use is high. In addition, the longer tobacco is used the more difficult it is to break the habit.[12] In an English report, it was noted that only 15% of adolescents who smoked more than one cigarette avoided becoming regular users, and only 15% of smokers stopped permanently before the age of 60.[79] Intermittent or occasional cigarette use only occurred in about 2% of smokers.

The difficulty some smokers experience in giving up tobacco can be illustrated by the experience at Synanon, the therapeutic community primarily concerned with heroin dependents. In 1970, when tobacco smoking was banned at Snyanon, many members of the community reported depression and irritability lasting several months. During the six-month period following the ban, about 100 people left Synanon rather than give up cigarettes. The opinion was voiced that it was easier to quit heroin than tobacco.[72]

In Germany, following World War II, tobacco was rationed to two packs per month for men and one pack per month for women. Many smokers

traded their food rations for tobacco, bought tobacco on the black market, begged for tobacco (but not for other restricted items), and picked up cigarette butts from the street, rather than give up smoking.[8]

A small study of regular daily users of both tobacco and marijuana suggests some differences in the type of dependence which can develop with these two drugs—at least with the present North American conditions.[68] Subjects were asked which one drug they would prefer to use if they had to abstain from either marijuana or tobacco for different periods of time. In the long run, all subjects preferred marijuana, and would choose to quit tobacco; when the required 'abstinent time' was reduced to a day or less, almost all chose to use tobacco, since they felt it would be easier to do without marijuana for short periods than to go through the acute discomfort of tobacco withdrawal. Generally similar results were obtained in a Commission study of adult users of cannabis, tobacco and alcohol.[45] Whether or not behaviour would actually coincide with these attitudes was not demonstrated. In addition, if marijuana were as freely available as tobacco, the patterns of preference or dependence might be altered.

Limited cross-tolerance and perhaps cross-dependence between nicotine and related drugs develops. Tablets containing a nicotine-like alkaloid, lobeline (Nikoban®), are sold in Canada to help block the craving for tobacco in persons who are attempting to quit. Although the efficacy of such chemotherapy has not been confirmed, lobeline is commonly used by itself and to supplement other treatments in tobacco withdrawal clinics.[34] These practices are analogous to the chemotherapy maintenance programs used in the management of other forms of drug dependence. Many former heavy cigarette smokers have compromised and have settled for non-inhalation use of a pipe or cigars.

Tobacco and Other Drugs

Tobacco has apparently been closely linked with the use of other drugs in most societies over the past few centuries. In many cultures soon after tobacco was introduced, other substances, including henbane, datura, mulberry, sumac and a variety of other leaves, hashish, and even coals and woodchips were commonly smoked when the preferred tobacco was not available.[12, 91] Blum has presented considerable evidence that before the world-wide 'epidemic' spread of tobacco use, the intentional inhaling of the smoke from burning substances, as a mode of drug administration, was not popular in most parts of the world.[12] The smoking of opium in China and India, for example, was common only after tobacco was introduced to the Orient, and for some time opium was smoked in conjunction with tobacco. Cannabis, even today, is rarely smoked alone in Eastern countries. In India, hashish and marijuana are invariably mixed with tobacco for smoking.[25, 52] The smoking of cannabis was not common before tobacco was introduced.

It would appear then, that although these drugs were previously taken orally, the past and present practices of smoking cannabis and opium in most cultures is directly and causally linked with the assimilation of tobacco smoking practices from the Western Hemisphere.

A direct causal relationship between tobacco smoking and marijuana use in North America was suggested sometime ago by Rowell, who worked closely with the United States Bureau of Narcotics in the 1930s:

> Slowly, insidiously, for over three hundred years, Lady Nicotine was setting the stage for a grand climax. The long years of tobacco using were but an introduction and training for marijuana use. Tobacco, which was first smoked in a pipe, then as a cigar, and at last as a cigarette, demanded more and more of itself until its supposed pleasures palled, and some of the tobacco victims looked about for something stronger. Tobacco was no longer potent enough.[76]

In North America, marijuana use has traditionally been closely tied to tobacco use and there seem to be relatively few regular cannabis smokers who did not initially learn the technique of inhaling smoke from prior experience with tobacco cigarettes. While the smoking of tobacco leaf does not necessarily precede or lead to the similar use of cannabis leaf, the temporal sequence is commonly observed and must be considered in any serious investigation of the proliferation of drug use today. A pharmacological 'progression' is not considered likely, however, since there is no scientific evidence that one drug creates a need for the other.

Because the inhalation of smoke is initially difficult and unpleasant for the novice, and usually requires considerable practice and control of natural reflexes, the problems of learning the technique of smoking might be considered a general barrier against this mode of drug administration. Many observers feel that after one has acquired the seemingly unnatural and originally offensive practice of smoke inhalation, and learned that the effects can be rewarding or pleasurable, the general 'smoking barrier' is removed and the smoker is then more likely to try smoking other drugs than is a non-smoker.[12, 38] The drug smoking associations discussed above tend to support such an hypothesis.

Stevenson and associates found considerably more heavy tobacco use among heroin dependents than in other members of a prison population in British Columbia.[88] In addition, heroin users claimed that cigarettes became more desirable after they began the use of heroin. A British report summarized data indicating that 92% of alcoholics and 99% of heroin addicts were tobacco smokers compared to 58% of the general population.[79] Heavy alcohol use is usually linked with similar patterns of tobacco consumption and the interaction of chronic alcohol and cigarette use has been linked with certain physical disorders.[95] In addition, the smoking of cigarettes may enhance the detrimental effects of alcohol on psychomotor coordination.[55, 73]

The common morning routine of coffee and a cigarette suggests that there is some rewarding interaction between nicotine and caffeine. It has also been noted that persons who do not use tobacco are also more likely to abstain from caffeine.[67] In general, tobacco users are more likely to take a wide variety of other licit and illicit drugs than are non-users.[44, 78, 86, 99] (See also Appendix C *Extent and Patterns of Drug Use.*)

ANNEX

This annex consists of the following tables:

TABLE A.9

ALLEGED AND IDENTIFIED CONSTITUENTS OF 'STREET DRUG' SAMPLES IN CANADA, 1971–1972*

PART II: BY CHEMICAL IDENTIFICATION

IDENTIFIED AS			ALLEGED TO BE				
A. SINGLE DRUGS	No. of Samples	% of Total A.§	Same As Identified		Identified Drugs & Other(s)	Other(s)	Not Specified
ASA	13	2.0	—		—	5 (38.5%)	8 (61.5%)
Amphetamine	8	1.2	—		—	7 (87.5%)	1 (12.5%)
Barbiturate	8	1.2	—		—	4 (50.0%)	4 (50.0%)
Cannabis†	136	20.9	111 (81.6%)		10 (7.4%)	4 (2.9%)	11 (8.1%)
Chlordiazepoxide	4	0.6	—		—	2 (50.0%)	2 (50.0%)
Cocaine	5	0.8	3 (60.0%)		—	1 (20.0%)	1 (20.0%)
Heroin	9	1.4	9 (100.0%)		—	—	—
LSD	208	31.8	111 (53.4%)		9 (4.3%)	63 (30.3%) mescaline 43 psilocybin 15 other(s) 5	25 (12.0%)
MDA	52	8.0	27 (51.9%)		7 (13.5%)	8 (15.4%) methamphetamine 4 other(s) 4	10 (19.2%)

TABLE A.9 — Continued

IDENTIFIED AS			ALLEGED TO BE				
A. SINGLE DRUGS	No. of Samples	% of Total A.§	Same As Identified		Identified Drugs & Other(s)	Other(s)	Not Specified
Mescaline	6	0.9	5 (83.3%)		—	—	1 (16.7%)
Methamphetamine	62	9.5	30 (48.4%)		2 (3.2%)	12 (19.4%) mescaline 9 other(s) 3	18 (29.0%)
Methaqualone	15	2.3	—		5 (33.3%)	2 (13.3%)	8 (53.4%)
PCP	47	7.2	—		—	43 (91.5%) mescaline 18 THC 18 other(s) 7	4 (8.5%)
Quinine	3	0.5	—		—	3 (100.0%)	—
STP	13	2.0	—		—	11 (84.6%) mescaline 11	2 (15.4%)
Tetracycline	4	0.6	—		—	—	4 (100.0%)
Tobacco	5	0.8	—		1 (20.0%)	1 (20.0%)	3 (60.0%)
Others	54	8.3	—		1 (1.8%)	23 (42.6%)	30 (55.6%)
TOTAL A	652	100.0%	296 (45.4%)		35 (5.4%)	183 (29.0%)	132 (20.2%)

B. DRUG MIXTURES	No. of Samples	% of Total B.‖	Same as Identified	One of Identified	An Identified drug & Other(s)	Other(s)	Not Specified
Amphetamine & methamphetamine	6	4.0	—	6 (100.0%) methamphetamine 6	—	—	—
Amphetamine & other drugs	6	4.0	—	5 (83.3%)	—	1 (16.7%)	—
Barbiturate & LSD	7	4.7	—	7 (100.0%) LSD 7	—	—	—
Barbiturate & methamphetamine	10	6.7	—	9 (90.0%) methamphetamine 9	—	—	1 (10.0%)
Cocaine & other drugs	3	2.0	—	1 (33.3%)	—	2 (66.7%)	—
LSD & impurities‡	16	10.7	—	8 (50.0%) LSD 8	—	7 (43.8%) mescaline 4 other(s) 3	1 (6.2%)
LSD & MDA	3	2.0	—	3 (100.0%)	—	—	—
LSD & methamphetamine	5	3.4	—	3 (60.0%)	—	2 (40.0%)	—
LSD & PCP	45	30.3	1 (2.2%)	—	—	37 (82.2%) mescaline 33 other(s) 4	7 (15.6%)

TABLE A.9 — Continued

B. DRUG MIXTURES	No. of Samples	% of Total B.‖	Same as Identified	One of Identified	An Identified drug & Other(s)	Other(s)	Not Specified
LSD & other drugs.....	5	3.4	—	5 (100.0%) LSD 5	—	—	—
MDA & methamphetamine.	4	2.7	—	3 (75.0%) methamphetamine 3	—	—	1 (25.0%)
MDA & impurities‡.....	9	6.0	—	9 (100.0%) MDA 9	—	—	—
Methamphetamine & PCP....	7	4.7	—	3 (42.9%) methamphetamine 3	1 (14.2%)	—	3 (42.9%)
Methamphetamine & other drugs or impurities‡.....	13	8.7	—	7 (53.8%) methamphetamine 7	2 (15.4%)	1 (7.7%)	3 (23.1%)
Opiate Narcotic combinations.....	4	2.7	—	1 (25.0%)	—	1 (25.0%)	2 (50.0%)
Miscellaneous combinations	6	4.0	1 (16.7%)	3 (50.0%)	—	2 (33.3%)	—
TOTAL B.....	149	100%	2 (1.3%)	73 (49.0%)	3 (2.0%)	53 (35.6%)	18 (12.1%)

C. NO DRUG	No. of Samples	% of Grand Total				Alleged Drugs		No Drug
	179	18.3				114 (63.7%)		65 (36.3%)
						cannabis	30	
						mescaline	31	
						LSD	14	
						psilocybin	11	
						MDA	7	
						methamphetamine	6	
						heroin	6	
						THC	5	
						other drugs	4	
GRAND TOTAL.....	980		298 (30.4%)	73 (7.4%)	38 (3.9%)	356 (36.4%)		215 (21.9%)

• Data from Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., and associates. Chemical analysis of illicit drugs in Canada (Commission Research Project, 1972). A drug-by-drug discussion of the data is presented in the text. (See note *c* at the end of this appendix for further description of this study.) Generally, only those drugs reported three or more times are identified here; the remainder are unspecified or appear as "others". (See also Table A.8.)

† For detailed information on marijuana and hashish, see Tables 1 and 2 of the *Cannabis Report*.

‡ Substances considered inherent to the synthesis or degradation of the primary drug.

§ Per cent of the total number (652) of single drugs identified.

‖ Per cent of the total number (149) of drug combinations identified.

TABLE A.10

POLICE SEIZURE EXHIBITS ANALYSED BY THE HEALTH PROTECTION BRANCH LABORATORIES, APRIL 1970–MARCH 1973*

	1970–1971	1971–1972	1972–1973
Sedative Hypnotics			
Barbiturates	248 (1.16%)	233 (0.88%)	339 (0.85%)
Chlordiazepoxide	42 (0.20%)	56 (0.21%)	NS†
Diazepam	26 (0.12%)	78 (0.30%)	NS
Methaqualone	23 (0.11%)	84 (0.32%)	NS
Others	11 (0.05%)	10 (0.04%)	NS
Stimulants			
Amphetamine	65 (0.30%)	77 (0.29%)	68 (0.17%)
Methamphetamine	600 (2.81%)	1,138 (4.32%)	1,640 (4.12%)
Phenmetrazine	79 (0.37%)	157 (0.60%)	47 (0.12%)
Methylphenidate	3 (0.01%)	6 (0.02%)	NS
Diethylpropion	3 (0.01%)	16 (0.06%)	NS
Cocaine	29 (0.14%)	76 (0.29%)	202 (0.51)%
Hallucinogens			
Cannabis			
Marijuana	6,594 (30.86%)	8,067 (30.62%)	13,933 (35.04%)
Hashish	6,238 (29.20%)	6,824 (25.90%)	9,640 (24.24%)
THC	0 (0.00%)	0 (0.00%)	0 (0.00%)
Total Cannabis	12,832 (60.06%)	14,891 (56.51%)	23,573 (59.28%)
LSD	2,384 (11.16%)	1,795 (6.81%)	1,601 (4.03%)
LSD & PCP‡	23 (0.11%)	339 (1.29%)	394 (0.99%)
PCP	101 (0.47%)	270 (1.02%)	426 (1.07%)
MDA	395 (1.85%)	593 (2.25%)	1,352 (3.40%)
STP (DOM)	11 (0.05%)	1 (0.00%)	0 (0.00%)
DMA	5 (0.02%)	16 (0.06%)	20 (0.05%)
LBJ	0 (0.00%)	41 (0.16%)	2 (0.00%)
Mescaline	9 (0.04%)	11 (0.04%)	NS
Psilocybin	0 (0.00%)	0 (0.00%)	NS
Opiate Narcotics			
Opium	7 (0.03%)	21 (0.08%)	42 (0.11%)
Morphine	52 (0.24%)	56 (0.21%)	45 (0.11%)
Codeine	48 (0.22%)	42 (0.16%)	48 (0.12%)
Heroin	777 (3.64%)	1,211 (4.60%)	2,566 (6.45%)
Methadone	58 (0.27%)	90 (0.34%)	129 (0.32%)

TABLE A.10 — Continued

	1970–1971	1971–1972	1972–1973
Pethidine	35 (0.16%)	31 (0.12%)	22 (0 06%)
Propoxyphene	19 (0.09%)	29 (0.11%)	NS
Pentazocine	1 (0.00%)	8 (0.03%)	NS
Others			
Procaine	5 (0.02%)	20 (0.08%)	NS
Quinine	9 (0.04%)	41 (0.16%)	NS
Total Specified	17,900 (83.7%)	21,437 (81.4%)	32,516 (81.8%)
Other exhibits	3,735 (17.3%)	4,912 (18.6%)	7,250 (18.2%)
Total exhibits analysed	21,635 (100%)	26,349 (100%)	39,766 (100%)

• From "Identity of police drug exhibits" provided to the Commission by the Computer Services Bureau of the Health Protection Branch, Ottawa. With the exception of LSD & PCP, specific combinations are generally not included in the primary summaries provided by HPB. However, except for impurities inherent in the synthesis or degradation of certain drugs, mixtures make up only a very small proportion of the total seizures. (See also note *b* at the end of this appendix.) The relative number of exhibits of each drug reflects the emphasis of primary police activity and concern, as well as the availability of the drug on the illicit market. Similarly, an increase in the annual number of seizures may reflect either in increase in illicit availability or use, or may reflect increased law enforcement activity in that sector. It is not possible to differentiate these alternatives in the available data. Many factors are likely operating.

† NS = not specified under the reporting system initiated May, 1972. Currently, only the major categories, considered by HPB to be of primary interest, are specified on the summary lists.

‡ LSD-PCP combinations are considered separately from exhibits of either LSD or PCP alone.

TABLE A.11

SOME DRUG MIXTURES OR IMPURITIES FOUND IN POLICE SEIZURES BY HEALTH PROTECTION BRANCH LABORATORIES, JUNE 1971–OCTOBER 1972*

Primary Drug	Other Drugs or Impurities	No. of Samples
I. Methamphetamine	(a) impurities†	132
	(b) amphetamine & impurities†	68
	(c) amphetamine	3
	(d) atropine	9
	(e) PCP & procaine	4
	(f) others	9
II. Cocaine	(a) procaine	5
III. LSD	(a) PCP	34
	(b) methaqualone & antihistamine	14
	(c) ergonovine†	12
	(d) others	3
IV. PCP	(a) ephedrine	12
	(b) LBJ & methylbenzilate†	10
	(c) others‡	5
V. MDA	(a) heroin	3
	(b) others	4
VI. Heroin	(a) impurities†	116
	(b) caffeine & impurities†	6
	(c) methaqualone & diphenhydramine	4
	(d) quinine	3
	(e) others§	11

* This table presents the major qualitative findings of a special HPB police seizure analysis program concerned with the strength and purity of illicit drugs—primarily amphetamine, LSD, PCP, MDA, and heroin (see note *b* at the end of this appendix). Combinations occurring three or more times are specified in the table; the remainder appear as "others". Samples were generally included by HPB in this special study if any indication of impurities or drug mixtures appeared in the initial analysis after seizure. However, LSD-PCP combinations are relatively so frequent that only a small proportion of these are now included (see Table A.10). Data provided to the Commission by the Field Operations Directorate, Health Protection Branch, Ottawa.

† Identified as or presumed to be substances inherent to the synthesis or degradation of the primary drug.

‡ See also I (*e*) and III (*a*) of this table. Each sample is represented only once.

§ See also V (*a*) of this table.

TABLE A.12

OFFICIAL NATIONAL STATISTICS ON THE MAJOR DRUG-RELATED CAUSES OF DEATH, 1971*

	Drugs Related	ICDA Code†	Number
A.	*Single drugs*		
	Alcohol	291, 303, 571.0, N980	1,115 (69.2%)
	Barbiturates	304.2, N967.0	309 (19.2%)
	Non-Barbiturate Sedative-Hypnotics	N967.1, N967.2, N967.3, N967.9	61 (3.8%)
	Opiate Narcotics‡	304.0, 304.1, N965.0, N965.9, N977.9	53 (3.3%)
	Salicylates (e.g., Aspirin®)	N965.1, N977.9	77 (4.6%)
	Total A		1,615 (100%)
B.	*Drug Interaction*§		
	Alcohol & Barbiturates	N979.1	144 (56.3%)
	Alcohol & Non-Barbiturates	N979.2	29 (11.3%)
	Alcohol & Opiate Narcotics	N979.0	20 (7.8%)
	Alcohol & Others	N979.3, N979.4	11 (4.3%)
	Barbiturates & Opiate Narcotics	N978.0	11 (4.3%)
	Barbiturates & Others	N978.2, N978.4	18 (7.0%)
	Non-Barbiturates & Salicylates	N978.3	3 (1.2%)
	Opiate Narcotics & Others‡	N965.9, N977.9	20 (7.8%)
	Total B		256 (100%)
C.	*Totals*‖	Specified above	
	Alcohol-Related		1,319 (70.5%)
	Barbiturate-Related		482 (25.8%)
	Non-Barbiturate-Related		97 (5.2%)
	Opiate Narcotic-Related		104 (5.6%)
	Salicylate-Related‡		101 (5.4%)
D.	GRAND TOTAL (A. & B.)		1,871 (100%)‖

* Based on *Causes of death*, 1971, published by Information Canada, November, 1972. See specific drug topics in the text of this appendix for more detailed analysis and discussion of these data and their limitations. (See also note *m* at the end of this appendix.) Along with tobacco, the drugs in the five categories presented here account for the vast majority of all drug-related deaths in Canada. No other psychotropic drugs are significant factors in comparison. Although there are no recent official tobacco statistics, the Department of National Health and Welfare estimated that in 1966, 13,800 deaths occurred in Canada as a result of chronic tobacco smoking.

† International Classification of Diseases, 8th Revision.

‡ Propoxyphene and some salicylate interaction cases are from a detailed list (N965.9, N977.9) provided to the Commission by H. Page of Statistics Canada. Propoxyphene is included under opiate narcotics.

§ There is no overlap within Section B; all cases appear only once.

‖ There is overlap in the drug-interaction cases included in Section C; consequently the individual drug-related percentages total more than 100%.

NOTES

[a] These samples were analysed for the Commission by H. D. Beckstead of the Pharmaceutical Chemistry Division, Health Protection Branch, Ottawa.

[b] Because of the selective nature of law enforcement and the fact that only a minute fraction of illicit drug users are ever arrested, data obtained from police drug exhibits provide an adequate basis for generalization only to those sectors of the population which are the primary subjects of police attention, and cannot be considered representative of the illicit drugs available in Canada. They may, however, be more representative than are reports from medically-oriented 'street drug' analysis facilities. (See also note *c*.) A summary of the major police seizures analysed by Health Protection Branch (HPB) laboratories appears in Table A.10 in the Annex to this appendix.

In June 1971, HPB initiated a special police seizure analysis program concerned with the strength and purity of illicit drugs. This special study has concentrated on synthetic and semi-synthetic drugs—mainly heroin, LSD, LSD & PCP, amphetamine, and MDA. Some qualitative data from the program are summarized in Table A.11 in the Annex to this appendix. Quantitative results are discussed on a drug-by-drug basis in the text. Although it is not possible to define the precise sampling and data base from which these figures are derived, on the basis of the first year of the program, T. Halisky (Field Operations Directorate, HPB) estimated that approximately one-tenth of police seizures contained more than a single chemical entity. More than three-quarters of the 'mixtures' contained only a primary drug and chemicals considered inherent to its synthesis or breakdown. Deliberate adulteration which is cause for concern is almost non-existent. In no instance has strychnine been found.

[c] From 1971 through the fall of 1972 the Commission surveyed all authorized 'street drug' analysis laboratories, asking for information on the alleged and identified contents of samples received, general analytic methods employed, etc. We also collected and had analysed samples which were thought to be rare or unusual drugs or combinations. In addition, many unsolicited drugs were submitted to us and were included in this study. These samples were analysed for the Commission by H. D. Beckstead, of the Pharmaceutical Chemistry Division of the Health Protection Branch in Ottawa, or by Dr. Joan Marshman and her staff at the Addiction Research Foundation in Toronto. Overall, we have reports of 980 illicit or 'street drug' samples. (This does not include our special quantitative studies of police seizures of cannabis and heroin.) The majority of the analytic reports provided to the Commission came from laboratories at the: Addiction Research Foundation, Toronto; Ontario Department of Health, Toronto; Lakeshore Psychiatric Hospital, Toronto; Institut de Recherches Psychiatriques de Joliette, Joliette; University of New Brunswick, Fredericton; St. Boniface General Hospital, St. Boniface; University of Alberta Hospital, Edmonton; and Food and Drug Directorate (now Health Protection Branch) regional laboratories and R.C.M. Police crime detection laboratories. Because of the limited sector of the illicit drug-using population which has contact with drug analysis facilities, and because samples submitted are often those associated with unusual or adverse reaction, or suspected of other oddities, these data cannot be considered representative

of the drugs generally available in Canada for non-medical use. In addition to the presentation in the text, these data are summarized in Tables A.8 and A.9 in the Annex to this appendix. See also the *Cannabis Report* (pp. 25–32).

[d] The Commission's national survey of psychiatric hospital diagnostic records is discussed in more detail on pages 88–90 of the *Cannabis Report*. See also Table A.7 in the Annex to this appendix.

[e] In the *Mental health statistics* published by the Federal Government, first admissions are defined as the annual number of patients admitted for the first time in their lives to a psychiatric inpatient facility. Provinces are not all consistent in this respect, however. Readmissions are counts of events, and do not necessarily represent individual persons. There are no official national statistics which provide data on individual cases or patients. As well, the *Mental health statistics* deal only with inpatients, and can provide no information on the large outpatient psychiatric population. Comparisons of the published data from year to year are complicated by minor changes in the universe of reporting hospitals. For example, in 1970 there was a net increase of ten facilities, one of which specialized in the treatment of drug-dependence problems. The International Classification of Diseases (8th revision) criteria employed for coding drug-related cases is in some instances ambiguous and inadequate, and many drug-related admissions are lumped together in large undifferentiated categories (e.g., 304.8, 294.3, 309.1 and 309.9). There are no provisions in the federal system for coding multi-drug use or drug interaction cases, which undoubtedly reflect the bulk of the drug-related admissions. Each admission appears in only one category. Often, due to incomplete or inadequate information at the hospital or provincial level, a very large proportion of the cases end up being coded in general unspecific residual categories (e.g., 304.9). In some instances, it has been possible to obtain a special detailed analysis, but this is usually not feasible once the data has been coded. (See Tables A.5 and A.6 in the Annex to this appendix.)

[f] While the *Poison Control Program Statistics* provide a potentially valuable source of information on certain problems arising from the non-medical use of drugs, there are numerous difficulties or limitations which restrict the generality and usefulness of the data. Since the identification of the drugs involved is based almost exclusively on the verbal report of the user or his friends, rather than on chemical analysis of the substances taken or of body fluids, the drug classifications may contain errors of considerable proportions (e.g., see A.5 *Hallucinogens*). There is no way to relate symptoms to reliably identified toxic substances. There are no provisions for drug interaction cases, which likely make up a significant proportion of the total. Each instance of contact with a Poison Control facility is classified in a single drug category. Details and follow-up, in general, are frequently inadequate at the hospital level and the death reports are often incomplete. It is, of course, generally not possible to differentiate psychological adverse reactions from physical toxicity in the reports. Comparisons from year to year are limited by continual changes in the universe of participating hospitals, and by alterations in data coding and in the format of data presentation. These variables also limit inter-provincial comparison. The frequently noted trend towards an increasing number of cases related to non-medical drug use reflects an increase in the number of hospitals participating in the program, as well as possible changes in the incidence of toxic reactions in the general population.

[g] In April 1971, the Commission contacted the Chief or Supervising Coroner, or the Registrar of Vital Statistics for each province, requesting information on deaths related to non-medical drug use. In many instances, we were able to

obtain the coroner's report, the medical certificate of death and, often, further description of the circumstances of the death. Follow-up contact was maintained with the provincial authorities through the end of 1972. However, numerous gaps in the data occurred and coverage was not always complete. The provinces of Ontario, British Columbia, Alberta and Quebec provided the vast majority of the information. In some instances, records were searched for 1970 as well. With a few exceptions, coroners' reports are not indexed or coded in a way which facilitates retrieval. As well, the individual reports varied considerably in detail and in the completeness and sophistication of the drug-related inquiry. In some instances, reports were traced back from newspaper and other media reports.

[h] Some reviews and suggested readings on caffeine and its effects follow:

Amit, Z., & Corcoran, M. Caffeine. Unpublished Commission research paper, 1970.

Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol.* Boston: Little, Brown, 1972.

Colton, T., Gosselin, R. E., & Smith, R. P. The tolerance of coffee drinkers to caffeine. *Clinical Pharmacology and Therapeutics,* 1968, 9:31-39.

Dreisbach, R. H., & Pfeiffer, C. Caffeine-withdrawal headache. *Journal of Laboratory and Clinical Medicine,* 1954, 28: 1212-1218.

Goldstein, A., & Kaizer, S. Psychotropic effects of caffeine in man: III. A questionnaire survey of coffee drinking and its effects in a group of housewives. *Clinical Pharmacology and Therapeutics,* 1969, 10: 478-479.

Goldstein, A., Kaizer, S., & Warren, R. Psychotropic effects of caffeine in man: II. Alertness, psychomotor coordination, and mood. *Journal of Pharmacology and Experimental Therapeutics,* 1965, 150: 146-151.

Goldstein, G., Kaizer, S., & Whitby, O. Psychotropic effects of caffeine in man: IV. Quantitative and qualitative differences associated with habituation to coffee. *Clinical Pharmacology and Therapeutics,* 1969, 10: 489-497.

Hansteen, R. W., & Miller, R. D. Caffeine and its effects. Unpublished Commission research paper, 1973.

Kahn, E. J. *The big drink.* New York: Random House, 1960.

Ritchie, J. M. Central nervous system stimulants: II. The xanthines. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics.* (4th ed.) Toronto: MacMillan, 1970. Pp. 358-370.

Truitt, E. B., Jr. The xanthines. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine.* (4th ed.) Toronto: McGraw-Hill, 1970. Pp. 533-558.

Weiss, B., & Laties, V. G. Enhancement of human performance by caffeine and the amphetamines. *Pharmacological Review,* 1962, 4: 1-36.

[i] Dr. Frederick Kerr of the Mayo Clinic in Minnesota has informed the Commission that very high doses of AMPT (140 mg per kg in monkeys or 8–9 gm per day in humans) can cause severe crystallurea. However, no sign of crystallurea has been reported at doses employed in the amphetamine blockade research (e.g., 1–4 gms).

[j] Conceptual and methological aspects of adverse reactions to hallucinogenic drugs are discussed in considerably more detail in Chapter 2 of the *Cannabis Report.* Much of the adverse reaction discussion in A.1 *Introduction* and A.5 *Hallucinogens* in this appendix is based on the *Cannabis Report* analysis.

[k] These calculations are based on Table G(II) and Appendix-Table 2 of unpublished Poison Control Program Statistics (1971) provided to the Commission in 1973 by E. Napke (Head, Poison Control and Drug Adverse Reaction Section, Health Protection Branch, Ottawa). The benzodiazepine minor tranquilizers were considered separately from meprobamate since the bulk of the evidence in the scientific literature suggests that this latter drug is more like the other non-barbiturate sedatives in terms of lethal toxicity. It must be stressed that the bases for reporting fatal and non-fatal poisonings to the Program undoubtedly have different sampling biases, and consequently the fatal to non-fatal ratios compared here must be seen as very general estimates, at best. (See also note *f*.)

[l] See the *Cannabis Report* for a review of cannabis effects and medical uses. In March 1973, cannabis-containing Wampole Hypno-Bromic Compound® (which was last produced in 1954) was obtained on prescription from a pharmacy in Ottawa. This preparation was marketed for medical use in Canada as a sedative-hypnotic, and in addition to cannabinoids contains morphine, chloral hydrate, belladonna alkaloids and potassium bromide.

[m] The national mortality statistics, published by Statistics Canada in *Causes of death*, are based on data abstracted and coded by provincial authorities from local reports, following the International Classification of Diseases (ICDA), 8th Revision. Consequently, the Federal Government has little direct control over many basic aspects of the data. The provinces are not consistent in the detail provided or in the care taken to prepare the material. Even within provinces, coroners differ greatly in the adequacy and completeness of death reports. At the local level there is a frequent lack of trained staff or facilities for good detective work and complete autopsy and chemical investigation. Changes in the number of deaths coded to drug-related causes from year to year, and differences among the provinces, reflect the sophistication of the investigators and the attention paid to possible drug factors, as well as variations in the incidence of toxic drug reactions. Similarly, the assignment of a death to the "Suicide", "Accidental" or "Undetermined" categories often depends on the time spent and the care invested in the investigation. Generally, the more complete the inquiries the higher the relative number of cases attributed to intentional self-poisoning or suicide. Many general or ambiguous reports and drug interaction cases are classified in residual undifferentiated categories (e.g., N977.9). This is particularly true in Quebec. Sufficient use is not made of the available ICDA drug combination classifications, and the official statistics suggest a much smaller proportion of multiple drug deaths than are actually indicated in death certificates and coroners' records. With fatalities associated with chronic, debilitating drug use, the ascription of death to a drug-specific cause or to some other particular physical condition or disease is often arbitrary, and most deaths among alcoholics, for example, are apparently coded under various specific diseases rather than to alcoholism in the official statistics. (See Table A.12 of the Annex to this appendix for a summary of the official national statistics on deaths attributed to psychotropic drugs in 1971.)

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A.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

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Appendix B

Legal and Illegal Sources and Distribution of Drugs

B.1 INTRODUCTION

An understanding of the mechanisms and channels by which psychotropic substances reach their ultimate consumers is essential to developing a comprehensive perception of drug use in Canada. The availability of drugs is a crucial factor in explaining the extent and patterns of Canadian drug use, and this availability is a function of the various processes whereby drugs are licitly and illicitly distributed. For descriptive purposes, our discussion of these distribution processes is divided into drug types and, within each drug classification, by three major rubrics: 1) legal sources and legal distribution, 2) legal sources and illegal distribution, and 3) illegal sources and illegal distribution.

The legal distribution of drugs in Canada is governed by a complex mosaic of federal and provincial statutes and regulations. These laws are described in some detail in the following drug-by-drug discussions, but it is useful to mention them here so as to provide an outline of the legal parameters of the distribution system.

The production, distribution and administration of the opiate narcotic drugs, cannabis and cocaine are governed by the *Narcotic Control Act* and the *Narcotic Control Regulations*. The distribution of all other drugs requiring prescriptions—and many which do not—is controlled by the *Food and Drugs Act* and its *Regulations*; this Act also prohibits the distribution of certain psychotropic substances (such as most hallucinogens) except for scientific purposes. Drugs which are considered secret formula, non-pharmacopoeial medicines (such as some cough medicines and laxatives) are regulated by the *Proprietary or Patent Medicine Act* and various provincial regulations. Alcohol and tobacco manufacture and importation are regulated by the *Excise Act* federally, and by various provincial statutes as regards provincial distribution and taxation. Apart from packaging and labelling requirements, there is no significant controlling legislation on the distribution of volatile solvents and gases.

The illegal distribution of psychotropic substances may involve legally produced drugs which have been diverted from their licit channels, or illegally imported or manufactured drugs. In either case, some violation of at least one of the above-mentioned statutes will have occurred. Illegal drug distribution is often as highly sophisticated and complex an economic activity as the licit pharmaceutical industry itself. This illegal enterprise can generally be divided into three major marketing levels. The top level is composed of a very small number of 'manufacturers' (as is the case with 'speed' and most hallucinogens) and 'importers' (such as with heroin and cannabis). These individuals sell their drugs to 'distributors', who are essentially wholesale agents who buy in large quantities and sell in smaller lots to the third illicit distribution level: 'dealers'. It is the dealers who sell the bulk of illegal drugs to their ultimate consumers. It should be recognized, however, that each of these levels may have many sub-levels, and that these different distribution roles may, on occasion, be performed by the same person, especially when the quantities involved are relatively small. Finally, it should be noted that these three levels of illicit distribution reflect a hierarchical structuring with certain crucial properties: the greatest profits accrue to those at the top of the hierarchy; the greatest risks of arrest are at the bottom of the hierarchy; and, consequently, most of those involved in illicit trafficking are motivated to improve their position in the distribution structure.

B.2 OPIATE NARCOTICS

LEGAL SOURCES AND LEGAL DISTRIBUTION

Canada has not permitted either the manufacture or importation of heroin since January 1, 1955, although legal supplies still exist in a few hospitals, pharmacies and private clinics. Significant quantities of other opiate narcotics in wide use for medical purposes are imported into this country. The uses to which these substances are applied are described in Appendix A.2 *Opiate Narcotics and Their Effects*. The procedures by which the distribution of these drugs are controlled are specified in the *Narcotic Control Act* and the *Narcotic Control Regulations*. All prescription sales must be recorded. Codeine phosphate at low dose levels, however, may be sold without a prescription and sales need not be recorded provided that preparations containing this drug meet certain rigid provisions described in the *Narcotic Control Regulations*. Records of all opiate narcotics transactions and all opiate narcotics stocks in the possession of licensed distributors, doctors, hospitals and pharmacists must be open to Department of National Health and Welfare inspection, and all thefts from these parties must be reported to the Bureau of Dangerous Drugs.

Table B.1 indicates the estimated consumption of the major opiate narcotics legally distributed in Canada between 1966 and 1971. Of special

interest is the almost ten-fold increase in the consumption of methadone during this period. This drug is used almost entirely for purposes of methadone maintenance or the treatment of heroin withdrawal. Reported diversion of methadone into the illicit market (see "Legal Sources and Illegal Distribution", below) and concern over the misuse of this drug led to a governmental decision to restrict the right to prescribe methadone solely to those "physicians . . . authorized to do so by the Minister of National Health and Welfare."[37] These more rigorous restrictions came into effect on June 1, 1972. At that time prescribing authorization was temporarily limited to about 800 practitioners. These temporary authorizations expired on October 31, 1972, and prescribing authorization renewals were issued effective November 1, 1972. At the end of November 1972, approximately 455 practitioners were authorized to use methadone, including eight veterinaries.

At present, a licensed medical practitioner may receive authorization to use methadone for the treatment of narcotic addicts, for the management of narcotic withdrawal, as an analgesic or anti-tussive agent in non-addicted persons, or for veterinary purposes. Over 70 per cent of the practitioners with the right to prescribe methadone as of the end of November 1972 were granted authorizations solely for the treatment of opiate narcotics addiction or withdrawal. The specific details of these authorization restrictions and their consequences are discussed in Appendix G.1 *Methadone Control Program of the Government of Canada.*

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Although the controls on the availability of opiate narcotics for legitimate medical purposes outlined above are quite rigorous, there is, nevertheless, some diversion of these drugs into the illicit market. The major forms of diversion include thefts from pharmacies, doctors (offices and bags), hospitals and licensed distributors, pilferage from warehouse stocks, obtaining prescriptions from a number of doctors, forging prescriptions, deceiving doctors by simulating withdrawal symptoms, and the overprescribing of opiate narcotics by a few doctors.[34, 56, 58, 106]

Apart from methadone, it appears that thefts are the major form of diversion and that these thefts generally net only small amounts of drugs.[33, 106] In the case of methadone, however, almost five times as much methadone seized by law enforcement officers was destroyed in 1971 (777 grams) as was reported stolen (157 grams) in that year.[35, 106] As there is no evidence of the illicit manufacture of methadone in Canada, nor of significant quantities of methadone being illicitly imported into this country, it is safe to assume that there was some misprescribing of methadone by doctors before the new methadone regulations of June 1, 1972. In fact, indications of overprescribing had been received prior to this date by the Department of National Health and Welfare[20, 37, 57] and the Commission's own monitoring studies of drug use patterns in selected urban centres.[56, 58]

TABLE B.1

ESTIMATED CONSUMPTION OF LICIT OPIATE NARCOTICS
For 1966–1971* (in Kilograms)

Drug	1966	1967	1968	1969	1970	1971
Opium Preparations	165.283	139.457	213.480	166.645	154.976	96.038
Morphine	26.214	36.924	20.237	34.278	31.094	38.513
Hydrocodone	48.699	54.482	62.410	64.622	83.508	110.862
Hydromorphine	0.279	0.218	0.310	0.654	0.456	0.545
Oxycodone	13.024	16.247	23.874	22.688	26.232	38.514
Codeine	4,242.347	4,098.112	4,363.513	5,045.441	4,977.868	4,315.817
Ethylmorphine	17.390	15.491	17.751	12.869	14.223	12.185
Anileridine	30.669	32.154	41.686	42.500	44.215	49.912
Alphaprodine	3.048	6.466	0.856	3.177	2.827	2.695
Levorphanol	0.358	0.312	0.168	0.739	0.012	0.241
Methadone	4.353	6.216	9.417	13.053	20.967	40.158
Pethidine (Meperidine)	723.090	806.389	709.910	844.062	950.212	792.259

Source: Canada, Bureau of Dangerous Drugs. Table showing estimated consumption of the main narcotics for the period 1961–1971 inclusive. April 5, 1972. (Mimeo).

* Estimated Consumption in year B = Manufacturers' stocks on December 31 of year A + Imports during year B — (Exports during year B + Manufacturers' stocks on December 31 of year B).

The effect of the June 1 regulations on the diversion of methadone to the illicit market cannot be fully ascertained at this time. There is reason to believe, however, that the extent of such diversion has been significantly reduced.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

International Patterns of Illegal Distribution

The international trade in illicit narcotics is a complex phenomenon affecting both producing and consuming nations. However, the illicit trade is not universally perceived as a problem by the scores of nations involved as illicit producers, processors, shippers, or consumers. In several countries the illicit trade is an almost regular and traditional source of income for members of the government. Many of the producing nations simply lack the political power and financial resources to eradicate illicit cultivation, while other governments—often for political reasons—hesitate to deprive their already impoverished farmers of their major cash crop. However, one must also consider the inability of the consuming nations to curb illicit demand, successfully treat or control their user and addict populations, or control illegal distribution.

Although there are likely tens of thousands of illicit producers and approximately two and one-half million illicit consumers world-wide, most of the international illicit distribution system is controlled at the top by a relatively small number of professional criminal syndicates of primarily French-Corsican, Italian-Sicilian and Chinese backgrounds. Each syndicate is an independent, autonomous entity with virtually identical structures and styles of organization. They wield considerable power because of their wealth and their widespread corruptive influence on individual police, customs and government officials. These syndicates are specifically and effectively organized to minimize risks (especially for their senior persons), and do not hesitate to utilize the full measure of both legal and illegal means to protect their interests and evade prosecution. The illicit distribution system is extremely flexible; the closure of one opium source is usually followed by the spawning of another, as the trade shifts to the areas of least resistance.

The present international regulations regarding opium production and trade are embodied in the 1961 *Single Convention on Narcotics Drugs*. The *Single Convention* does not prohibit internal cultivation, production or consumption of opium, but it does establish certain obligations to diminish the possibility of overproduction and diversion to illicit market. Among other obligations, the signatories to the Convention must ensure that all aspects of their opium cultivation and trade relate exclusively to medicinal or scientific purposes.[172] The enforcement provisions under the Convention are based on the force of world opinion. The official regulatory body has neither means nor power to physically interrupt illicit traffic, but must rely upon the

diligence and honesty of domestic law enforcement agencies or mutual co-operation between nations.

OPIUM CULTIVATION, PRODUCTION AND CONSUMPTION: LICIT AND ILLICIT.

Poppy Cultivation

Opium is the hardened gum derived from the milky sap of the poppy plant (*papaver somniferum*). It is the proportion of morphine alkaloid in the opium that determines its commercial value. The plant grows in a variety of soils and requires a warm, fairly dry climate. The mountain valleys from the Turkish Anatolian Plain to the Yunnan Province in China are the sources of most of the world's opium.[181] However, many other areas are entirely suitable for opium poppy cultivation.

The cultivation and especially the harvesting require tremendous amounts of labour. It takes between 175 and 250 hours of manual labour to produce one kilogram (2.2 pounds) of opium.[181] The poppy acreage per farm is directly limited to the quantity that can be manually harvested during one day as each of the five to twenty pods per opium plant must be lanced and scraped to collect the opium gum within a 24-hour interval.[182] Mechanical harvesting is possible but would require "sizeable capital outlays and . . . concentrated area of cultivation" which would be far too visible for illicit production.[182] Because of the tremendous amount of labour involved, poppies tend to be raised only where labour is abundant and cheap; annual per capita incomes range from $350 in Turkey to less than $100 in India and Southeast Asia.[182] Where there exist abundant opportunities for comparable legal income, opium is rarely produced. For example, in Yugoslavia licit annual production gradually fell from eighty tons to three tons as the per capita income rose in the primary producing province of Macedonia.[173]

Poppy cultivation usually represents a small fraction of total cropped land; in Turkey, Iran, Pakistan, Afghanistan and India it rarely exceeds one hectare (2.47 acres) per farm.[181] The majority of the land is used for growing food for the farmers' needs. By contrast, in Southeast Asia poppy growing accounts for a far larger share of the cultivated land and is therefore more vital to the local farm economy.[181]

Yields, Purity, Prices and Economic Significance

Regional yields per unit of land vary considerably: from twenty kilograms per hectare in India to eight to ten kilograms per hectare in the opium growing areas of Burma, Laos and Thailand.[181] Turkish opium yields of 15 to 16 kilograms per hectare are comparable to Indian opium yields because the latter are adulterated and hence yield less morphine alkaloid. In addition, the yield per farm within each region may vary due to the quality of the seeds, the amount of weeding, fertilizer and irrigation, the timing of the harvest, and other factors.[181] Opium cultivation is extremely risky. An entire

crop might fail,[108] and rain during harvest may leach out the morphine alkaloid.[181] The widespread variation in possible yields makes it extremely difficult for a legal government opium monopoly to prevent diversion to the illicit market. The farmer may understate his output by as much as 25 per cent and still be well within the wide range of possible yields.

The morphine content of the opium defines its purity and value.[181] Although the estimates of purity vary, it is generally conceded that Turkish opium (with a morphine content of between nine and fifteen per cent) is the world's most potent.[108, 181] The opium produced in other countries has a morphine content ranging from 4 to 12 per cent.

Generally speaking, the price of opium decreases from Turkey east to Southeast Asia.[181] The opium farmer's returns for his hundreds of hours of labour are extremely meagre by North American standards. For example, the Turkish opium farmer in 1971 would have realized only about five cents per hour on the legal opium market or fourteen cents per hour for illicit sales.[31, 182] Table B.2 indicates the range of opium prices on the international licit and illicit markets in 1971.

TABLE B.2

PRICES TO FARMERS FOR RAW OPIUM—1971

Producing Country	U.S. $ per Kilogram
Turkey	
Licit	10.00
Illicit	25.00 to 33.00
Iran	
Licit	65.00
Afghanistan	
Illicit	10.00 to 12.00
Pakistan	
Licit	8.00
Illicit	24.00 to 32.00
India	
Licit	4.67 to 9.33
Illicit	14.00 to 28.00
Burma/Thailand/Laos	
Illicit*	20.00

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey 1972.* Washington, D.C.: July 1972.

* The Laotian prohibition on cultivation did not come into force until November 15, 1971. See below: Laos.

The economics of opium cultivation at the farm level is a crucial factor affecting international efforts to suppress the illicit opium trade. In large part, the suppression of this trade is dependent upon replacing present opium

cultivation with alternate crops of equal or greater value per unit of land. Although other crops yield more per hour of labour, no legal substitutable crop provides comparable economic yields per hectare (see Table B.3 below), and in the opium producing countries labour is cheap and land is expensive.[181]

TABLE B.3

GROSS RETURNS FOR OPIUM AND CROP SUBSTITUTES PER HECTARE IN TURKEY—1971

	US $
Opium	387–488
Wheat	70
Barley	65
Sunflower	140
Alfalfa	174
Sugar Beets	341

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey 1972.* Washington, D.C.: July 1972.

The economic, social and political problems of undertaking crop substitution in the western opium-producing nations are less complicated than those in Southeast Asia where opium represents a far greater percentage of total cropped land.[158, 181] Furthermore, governments in Southeast Asia lack the resources to enforce their narcotics laws in the remote areas in which opium is cultivated as government officials have little effective contact with these regions.[173] Widespread personal use of opium among its growers in Southeast Asia increases the problems of crop substitution and the suppression of opium production.

Licit Production and Uses

The United States Cabinet Committee on International Narcotics Control estimated that approximately 1,500 metric tons of opium were produced in 1971 for the world's licit market.[182] Higher production levels in India and the resumption of large scale cultivation in Iran increased the 1971 licit supply by 25 per cent. India produced 62 per cent of the licit total, the U.S.S.R. produced about 13 per cent, and Iran and Turkey each accounted for about 10 per cent. The People's Republic of China, Pakistan, Japan, Yugoslavia and North Vietnam accounted for the remainder of the licit production. The processing of poppy straw (the pods and upper parts of the stems), which is the alternative to raw opium as a source of morphine, has increased over the past decade and presently accounts for 35 per cent of licit morphine production.[182]

A relatively small quantity of licit opium production is used to provide maintenance doses of opium for registered addicts in the government treat-

ment programs of Iran, Pakistan and India.[182] However, 90 per cent of the licit supply is converted to morphine, and 95 per cent of this morphine is used to produce other substances, chiefly codeine.[182] Although some synthetic alternates are available, no completely satisfactory substitutes for codeine have yet been found.[99, 169, 182]

Illicit Production and Consumption

The American Cabinet Committee has estimated the 1971 world illicit opium production at between 990 and 1,210 metric tons (see Table B.4).[182] Burma, Laos and Thailand accounted for 63 per cent, India, Afghanistan and Pakistan each accounted for about nine per cent, and Turkey supplied five per cent of this total. The remaining five per cent was primarily produced in Eastern Europe and Mexico with additional scattered cultivation in Latin and South America, North Africa and the Far East.[32, 182] The United States Bureau of Narcotics and Dangerous Drugs (B.N.D.D.) has stated that illicit production in the People's Republic of China, U.S.S.R., Eastern Bloc nations and North Vietnam is insignificant.[181] Substantial increases were expected in the 1972 illicit supply due to bumper crops in Burma, Laos and Thailand.[32]

TABLE B.4

ESTIMATED ILLICIT OPIUM OUTPUT, BY MAJOR PRODUCERS—1971

Country	Metric Tons
India	100
Afghanistan	100
Turkey	35– 80
Pakistan	20–160
Burma, Thailand, and Laos	700
Mexico	10–20
Other*	20–50
Total	990–1,210†

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey 1972.* Washington, D.C.: July 1972.

* Mainly Eastern Europe.

† Additional amounts probably are produced in Latin America, North Africa, and the Far East.

Most of the illicit opium is consumed by users within or close to the areas of cultivation. Southeast Asia—representing the largest consuming population—absorbed 600 of the 700 tons produced in Burma, Laos and Thailand in 1971.[182] However, the American Cabinet Committee estimated that a minimum of 200 tons of the 1971 illicit world-wide opium supply and substantial illicit stocks from previous years were available for the international heroin market, which is primarily composed of about 575,000 North

American heroin dependents.[182] These addicts consume over 11 metric tons of pure heroin annually. In terms of opium equivalents, the North American market thus requires 110 metric tons of raw opium, or ten per cent of the 1971 illicit supply. This market is probably the world's most lucrative as heroin is far easier to import and far more profitable to distribute than any other form of narcotic. Furthermore, North American heroin addicts and users are able to pay far higher prices than their more impoverished counterparts in Europe and Southeast Asia.

The international distribution of illicit narcotics: a history since 1940

Since World War II, the illicit demand for opiates has increased substantially in most countries that have experienced serious narcotics problems in the past, with the exception of the People's Republic of China and Iran.[181] Prior to 1940 Mainland China was the largest illicit market for opium products, several times larger than the rest of the world combined.[181] At the beginning of World War II China had an estimated opium-smoking population of ten million, concentrated in the larger urban centres on the Pacific Coast.[181] This vast market was primarily supplied by India and Iran, the two largest illicit producers at the time, with smaller quantities from Egypt, Pakistan and French Indo-China.*[181] In addition, prepared smoking opium and other opiates shipped from China supplied the large Chinese using population in Southeast Asia and North America until the beginning of World War II when the Pacific shipping lines were cut, temporarily ending the major role played by the Chinese in North American opiate distribution.[38]

The vast illicit market in China largely disappeared when the People's Republic of China was formed in 1949, and thus the international trade in illicit narcotics changed as the world demand for opium drastically declined.[181] The Chinese criminal syndicates that had controlled the trade in Mainland China resettled in Hong Kong and other parts of Southeast Asia, and apparently maintained their contacts with the Chinese syndicates in North America.[32] Following closure of the Chinese market, Iran became one of the leading producers and exporters of illicit opium; well over one-half of Iran's licit opium crop was diverted to its domestic black market, the Southeast Asian market and the small but growing demands of the North American market. The illicit trade in Western Europe became increasingly important when Italy banned legal heroin production in the early 1950s—Italy having been the major source of supply for the North American east-coast addict population. During this period Turkey developed as a significant opium producer. Turkish opium, diverted from legal production, was transported directly, or through Syria and Lebanon, to France and Italy for refinement into heroin.[181]

* French Indo-China encompassed what is now Laos, Vietnam and Cambodia. The Geneva Agreements of 1954 established these countries as independent nations.

Iran, with an addict population of about one and one-half million, banned all opium cultivation in 1955, thus creating a shortage in Southeast Asia, the Middle East and Western Europe.* The United States B.N.D.D. has indicated:

> In order to meet demand in Iran, illicit production rose sharply in both Afghanistan-Pakistan and Turkey. After the elimination of supplies from China and Iran to the Far East and Southeast Asia, production also rose substantially in Burma, Laos, and Thailand. In addition, with the elimination of Iran's formerly westward-moving illicit exports, Turkey largely filled the gap by increasing its exports to the Arab countries, Western Europe, and North America.[181]

Southeast Asian opium production increased prior to and after the Iranian opium prohibition. Alfred McCoy has reported that the Kuo Min Tang (K.M.T.) in Burma,† General Phao Sriyanonda in Thailand,‡ and the intelligence arm of the French Colonial Government in Indo-China (Service de Documentation Extérieure et du Contre-Espionage or SDECE) discreetly encouraged expansion of Southeast Asian opium cultivation following World War II.[105] After the 1954 Geneva Agreements and the French withdrawal from Southeast Asia, elements of the newly founded national governments of Laos and South Vietnam and the American Central Intelligence Agency (C.I.A.) began to play a role in the Southeast Asian opium trade. During the 1950s and 1960s, members of the French-Corsican criminal syndicates of Saigon shipped Southeast Asian morphine base to the French-Corsican heroin refineries of Marseilles.[105]

Following the 1955 Iranian prohibition, Turkey became the most significant source of illicit opium for the heroin refineries of Southern France and those few that existed in Italy.[181] As the number of Turkish hectares under opium production declined during the 1960s, the percentage illegally diverted increased and thus the quantity reaching the illict market remained unchanged.[181] It was not until the United States threatened to cut back foreign aid and favourable trade agreements in the late 1960s that the Turkish Government initiated rigorous programs to reduce its illicit cultivation and trade.[156] The reduction in the number of opium-growing provinces, the strengthening of the licensing system, closer supervision of opium farmers, an increase in the government price for licit opium, and the development of a large narcotics enforcement branch substantially decreased the quantity of opium reaching the illicit market.[31] On June 30, 1971 the Turkish Government announced it would ban all opium poppy cultivation as of autumn 1972.[168] Several months later the United States pledged $35 million

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* Iran's narcotics-using population decreased significantly during this prohibition; the 1971 addict population was roughly estimated to be 400,000 persons. Licit opium production was resumed in 1969.[188]

† See below, "Burma".

‡ See below, "Thailand".

to support bilaterally developed agricultural and financial programs to ease the economic hardships resulting from the Turkish ban.[182]

There is significant public opposition to the opium prohibition in Turkey which is linked, to some extent, to growing anti-American sentiment; Istanbul's major newspaper *Hürrijet* has protested United States interference in the internal affairs of Turkey, and the opposition party in the Turkish Parliament has introduced two bills to repeal the opium poppy ban.[163] Even if the cultivation prohibition is maintained, as is expected,[32] the huge supply of opium illicitly stockpiled by Turkish farmers will temporarily ease the shortage caused by the ban.[109, 182]

Since World War II, three distinct areas of illicit production and refinement have supplied the North American heroin market: The Middle East, Southeast Asia and Mexico.[31, 181] Until the late 1960s, the Middle East accounted for up to 80 per cent of this supply.[181] However, the Turkish opium production ban has already caused major changes in the international distribution system and is likely to precipitate other changes in the near future.[105, 181, 182] Some sources suggest that Southeast Asian heroin may soon dominate the North American market.[32, 105] The opium-producing complex of Iran, Afghanistan, India and Pakistan, which accounted for over 25 per cent of the world-wide 1971 illicit supply, may for the first time play a role in supplying the North American market.[32]

According to Interpol officials, at best only five to ten per cent of all illicit narcotics are seized before they reach their destination.[173]

THE MIDDLE EASTERN NARCOTICS TRADE

Control of Refinement and Demand: A Brief History

The illicit flow of raw opium and morphine base from the Middle East to the criminal syndicates of Western Europe has persisted relatively uninterrupted since the end of World War II. The traders and smugglers of Beirut and Istanbul have long dominated the collection of illicit raw opium, its processing into morphine base, and sale of the base to European syndicates.[99] The most significant changes in the Middle Eastern market involve the roles of the Italian-Sicilian syndicates (hereinafter referred to as the 'Mafia'*) and the French-Corsican syndicates in the refinement of morphine base into heroin. These syndicates are strikingly similar in structure and organization: both are organized along family lines with a strong sense of loyalty and strictly enforced codes against betrayal. In addition, both groups have developed extensive financial, criminal and political power, extending their influence far beyond their native island or country.

* There are at least three groups of criminal syndicates which trace their origins back to Italy and Sicily: the Neopolitans, the Calabrians, and the Sicilians. Although these three groups draw distinctions among themselves, for our purposes they will be collectively referred to as the 'Mafia'.

By the end of World War II, the Mafia, due largely to the organizational skill of Salvatore (Lucky) Luciano, controlled most American organized crime, including narcotics.[99] In 1936 Luciano was given a 30- to 50-year sentence for 62 counts of compulsory prostitution, but was granted an early parole, for encouraging American east-coast dockworkers to fight German sabotage, and was then deported to Sicily.[53] Even after his 1946 deportation Luciano remained a dominant force in North American organized crime, and his heroin distribution network in the United States was inherited by other mafiosi.[81]

The French-Corsicans' involvement in international organized crime was even more extensive than the Mafia's. Following the Second World War the French-Corsican syndicates gained control of the Marseilles docks[24, 27, 105] and, shortly thereafter, opened the first illicit heroin laboratories in the Marseilles area.[28] This area has remained the largest centre of illicit refinement for heroin entering the North American market.[31, 32]

French-Corsican syndicates also controlled a major part of organized criminal activities in French Indo-China[105] and Lebanon, a former French protectorate and the centre of the Middle East narcotics trade.[59] In addition, the French-Corsicans had established connections in Montreal, Buenos Aires, Rio de Janeiro, Mexico City, and pre-Castro Havana, thus linking them to the South American cocaine market.[99, 163] The various French-Corsican syndicates and their associates were involved in almost every major illicit narcotics market, with one exception: North America, which was controlled by the Mafia.

Seven months after his deportation to Sicily, Luciano was reported to be in Cuba in the company of several American Mafia leaders.[8, 192] The American Government brought pressure to bear on Cuba, and Luciano was forced to leave, resettling in Italy. However, pre-Castro Cuba developed into a major trans-shipment centre for heroin destined to North America from Europe and cocaine destined to Europe and the United States from South America.[144]

Heroin production was legal in Italy at this time and Luciano made arrangements with the managers of some Italian pharmaceutical companies to divert portions of their legal narcotics supplies into the illicit heroin market. Although the Italian authorities were notified of these companies' involvement in 1950, no action was taken until January 1953 when these managers were finally arrested and eventually imprisoned.[99, 121, 192] Luciano, however, was not prosecuted, "... the Italian authorities claiming that there was not sufficient evidence against him to warrant a charge."[121] This affair precipitated a strong reaction in the United Nations Commission on Narcotic Drugs and eventually led to Italy banning all heroin production.[192] As the Italian sources closed down, Luciano turned to the French-Corsican syndicates of Marseilles for pure heroin and to the Middle East for morphine base. The Mafia developed two concurrent systems for heroin importation into North America; they operated their own heroin conversion laboratories in Sicily,

shipping the pure bulk heroin to North America via unsuspecting Italian immigrants. The second system was supplied by the French-Corsican heroin conversion laboratories of Marseilles; Corsican seamen smuggled the heroin into North America aboard regular commercial vessels. In both cases New York was the primary port of entry.[99, 121, 144]

In April 1957, 20 kilos of heroin destined for New York were seized from the S.S. Excambion in Marseilles harbour.[144] This seizure of heroin was not as significant as the prosecutions that eventually arose from the case. Although the exact sequence is unclear, Vito Genovese and 14 of his Mafia associates were eventually arrested and charged with conspiracy to import heroin.[7]

In November 1957, more than a hundred Mafia chiefs and lieutenants met at Appalachin, New York. Among the major issues to be considered was a decision of the Mafia bosses to abandon the heroin business due to rising police pressure and increasing risks of prosecution.[81, 100] The meeting was interrupted by the police before this topic could be discussed, but the narcotics trafficking prohibition was later revised to allow Mafia members to retain control of heroin importing and primary distribution as long as they did not endanger the non-drug enterprises of other Mafiosi.[31] Within three years, however, another fifty leading members of the Mafia were arrested in two other major heroin conspiracy cases.[7, 59, 99]

The Mafia's role in international heroin distribution was substantially altered by the 1957 Appalachin edict and these three conspiracy cases. The Mafia maintained control over North American demand but abandoned heroin refinement and the actual smuggling into North America.[59] By the beginning of the 1960s the French-Corsican syndicates controlled virtually all heroin conversion in the Middle East and Europe.

Deterioration in the relations between the French-Corsicans controlling supply and the Mafia controlling demand, coupled with the increasing sophistication of New York customs and narcotics agents, resulted in a diversification of importation routes into North America in the early 1960s. Montreal was the most important alternate route during this period because of its proximity to the huge New York heroin market. In addition, the Montreal syndicates proved more trustworthy than the New York Mafiosi, and law enforcement was not as vigorous.[59] During the early 1960s the French-Corsicans still did most of their own importing but, with increasing police pressure, prosecutions and seizures, they were forced to specialize. They left the smuggling of heroin to their clients, hired independent couriers, and relied more heavily on primarily French-Corsican contacts in South America, Latin America, Montreal, Miami, New York, Spain and Italy to import the heroin for them.[31] As the number of connections increased, the trade became more diverse and new routes and distribution patterns developed. However, the French-Corsicans remained by far the major supplier, and the Mafia on the American east coast remained their largest buyer.[31, 146]

The Supply, Logistics and Processing of Opium in the Middle East and Western Europe

From the farmer to the smuggler. According to the American B.N.D.D., Turkey was the source of opium for 80 per cent of the heroin consumed in Western Europe and North America following Iran's prohibition of opium production in 1955.[181] This figure was probably accurate up until six or seven years ago, before the reduction in Turkish opium production and the expansion of the Southeast Asian trade. Under the pre-1972 Turkish licensing system, the farmer's opium acreage was not limited providing he lived within an authorized opium-producing province.[108] At the beginning of each growing season Turkish farmers reported their poppy acreage and expected yields to the regional government opium monopoly, but since the planting and harvesting were not supervised the farmers simply underestimated their actual acreage or expected yields. The excess was sold to "commission men"—agents touring the producing area purchasing opium for illicit dealers. It may take two or three years before the 1972 ban on Turkish opium cultivation markedly reduces illicit shipments to Western Europe; Turkish and American narcotics officials attribute this potential delay to existing illicit stockpiles and possible clandestine cultivation.[88]

The collection and refinement of the opium, and the transportation of the morphine base, are the responsibilities of hundreds of professional smugglers.[99] The entire illicit opium industry in the Middle East is viewed as a profession, and corruption of public officials, smuggling and violence are an inevitable part of this enterprise.[108] Once the morphine base is delivered to Istanbul or one of the other Turkish collection centres, it is transferred to the smuggler's agent for safekeeping until final arrangements are made with larger dealers.

From the Middle East to the European refining laboratories. Middlemen in Germany, Italy and other Western European countries control much of the movement of morphine base from Turkey to France. These middlemen have developed their own connections in the Middle East and act either as forwarding agents for the French buyers or as independent suppliers.[182] Independent entrepreneurs attempting to buy morphine base in the Middle East or sell it in Western Europe generally lack the contacts to survive.

Traditionally the morphine base was smuggled by ship into Marseilles, but recently the use of overland routes from Turkey through Bulgaria and Yugoslavia to Western Europe has increased significantly.[59, 182] There are numerous explanations for this: a larger percentage of the opium is now converted into morphine in Turkey rather than Syria; the overland transportation system has improved; the Bulgarian and Yugoslavian border guards are rather lax; and increasing vehicular traffic makes the likelihood of a thorough search improbable.[59, 71, 182] The most popular method of smuggling involves the use of false compartments or traps built into passenger cars and commercial trucks and buses.[182] Approximately one-half million Turkish labourers are

now in West Germany and they provide more than an ample number of willing couriers.* [31, 42, 182]

West Germany has become a major staging area for huge stockpiles of morphine base en route to Southern France, but increased domestic concern and stricter, narcotics and customs enforcement may change the present German situation.[32, 182] Italy is also a major trans-shipment point for morphine base en route to France; however, the prospects of improving Italian enforcement efforts are poor according to an international study conducted by U.S. Congressmen Murphy and Steele.[109] Since the Italians have no domestic heroin problem, they do not see the need for strict enforcement; the Italian police agencies are fragmented and do not co-operate well with each other or international narcotics enforcement agencies. In addition, "the Mafia is deeply involved in the narcotics traffic, and high-ranking Italian government officials aid that organization throughout Europe."[109] Reports of heroin refineries operating in West Germany, Italy and Sicily have not been confirmed;[19, 59, 109, 182] however, the present distribution system would encourage such developments.

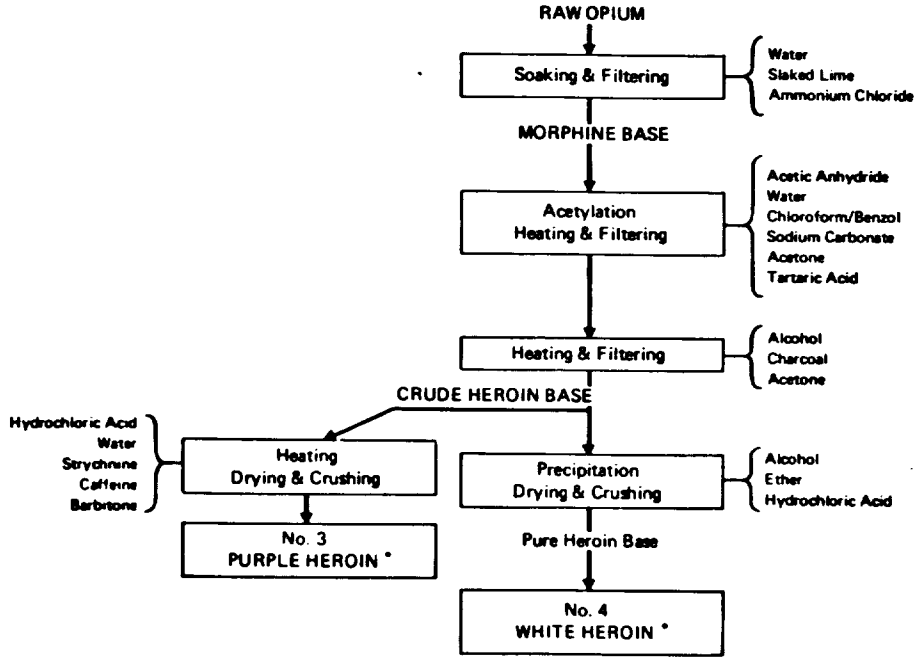
The processing of morphine base into heroin. According to Collins and Lapierre, the conversion of morphine base into heroin "is a straightforward but nonetheless exacting chemical process".[42] The so-called "heroin chemists" learn the trade through apprenticeship to other heroin chemists; the basic equipment is easily obtained and only small amounts of common industrial chemicals are needed (see Figure B.1). Even the large sophisticated laboratories in Europe cost as little as $4,000 to equip, and the floor-space requirements are small. The French laboratories each produce an average of about 20 kilograms of heroin per week, and will be shut down, dismantled and moved if there are no further conversion shipments or if police surveillance is suspected. The end product of this conversion process is a fine, fluffy white powder of approximately 90 per cent-pure heroin. Since the molecular weight of heroin is heavier than that of morphine, each kilogram of morphine base yields slightly more than one kilogram of heroin. Generally the laboratories operate on a commission basis, charging several hundred dollars for each kilogram of heroin produced; however, a smaller number of laboratories purchase their own supplies of morphine base and sell their heroin directly to international traffickers.[42, 182]

Routes and methods of smuggling heroin into North America from Europe. The French heroin trade is dominated by a few large French-Corsican trafficking groups; only recently have non-Corsican French traffickers entered the heroin trade.[96, 182] Although the majority of the heroin refineries are still located in the Marseilles area, several laboratories have recently been established in other parts of France.[78] Until the 1970s, domestic narcotics enforcement in France had been hampered by the political

* Labourers are not the only Turks involved in opiates smuggling. A Turkish senator was recently arrested at the French-Italian border en route from Turkey to Marseilles when 320 pounds of morphine base was found hidden in his car. Three other Turkish senators were implicated in the case.[1, 188]

FIGURE B.1

CONVERSION OF OPIUM INTO HEROIN



* European laboratories produce only white heroin, while Southeast Asian laboratories produce both the purple and white varieties. Usage of the terms 'No. 3' and 'No. 4' are, consequently, restricted to Southeast Asia.

***Source*: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey 1972*. Washington, D.C.: July, 1972.**

influence of the French-Corsican syndicates, general French apathy towards the problem, and limited enforcement resources.[81, 156]

French efforts to curtail the illicit refinement of heroin apparently increased two or three years ago with the major expansion of their narcotics squad and the establishment of narcotic enforcement training programs.[42, 48, 49] Part of this increased concern was the result of direct pressure repeatedly applied by the American Government at the presidential, cabinet, diplomatic and international enforcement levels.[42, 55, 93, 155, 156] Despite an increase in the number of arrests and seizures, reports in the summer of 1971 indicated that the French heroin laboratories continued to prosper.[66] In August 1971 John Cusack, head of the European branch of the American B.N.D.D., alleged that French police were deliberately overlooking the activities of the Marseilles heroin syndicates.[66, 94] These charges were denied by the French Government and police, but subsequent arrests, seizures, and discoveries of heroin laboratories in the Marseilles area tend to confirm Cusack's statements.[55, 66, 82, 94]

Following Cusack's charges there was an unprecendented series of major arrests of heroin refiners and traffickers in southern France.[32] The recent development of a large heroin-using population in France has provided further impetus for improved enforcement efforts.[32, 42, 55] A series of arrests beginning in September 1971 against one trafficking syndicate eventually resulted in the seizure of over 600 pounds of heroin in France and New York and 23 arrests.[98, 112, 128] In the same month, 45 French members of another trafficking syndicate were arrested for conspiracy to import heroin into the United States.[52] Furthermore, in November 1971 Roger DeLouette, a former employee of the French intelligence agency SDECE, was indicted on charges of importing 96 pounds of pure heroin into New York.

The largest seizure to date occurred near Nice in March 1972 when 935 pounds of pure heroin were found aboard the shrimpboat of Marcel Boucan, a known cigarette smuggler. Boucan was believed to have transported two previous heroin shipments to French-Corsican contacts in Latin and South America.[92, 115, 177] French narcotics officers have not only continued to make major arrests of traffickers but, in the first seven months of 1972, they also arrested several of the more renowned "chemists", seized fairly large quantities of heroin and uncovered five heroin refineries.[42, 96] During the entire previous decade only six heroin laboratories were discovered in France.[96]

The American Cabinet Committee has provided the best brief description of European smuggling methods:

> The most common known means of smuggling heroin into the United States are by body or baggage carry, by concealment in a motor vehicle or other sea freight, and by clandestine air transport. A body carry usually consists of smuggling a small amount of heroin by strapping it to the body or concealing it in one's clothing or body cavities. Frequent use is also made of airline passengers and crews and seamen who carry heroin concealed in their personal effects or baggage.[180]

It should also be noted that some of the most successful heroin-smuggling operations have involved the use of diplomatic officials with formal customs immunity.[26, 59, 71, 99, 116]

Twenty-five years ago, when the Mafia controlled refinement, importation, and distribution of North American heroin, two basic routes, and two or three ports of entry were used. However, as the number of refiners, importers and key distributors increased, and as law enforcement efforts improved, the routes, methods of smuggling and control of the North American market became more diverse and fragmented.[31] The problems of identifying, let alone arresting, the new individuals involved are consequently that much more difficult. Unlike the situation a decade ago, a single major seizure or the arrest of one large-scale trafficker has virtually no impact on the street availability of heroin.[31] Numerous major seizures within a short period of time are now necessary to affect street-level supplies of the drug.

The American Cabinet Committee indicated that there were three basic routes used to smuggle heroin from Europe into the United States:

from Europe directly or via Canada, from Europe via Mexico, and from Europe via various other countries in Latin and South America and the Caribbean.[182] As in the past, New York is the largest North American consumer market as well as the major clearing-house for heroin distribution. The Cabinet Committee has provided a concise description of the first major route:

> The direct Europe-US route is the oldest French heroin smuggling route and remains the most active. Direct shipments to the United States enable the French traffickers to avoid using foreign middleman smugglers who might otherwise establish a closer relationship to the US buyer. The French smugglers have the advantage of concealing their shipments within a huge volume of transatlantic commerce and need pass through only one customs check. The risk to the French traffickers, however, is much greater since the arrest of a courier in the United States, has often implicated the entire trafficking group.
>
> Canada serves two primary roles in the movement of French heroin from Europe to North America. French traffickers may use the Canadian route as an alternative port of entry into the United States in the belief that customs inspections in Canada and on the Canada-US border are more relaxed than on the east coast of the United States, particularly when French passengers are involved. Canadian traffickers themselves also purchase sizable quantities of French heroin for distribution in Canada and/or resale to U.S. traffickers.[182]

The second transportation network is apparently dominated by a small number of distribution agents operating out of Mexico City who appear to control the importation of pure European heroin and its resale to the large American east-coast syndicates.[31, 99] These dealers are also involved in the South American cocaine trade, but generally do not handle the Mexican-grown opium products. Mexico first developed as a significant alternate route to the American east-coast market in the 1950s when first New York, and then Montreal and Toronto, tightened up their customs and law enforcement efforts.[31]

Considerably less is known about the Latin and South American route. The smuggling of South American cocaine to North America is a long-established and growing phenomenon, but it is not known when European distributors began to use this route. The leaders of many of the Latin and South American trafficking groups are of French-Corsican or Italian background and have close ties with their countrymen in Europe. Although it was first thought that these trafficking groups were independent buyers and sellers, it now appears that most simply act as agents for the large French-Corsican distributors and their Mafia buyers in the United States.[32] The European heroin is believed to enter South America primarily through Bueno Aires and Montevideo, and is then distributed to various smuggling groups for reshipment to the United States.[182] Much of the clandestine trade passes through Panama and Paraguay which serve as convenient refuelling and trans-shipment points; their limited border and narcotics enforcement has little impact on this illicit flow.[32, 116, 139, 148, 191] The bulk of this heroin is smuggled into the southern United States aboard small private planes and

boats.[32, 43, 104, 116] Over the last five years roughly 30 per cent of the European heroin entering the United States arrived via South and Latin America (excluding Mexico).[32] One indicator of the popularity of this South and Latin American route is the recent emergence of Miami as a major port of entry; in 1971 over 460 pounds of pure heroin were seized in Miami and in the first month of 1972 two related seizures netted an additional 385 pounds of heroin.[32, 104] Although Puerto Ricans, expatriate Cubans and, to a lesser extent, American blacks are major importers and distributors of cocaine, they are generally limited to the role of lower-ranking employees in the Latin American heroin traffic route.[32, 105]

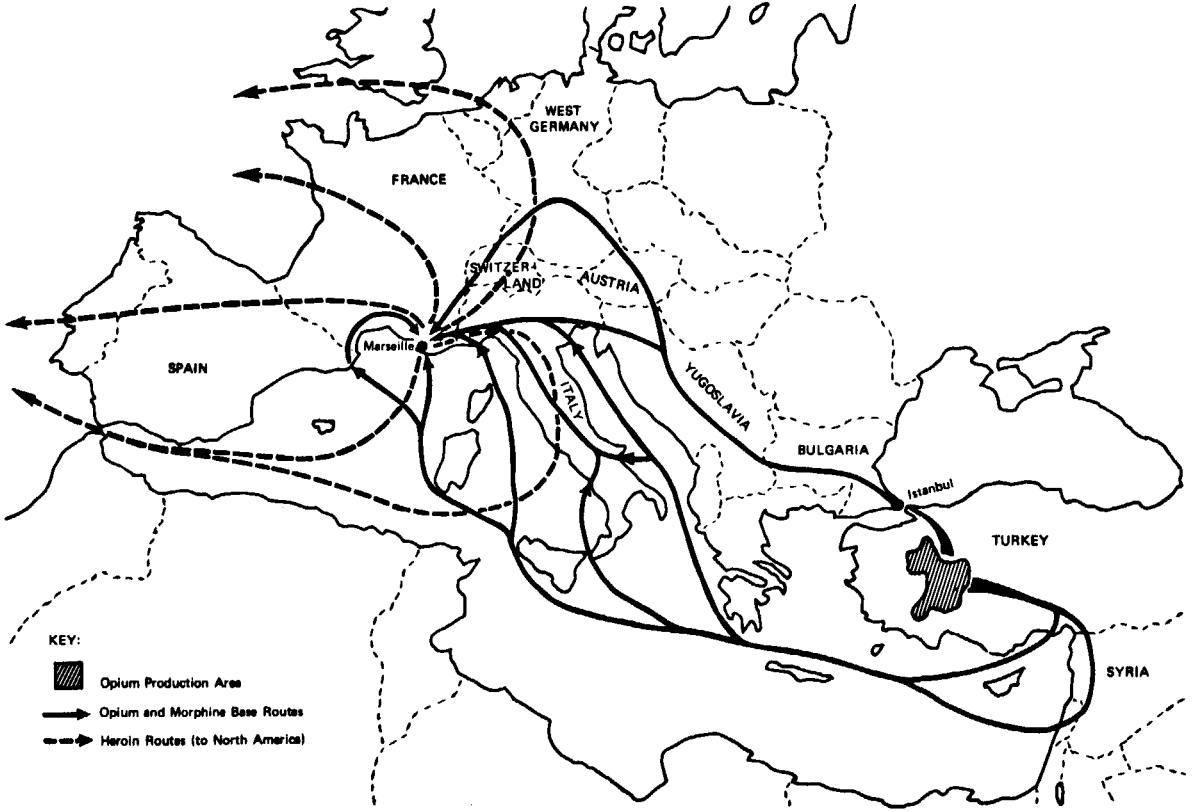
Customs and narcotics enforcement throughout Latin and South America has been superficial due to lack of concern, a shortage of enforcement resources, and the particular geographical and physical problems of border surveillance. The United States has applied considerable economic and diplomatic pressure to obtain governmental co-operation in some Latin and South American narcotics cases.[79, 116, 139, 143, 190] For example, the United States indicted Auguste Ricord in March 1971 for conspiracy to import 97 pounds of heroin into New York, and it took 16 months to complete his extradition from Paraguay.[110, 111, 140] In order to obtain Ricord, who is considered to be one of the top ten heroin distributors in the world, the United States Government, according to Newsweek:

> ... planned to "snatch" him from Paraguay and fly him to the States without benefit of formal extradition proceedings. Paraguayan authorities were willing enough, but the U.S. Ambassador ... reportedly blocked the idea. Then a lower court judge ... [ruled] that Ricord could not be extradited because drug trafficking is not listed in Paraguay's extradition pact with the U.S. ...
>
> Impatiently, the U.S. turned the screws on Paraguayan President Alfredo Stroessner. More than $5 million worth of credit lines quietly dried up, U.S. military aid to Paraguay was halted and Stroessner was warned that funds from international lending organizations might also be affected. When the Paraguayan President passed through the U.S. last April en route to and from Japan, he was diplomatically snubbed and, for the first time since 1861, the U.S. ambassador cancelled the traditional Fourth of July party—the diplomatic event of the year in Asuncion. Finally, ... Gross [the U.S. State Department's top narcotics official] was sent to Paraguay ... as a personal emissary from President Nixon ....
>
> [Eventually] three appeals court judges overturned the lower court verdict and approved Ricord's extradition.[119]

International co-operation and narcotics enforcement efforts have apparently improved in parts of South America in the last year as evidenced by the growing number of arrests and major seizures. In August 1972 the Argentinian police seized 100 pounds of heroin in Buenos Aires; in the same month Venezuelan police seized 53 pounds of heroin, and in October and November the Brazilian police confiscated 132 pounds of heroin and claimed to have arrested the major figures in a Mafia-related international distribu-

FIGURE B.2

MAJOR MIDDLE EASTERN-EUROPEAN NARCOTICS ROUTES



tion network.[82, 70, 120] In addition, the Brazilian Government has recently deported several international heroin trafficking figures to the United States and Italy to face criminal charges.[9, 12, 15, 46]

The crackdowns in Turkey, France and South America have resulted in price increases and a definite shortage of heroin at the wholesale and 'street' levels on the American east coast.[51, 81, 92, 103, 163] In New York the Mafia and their French-Corsican suppliers have had difficulty maintaining adequate supplies of bulk heroin for sale, and the Chinese syndicates (selling Southeast Asian heroin) have at least temporarily assumed a larger share of the wholesale trade.[32] Officials of the American B.N.D.D. suggest that French-Corsican refiners and traffickers may soon have to leave France entirely if present enforcement efforts are maintained, and continued police pressure in Latin and South America may force the development of alternate smuggling routes.[32]

THE SOUTHEAST ASIAN NARCOTICS TRADE

The vast illicit market in China ended when the People's Republic of China was formed in 1949, and existing evidence indicates the problem of opiates use has been eliminated.[181] The U.S. Cabinet Committee has stated:

> There is no reliable evidence that China has either engaged in or sanctioned the illicit export of opium and its derivatives nor are there any indications of government participation in the opium trade of Southeast Asia and adjacent markets.[188]

The earlier American, Taiwanese and Soviet allegations that China was consciously flooding the Western world with opium products appear to have been based on political ideology rather than fact.[41, 59]

As noted earlier (see "Illicit Production and Consumption"), Southeast Asia is the world's largest source of illicit opium. One hundred of the 700 tons of opium produced in Burma, Laos and Thailand is available for the illicit international trade.[182]

Burma

After Chiang Kai-Shek was driven out of Mainland China in 1949, remnants of his Nationalist 93rd Division, the Kuo-Min-Tang (K.M.T.), settled in Northern Burma and Thailand close to the Chinese border.[166] One of the K.M.T.'s major sources of income was derived from extorting a heavy toll on local opium producers passing through areas within their control.[11, 54, 105, 142, 161, 166] The K.M.T. would then openly smuggle their extorted opium into Thailand.[182] The Burmese Government complained to the U.N. about the presence of the K.M.T. in their territory and occasionally attempted to drive them out.[113] Burma rejected American economic aid in 1953 to protest the American C.I.A.'s support of this foreign army,*[166] and,

* American support of the K.M.T. was based on their utility as counter-insurgency and intelligence agents.[37, 165, 166, 168]

in May 1959, Burmese forces captured and destroyed three K.M.T. opium refineries at Wanton and found an airstrip used to fly in supplies and reinforcements from Taiwan.[10]

Although the K.M.T. were eventually driven out of Burma in 1960, they resettled in Northern Thailand close to the Burmese border, in the centre of the opium-producing area, and continued to be a major factor in the illicit trade.[27] Apparently the K.M.T. are still involved in the smuggling of Burmese opium into Thailand.[105, 129, 182] The C.I.A., in June 1971, stated that they had identified 21 opium refineries in the K.M.T. controlled 'Golden Triangle' —the area formed by the borders of Burma, Laos and Thailand.[17]

The American C.I.A. and the Taiwan Government relied on the Civil Air Transport Company, later renamed Air America, to supply the Kuo-Min-Tang troops in Burma and Thailand and Meo tribesmen in Laos. Both of these latter groups are deeply involved in the opium trade, and it is public knowledge in Southeast Asia that C.A.T., and later Air America, transported supplies and arms in and opium out.[27, 71, 141, 142]

Thailand

Thailand is significant not only as a major producer and consumer of opium but also as the major conduit through which much of the Burmese opium flows. Thai Police General Phao Sriyanonda, in conjunction with the K.M.T., controlled the illicit narcotics trade in Thailand throughout most of the 1950s and was responsible for Bangkok's development as one of the world's largest illicit morphine and heroin refining centres.[21, 76, 105, 188, 193] Phao was ousted after he staged a phony raid on the K.M.T. (all of whom escaped unhurt), confiscated their opium for his own purposes, and then—as deputy minister of finance—wrote himself a $1.2 million reward which he said he gave to a secret informer who then immediately left the country.[18, 105] The Chinese syndicates assumed control of Phao's abandoned enterprises, apparently continued the alliance with the K.M.T. in northern Thailand, and bribed a sufficient number of high-ranking government officials to protect themselves from police intervention.[76, 105]

In September 1971, the United States and Thailand signed a *Memorandum of Understanding* in which both governments pledged to suppress the illicit opium trade.[184] However, according to the New York Times, a joint-report of the C.I.A. and U.S. Defence Department, dated February 21, 1972, indicated that no progress could be expected, particularly in Thailand and South Vietnam, due to "the corruption, collusion and indifference" at certain levels of these governments.[64]

Congressional action to cut more than $100 million in foreign aid to Thailand unless the Thais took steps to suppress the illicit narcotics trade,[64] prompted major arrests and seizures against Thai heroin refiners and traffickers.[14, 131, 182, 134] The most encouraging sign was a report indicating that the K.M.T. had accepted an offer by the Thai Government to give up opium production and settle in northern Thailand, "in return for cash

and other benefits"; the K.M.T. apparently handed over 20 tons of raw opium which was publicly burned.[134, 182] In July 1972, Nelson G. Gross, the American State Department's senior drug adviser, labelled the earlier pessimistic report of the C.I.A. and U.S. Defence Department as "completely out of date" and indicated that progress was being made in Thailand and elsewhere in Southeast Asia.[139] It was later reported by Jack Anderson that the Thai authorities had simply staged the burning of the K.M.T. opium, using cheap fodder mixed with some opium.[5] The apparent crackdown in Thailand may simply have forced the K.M.T., the Chinese syndicates, and other participants to be more discreet.

Raw Burmese and Thai opium is transported by the K.M.T. to various collection centres in northern Thailand where much of it is converted into morphine base.[59, 76] Since the United States troop build-up of the late 1960s these laboratories have also produced heroin 'No. 4'.*[82] From northern Thailand the opiates are loaded on trucks or planes for delivery to the clandestine laboratories of Bangkok,[76] or flown into Saigon[76] and Taiwan.[27] Apparently the Chinese syndicates control most of the illicit trade in Bangkok; the French-Corsican syndicates play a smaller role; and there are several relatively minor trafficking operations run by U.S. Vietnam veterans.[82]

The U.S. Cabinet Committee provides a detailed picture of the flow of opiates out of Bangkok's refineries:

> Most raw opium and morphine exported to Hong Kong, Malaysia, and Singapore is moved by various fishing trawlers under control of Bangkok traffickers. . . . The same organizations that run the trawlers are believed to handle, at the wholesale level, the growing traffic in No. 4 heroin to international markets. This product is either sold to buyers in Bangkok, who have been mainly US servicemen or US veterans, or delivered directly to buyers in the United States by couriers run by Bangkok dealers themselves.[188]

The Illicit Opium Trade in French Indo-China: 1945–54

The development of the illicit opiates trade in Laos and South Vietnam is even more complex than that of Burma and Thailand. According to McCoy, the French Colonial Government in Indo-China was forced by world opinion to abolish its official opium monopoly (which had been a major revenue source) after the Second World War.[105] The unpopularity in France of the French involvement in Indo-China led to further reductions in the colonial budget. The French intelligence service (SDECE) secretly took over the opium trade, dubbed 'Operation X', to finance their intelligence and counter-insurgency operations against the Pathet Lao and Viet Minh.† In Saigon, the French allowed various elements of the criminal underworld

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* 'No. 4' is injectable white heroin of at least 90 per cent purity. It is usually contrasted with 'No. 3', a purplish or brownish heroin of much lower purity prepared for administration by smoking. Usage of both of these terms is restricted to Southeast Asia.[188] See Figure B.1 above.

† The Pathet Lao and Viet Minh are, respectively, Laotian and Vietnamese communists who are fighting to establish national independence.

to run the prostitution, gambling, protection and narcotics rackets in return for ridding the city of Viet Minh guerillas and saboteurs. The opium not distributed in Saigon was sold to Chinese and local French-Corsican syndicates. These Chinese syndicates were allied with traffickers of Chinese background throughout Southeast Asia and the Chinese triads in Hong Kong. The French-Corsicans in Saigon smuggled some of their opiates to the French-Corsican heroin refineries of Marseilles.[105]

After the French withdrawal from Indo-China in 1954, the United States became increasingly involved in Laotian and South Vietnamese political and military affairs. Although unintentional, this American involvement has furthered rather than arrested Southeast Asia's development as a major source for the international opiates markets.

Laos

The American Government has been financing nearly the entire costs of Royal Laotian military activities and, thereby, indirectly subsidizing the traffic in opiates throughout this country.[25, 105, 162] General Ouane Rathikoune, the Royal Laotian Minister of Defence until July 1971, had been involved in collecting opium from the K.M.T., protecting—if not controlling—opium and heroin refining laboratories at Ban Houes Sai and elsewhere, using the Royal Laotian Air Force to fly opium products throughout Southeast Asia, and selling the final product to Chinese syndicates, South Vietnamese officials and others.[16, 27, 54, 105, 117, 142] Rathikoune's career was abruptly ended when his activities were publicly disclosed by United States Representative Robert Steele.[13, 117] The Nixon Administration confirmed the broad outline of the Congressman's charges and Rathikoune retired the next day.[117] It has been alleged that many of the remaining Laotian Government officials are just as deeply involved in the opium trade as was Rathikoune.[54, 76, 105, 142]

Since 1959–60, the American Government, through the C.I.A., have also supplied and supported Touby Lyfong and General Van Pao, and their Meo troops known as the Armée Clandestine.[87] The U.S. Senate Foreign Relations Committee noted that the United States budgeted $322 million during the 1971 fiscal year to support these Meos, on whom the C.I.A. relies to keep the Pathet Lao from gaining control of northern Laos.[87, 118] The headquarters of Pao's force at Long Cheng (built by the United States as a key C.I.A. base) is one of the major opium collection centres in Laos.[27, 154] The bulk of the Meos' opium is flown aboard Southeast Asian military and para-military aircraft to Parkse, Vientiane or Saigon.[27, 76, 91, 105]

Hughes, in his extensive survey of international heroin trafficking for the *Christian Science Monitor*, has stated that, ". . . clearly the C.I.A. is cognizant of, if not party to, the extensive movement of opium out of Laos."[71] Additional evidence regarding C.I.A. involvement comes from journalist Carl Strock, reporting in the *Far Eastern Economic Review*:

> Over the years eight journalists, including myself, have slipped into Long Cheng and have seen American crews loading T-28 bombers while armed

> CIA agents chatted with uniformed Thai soldiers and piles of raw opium stood for sale in the market (a kilo for $52).[154]

Hughes' and Strock's observations have been echoed by several other sources.[2, 8, 44, 105, 135, 141]

Prior to the late 1960s there was no local market for heroin No. 4 in Southeast Asia as the indigenous opiate users could not afford this preparation.[82] With the large U.S. troop build-ups, the demand for heroin No. 4 increased and heroin No. 4 refineries were consequently established throughout the Golden Triangle.[17, 82, 182] The massive U.S. troop withdrawals in the early 1970s created a surplus of inexpensive heroin No. 4 in Southeast Asia.[82] There is increasing evidence that some of this surplus Laotian heroin is being smuggled into the Western European and North American markets.[82, 105, 130] On April 5, 1971 about 17 pounds of pure Laotian heroin were seized at a military base in New Jersey; the package had been sent from Bangkok through the United States military mail.[105] The same month, the French Government refused to accept the diplomatic credentials of Prince Sopsaisana, the newly appointed Laotian ambassador to France, because 132 pounds of pure heroin were found in his baggage.[86, 105] In November 1971, a Philippine diplomat and a Chinese merchant from Bangkok were arrested in New York with about 35 pounds of pure Laotian heroin.[133]

As a result of American pressure, Laos enacted a law to prohibit the trade, manufacture, and transport of opium after November 15th, 1971. This new law, however, provides for temporary permits for opium smoking and growing by the hill tribes in the opium-growing areas.[189] There have been some significant raids and seizures since the enactment of this law, but it is difficult to predict its future impact without knowing if the attitude of government officials, who have for years protected the trade, has in fact changed. It is known that there is considerable hostility to the new law among large sectors of the Laotian people.[30]

South Vietnam

South Vietnam does not produce opium but has a large opium-smoking population. Saigon has developed into a centre of heroin distribution for American troops and an international export clearing-house for Southeast Asian opium products.[82] According to several journalists, the French-Corsican syndicates were key figures in the trade and flew into the major collection centres of northern Thailand and Laos to purchase opium. The Corsican fleets of small planes, popularly known as 'Air Opium', would then deliver the opiates to Bangkok and Saigon.[27, 91] Part of this opium was converted to morphine base and shipped by the Saigon French-Corsican syndicates to Marseilles for heroin refinement. The role of the French-Corsican air fleets declined as Air America and the Thai, Royal Laotian, and especially the South Vietnamese air forces increasingly assumed this opium transportation role.[27]

As in Thailand and Laos, the illicit trade in South Vietnam is a major source of income for some of the country's high-ranking government officials. Charges of opiate-related corruption in South Vietnam have frequently been corroborated by American Government officials. A statement by the United States provost marshall in South Vietnam,[152] the 1972 joint report of the American Defence Department and the C.I.A.,[64] and testimony presented to the U.S. Congressional Special Subcommittee on Alleged Drug Abuse in the Armed Services,[186] reinforce this picture of corruption of South Vietnamese political, police and military officials.* U.S. Representatives Murphy and Steele,[109] in their international study of opiates distribution, stated that, "strong action must be taken to stop the heroin traffic in South Vietnam. We are not optimistic that the [Vietnamese] Government is either willing or able to take such action".

South Vietnamese President Thieu launched a well-publicized anti-drug crusade in the summer of 1971. In August of that year President Thieu ordered the death penalty for persons belonging to organized drug-trafficking syndicates and introduced "a tough emergency bill", which made dealing in narcotics a war-time crime, and outlawed opium dens.[152, 178] However, the following quotation from a *St. Louis Post-Dispatch* editorial reflects the skepticism of most observers:

> To the unwary, President Nguyen Van Thieu of South Vietnam may seem to have been launching his country on an anti-drug crusade. . . . But reports from Saigon suggest that Thieu's crusade is hardly credible.[188]

The South Vietnamese police, with the assistance of the American B.N.D.D., have apparently made some arrests and seizures since the enactment of this new law.[163, 185] However, it is presently impossible to determine the full effect of this legislation on opiates distribution in South Vietnam. The withdrawal of American troops resulted in at least a temporary reduction of the price of heroin in South Vietnam to approximately $600 a kilogram in the fall of 1972.[32]

Hong Kong

Hong Kong is Asia's other major centre of illicit narcotics refinement, consumption and export.[59, 77] Several years ago the majority of Southeast Asia's opiates export trade was channelled through Hong Kong, but in recent years Bangkok and Saigon have assumed larger shares of this international trade. According to the U.S. Cabinet Committee, Hong Kong still annually imports ten tons of morphine base for refining (most into heroin No. 3—smoking heroin) and about 50 tons of raw opium for both

* Non-South Vietnamese governmental officials, including some Canadians, have also been involved in the illicit opiates trade.[144] Browning and Garrett report that,

> In 1962 . . . an opium-smuggling scandal stunned the entire Canadian Parliament. It was in March of that year that Prime Minister Diefenbaker confirmed rumours that nine Canadian members of the immaculate United Nations International Control Commission had been caught carrying opium from Vientiane to the International markets in Saigon on UN planes.[27]

its 150,000 local users and the export trade.[182] Most of Hong Kong's illicit imports arrive from Bangkok aboard Thai fishing vessels, which regularly make deliveries to small Hong Kong junks in international waters or in the nearby territorial waters of the People's Republic of China.[77, 182]

The Ch'au-chou Chinese syndicates control the illicit narcotics trade in Hong Kong.[32, 182] Parallel in structure and organization to the Mafia and French-Corsican syndicates, the Ch'au-chou wield comparable political and economic influence, share a common heritage and dialect, and maintain contact with criminal syndicates of Ch'au-chou descent in the Chinese communities in other parts of the world.[32, 77] Independent Ch'au-chou and other Chinese syndicates dominate the collection, refinement and distribution of illicit opiates throughout Southeast Asia.[82] The large number of opiate users of Chinese ancestry in Southeast Asia explains the predominance of the various Chinese narcotics syndicates.[182]

In addition to its own dependent population, Hong Kong supplies the relatively small opiates market in the Philippines and produces some heroin No. 4 for the international export trade.[182]

Routes and Methods of Smuggling from Southeast Asia to North America

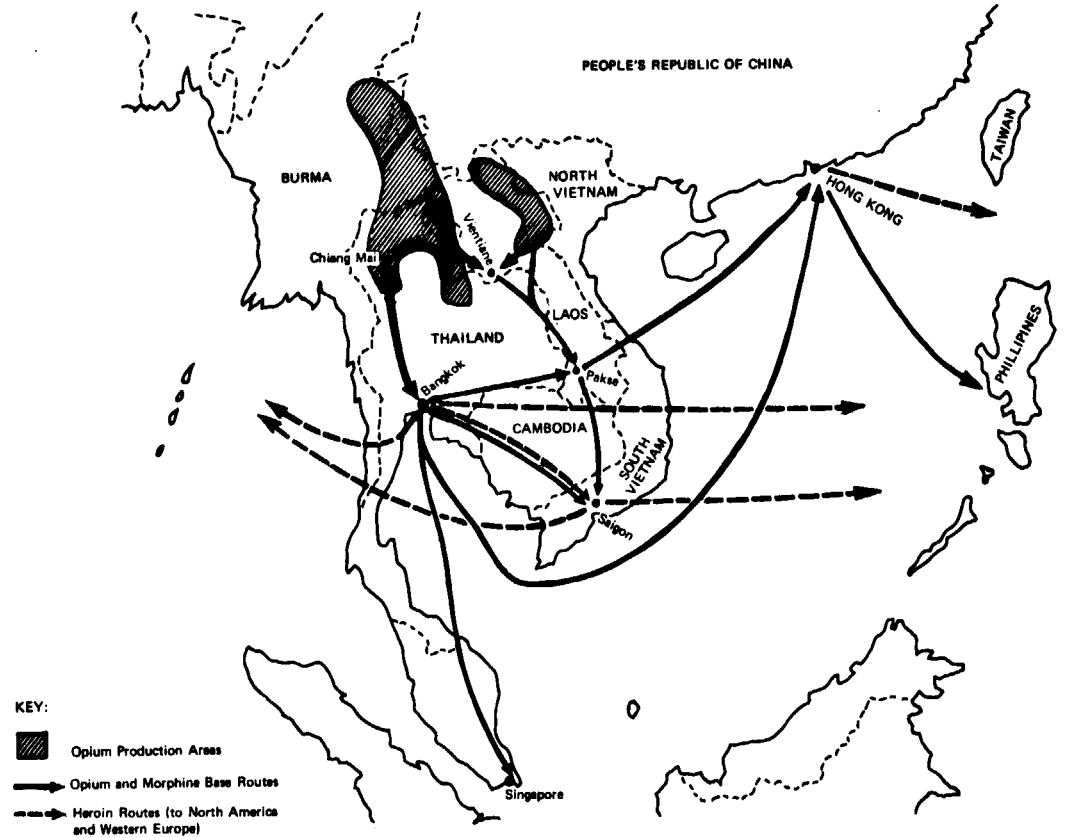
Prior to World War II, the Chinese on the North American west coast dominated our illicit trade with supplies of Southeast Asian opiates smuggled to them by Chinese seamen aboard ocean-going freighters.[88] After the war, however, Southeast Asia became a relatively insignificant source of North American narcotics, and this situation remained unchanged until five or six years ago. Two main factors have historically limited the flow of Southeast Asian opiates into North America: the ready availability of European heroin, and the problem of coordinating Chinese control of supply with Caucasian control of North American demand.

The difficulties encountered by European distributors, coupled with the decline in the availability of inexpensive Middle Eastern opiates, has removed the first barrier,[32, 182] while the American presence in South Vietnam and elsewhere in Southeast Asia has removed the second.[76, 105, 182] As indicated above, American financing has supplied the Thai, Laotian and South Vietnamese Governments with the funds and supplies necessary to modernize the logistics of the Southeast Asian narcotics trade. Although the C.I.A. itself has identified 21 opium refineries in Southeast Asia and implicated the existing governments in their operation,[17] the American Administration has yet to revise its military and financial support of these regimes. The Vietnam War has opened up new routes, spawned new syndicates, provided the necessary couriers, and increased the demand for opiates in both South Vietnam and the United States.

There is evidence that heroin is being carried into the United States by Southeast Asian diplomatic personnel or by means of diplomatic pouches.[71, 89] The French-Corsican syndicates of Southeast Asia are now likely to supply

FIGURE B.3

MAJOR SOUTHEAST ASIAN NARCOTICS ROUTES



even larger quantities of Southeast Asian heroin to their Marseilles counterparts. It has been suggested that leading North American Mafiosi with Southeast Asian gambling interests may also now be purchasing pure bulk heroin for import into the United States.[105] In addition, small-scale smuggling by the remaining G.I.'s in Southeast Asia and the syndicates composed of ex-G.I.'s adds to the Southeast Asian flow.[76, 109]

Of greatest concern, however, is potential impact of the Ch'au-chou syndicates' revival of their pre-war system of narcotics smuggling into the North American west coast. The Ch'au-chou in Hong Kong and elsewhere in Southeast Asia are apparently shipping large quantities of heroin to Ch'au-chou contacts in Vancouver, Seattle, Portland, San Francisco and Los Angeles.[32] Preliminary results of 'Operation Seawall' (a joint program undertaken by the United States and Canada to stop this flow) indicated that most of the heroin is carried by Chinese sailors of Ch'au-chou origin.[82] In April 1972, the first month of Operation Seawall, eight Chinese seamen were caught bringing in one to four pounds of heroin strapped to their bodies.[64] Once smuggled to west coast Chinese contacts, some of the Southeast Asian heroin is delivered to Chinese trafficking syndicates in New York and other east coast distribution centres. In August 1972, the unofficial mayor of New York's Chinatown and three other Chinese were arrested after they sold 20 pounds of pure Southeast Asian heroin to B.N.D.D. undercover agents.[102, 163]

According to the American B.N.D.D., the flow of illicit narcotics from Southeast Asia to North America has risen several-fold in the past few years, and further increases are expected.[82, 181]

THE MEXICAN NARCOTICS TRADE

Cultivation

The Chinese of San Francisco first introduced opium poppy cultivation to Mexico shortly after World War II disrupted the flow of opiates from the Orient.[59] There is now illicit opium cultivation throughout the rugged, mountainous, northwestern states of Mexico.[59] As in the Middle East and Southeast Asia, the poppy farmers of Mexico live at a subsistence level; opium represents a substantial portion of their cash income.[59]

Mexico is a relatively small producer of illicit opium with an annual estimated production of 10 to 20 tons.[182] Since Mexico is not a significant consumer, almost all of the crop is converted to heroin for export to the United States and Canada. It almost totally dominates the heroin markets of California, Texas and other southwestern states.[31, 43, 59, 79, 99] Mexican heroin is brownish in colour and only 60 to 70 per cent pure at its source. In Vancouver, it has, in the past, been virtually impossible to sell Mexican heroin unless there was a shortage of the purer European or Asian varieties.[147] The unpopularity of Mexican heroin helps to explain why it is far less expensive than even adulterated European heroin of the same purity.

The Organization of the Mexican Trade

The Mexican distribution system is composed of a large number of independent growers, refiners and distributors of varying importance. Even at the upper levels, there is no controlling organization into which the supplies flow or which has the power to dominate the market or set price, quality, or operating standards. A large number of these Mexican dealers run vertically integrated operations controlling the opium crop from the time it is planted until it is sold as heroin. These dealers are likely to own an opium farm, run a conversion laboratory, and maintain a network of agents and couriers to sell and deliver the finished product. Even the biggest Mexican dealers handle much smaller quantities of heroin than the average French-Corsican syndicate.[81, 99, 126]

The best description of these Mexican dealers has been provided by L. J. Redlinger:

> Many of the large dealers in Mexico are also in legitimate occupations, most of which pay well. For example, in recent years mayors of cities as well as other politicians have dealt in large quantities of heroin (or opium). Some physicians are also deeply involved in the heroin business as well as businessmen. In many cases, these men finance the building of processing plants to convert the Mexican grown opium into heroin. . . . In addition, they must hire a competent chemist and bribe local officials. If they own the crop, they must pay tenant farmers to care for and harvest the opium. Then they must transport the product to, at least, their side of the border and in many cases all the way to [American import centres].[126]

The informal organization and lack of central control affects not only law enforcement efforts but also access to the Mexican-grown opium products. Since the market is so diffuse, the arrest of any one dealer or group of dealers will not substantially impede the flow of narcotics. It is virtually impossible for any one syndicate to control the market and charge monopolistic prices. This further explains why the price of heroin at all levels of distribution is far lower in the Mexican market than for similar quantities imported from Europe.[59] The Mexican dealers appear far less concerned about the criminal credentials of their buyers; heroin appears to be available in even small quantities to anyone who can raise the necessary cash.[59, 99] For these reasons the Mexican trade is an extremely important source of heroin for the small independent dealers of North America since the distributors of European heroin refuse to deal directly with this level of traffickers.[147]

Routes and Methods of Smuggling

It is virtually impossible to prevent heroin from being smuggled from Mexico into the United States and Canada. There are scores of relatively safe routes along the 1800-mile Mexican-American border. The popular border crossings are often so swamped with vehicular and pedestrian traffic that a courier's chances of being discovered are minimal, especially if the heroin is carefully concealed, as the drug is almost odourless.

Given the nature of the border, the only way to effectively reduce the flow of Mexican heroin is to eliminate cultivation. The Mexican Government is continually attempting to do this, without apparent success.[43, 79, 99, 185] The local and federal police are often overworked, afraid, or bribed not to enforce the opium prohibition.[59, 79, 99] In some cases, the police and local politicians themselves have been directly involved in the trade.[99, 126]

In 1961, Mexico and the United States exchanged notes by which the United States undertook to supply Mexico with equipment to locate and destroy opium poppy and marijuana fields.[22] Although considerable publicity was given to this agreement and subsequent announcements of the destruction of Mexican poppy fields, the flow of heroin has continued unabated.[32, 43, 99, 185] In September 1969 the American Government undertook a three-week crash program to search all vehicles and persons crossing the Mexican border into the United States. 'Operation Intercept', as it was called, was undertaken shortly after a U.S. Presidential task force reported that Mexican efforts and resources continued to be inadequate in the face of the drug problem.[79] As a result of Operation Intercept, cars were tied up at the border for six hours, the number of American visitors declined, and unemployment rose dramatically in Mexican border towns which were dependent on tourism. The three-week operation drastically reduced the flow of marijuana, but had a far less significant effect on the heroin traffic.[156] The United States and Mexican Governments soon introduced a substitute anti-narcotics campaign titled 'Operation Cooperation', and in August 1971 Mexico announced the seizure of 176 pounds of opium and 116 pounds of heroin since the institution of this program.[185]

If North American demand rises, there will be more pressure to expand illicit heroin production in Mexico. The development of the Mexican heroin network illustrates the flexibility of the international opiates trade; a crackdown on production in one growing area appears to spawn new sources, leaving the overall situation relatively unchanged.

THE ROLE OF THREE SOURCES IN THE NORTH AMERICAN MARKET: A SUMMARY

The quality, quantity and production costs of heroin differ in each of the three illicit sources. Even more significant is the fact that illegal control of these sources and, therefore, access to them, varies considerably. Each of the sources is independently operated, yet affected by developments in the other two. The exact role of each source in the North American market has become increasingly difficult to determine because of recent increases in illicit demand and the diversification of importation routes.

The Middle East apparently still supplies the majority of the North American market. Much of this heroin is rerouted through Canadian and Latin and South American contacts to the American east coast. Although this market is less tightly controlled than it once was, the smaller North American traffickers are still forced to buy from secondary distributors.

European heroin has always been relatively expensive, especially at the lower levels of distribution, due to the large number of individual dealers who handle it before it reaches the street. The quantity of European heroin entering North America is now expected to continue to decline as a result of the termination of legal Turkish opium cultivation and the improved policing of French refining.

The flow of heroin from Southeast Asia has increased dramatically in the last few years, and this trend is expected to continue. Although Southeast Asian heroin has always been less expensive at its source than that from Mexico or the Middle East, there were substantial problems in coordinating the Asian control of supply with the Caucasian control of demand. This problem has apparently been solved, at least temporarily, by the revival of the Ch'au-chou Chinese pre-war distribution system. In addition, the French-Corsican syndicates, American G.I.'s and ex-G.I.'s, and perhaps the Mafia, have also established means of smuggling Southeast Asian heroin into North America. The reduction in Middle Eastern cultivation and French refining will further encourage the expansion of the Southeast Asian flow. Some officers of the American B.N.D.D. suggest that Southeast Asian heroin will soon dominate the North American market, while other sources simply predict continuing increases.

As already indicated, there should be pressure to increase Mexican cultivation if the popularity and purity of its heroin improves. In addition, this heroin is far less expensive, at all levels, than Middle Eastern-European heroin. Mexican heroin now dominates the southwestern United States market and is an alternate source for dealers throughout North America. Mexico is also an important source for the smaller North American dealers who do not have the cash or contacts to buy from the more traditional outlets. It is too early to predict the effects that the likely establishment of permanent Southeast Asian routes will have on Mexican production.

National Patterns of Illegal Distribution

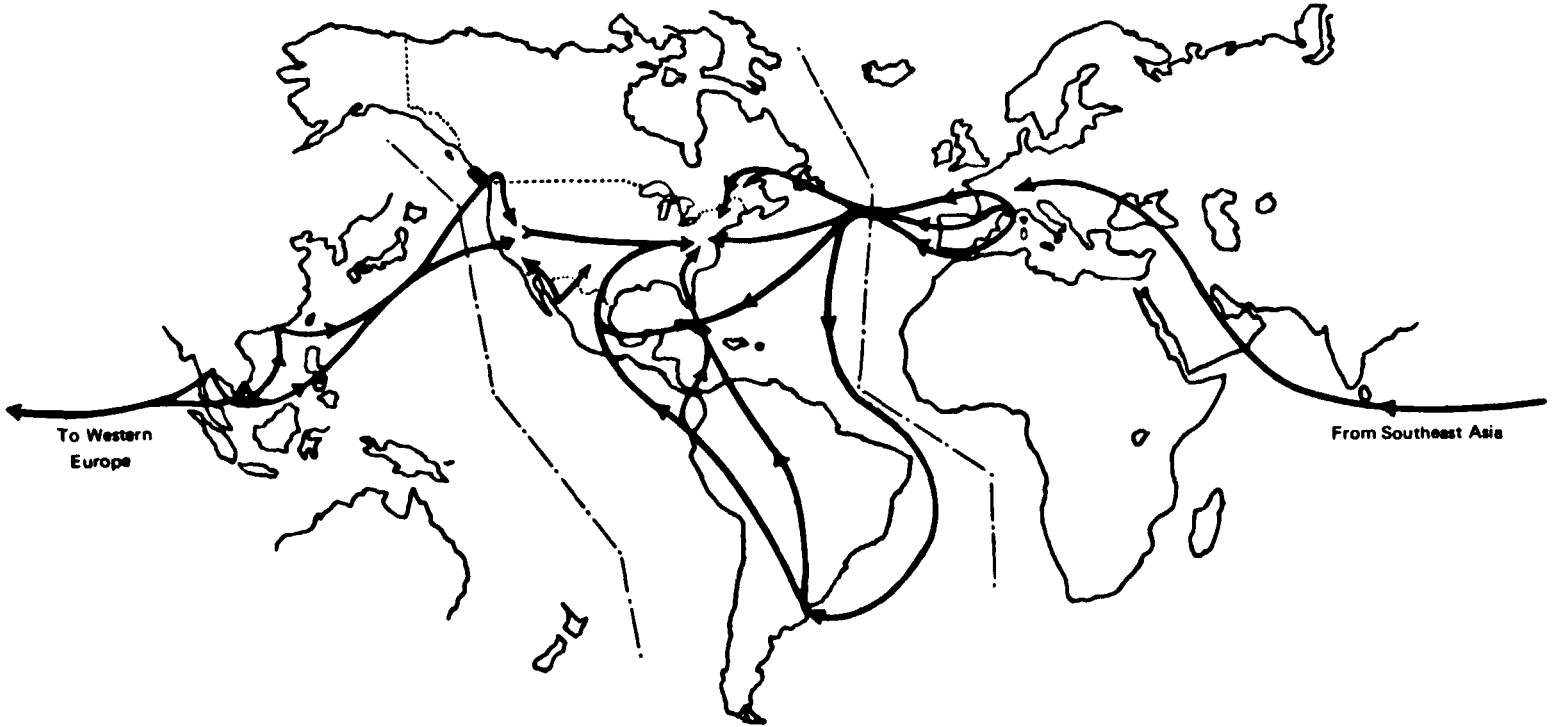
The Basic Nature of the Canadian Heroin Distribution System: An Overview

Large-scale, commercial cultivation of the opium poppy has never been discovered in Canada.[147] From time to time there has been scattered illegal opium cultivation in British Columbia, but the final product is suitable only for the preparation of a relatively weak tea produced from boiling the crushed poppy pod.[88, 148] Apparently this practice was quite prevalent during World War II when other opiates were unavailable.[88]

The international illicit narcotics trade, which is dependent on opium cultivation in the Middle East, Mexico and Southeast Asia, is crucial to the supply of the Canadian market. Since the end of World War II, Middle Eastern opium, refined primarily in France and to a lesser extent Italy, has been the major source for heroin entering Canada. Mexico has chiefly served

FIGURE B.4

Major International Heroin Routes Terminating in North America



as a reserve source for the Canadian market, especially during street 'panics' resulting from temporary shortages of European and Southeast Asian heroin.[147] In addition, small dealers have turned to Mexico as an inexpensive and readily accessible source of heroin.[147] If Mexican heroin improves in quality (and there is evidence that this is occurring), it will probably assume a larger share of the total Canadian market.

Asia was the major source for opiates entering British Columbia until the Second World War, while eastern Canada appears to have been supplied by American and European sources. At that time the Chinese were dominant figures in the west coast illicit trade, importing opiates from the Orient on ships manned by Chinese seamen.[38] The war interrupted most trans-oceanic opiates transportation, and, in the post-war period, the primary centre of importation shifted from Vancouver to Italian control in Toronto and Montreal.*[149] This situation, however, appears to have been altered by the recent revival of the pre-war, trans-Pacific Chinese distribution network and the development of new Southeast Asian routes, both of which appear to be radically affecting the pattern of heroin distribution in the United States and Canada.[32] Recent evidence indicates that Vancouver is now a major port of entry for the American heroin market.

The heroin entering Canada is derived in varying proportions from all three major international sources, each of which tend to serve a different segment of the distribution system.[146, 149]

THE CONTROL, ORGANIZATION, STRUCTURE AND SCOPE OF THE CANADIAN DISTRIBUTION SYSTEM

Control and Organization

At the present time, heroin importers in Quebec and Ontario are said to be responsible for supplying the bulk of the heroin consumed in Canada.[137, 146] Although large quantities of Southeast Asian heroin are shipped by the Ch'au-chou syndicates to Chinese contacts in Vancouver, most of this heroin is apparently rerouted to the American market.[32, 146] The remainder of the heroin consumed in Canada is imported by a variety of Caucasian traffickers, ranking from 'amateurs' dealing in relatively insignificant quantities of American 'decks'† to sophisticated criminal syndicates in Vancouver dealing in pure bulk heroin.

The individuals controlling the upper levels of importation and distribution in Canada (see Figure B.5) are well-established criminals.‡[137] All

* Heroin, which first appeared around 1930, replaced opium and morphine as the national drug of choice after the Second World War.[38, 88] Opium, however, is still occasionally smuggled into Canada's larger cities, where it has become increasingly popular (at between $100 and $175 per ounce) among youthful multi-drug users.

† In the United States, street doses of heroin are generally packaged in small glassine envelopes called 'decks'. These envelopes were designed for and are commonly used by stamp collectors to protect individual stamps.

‡ The following analysis of the Canadian distribution system refers to the Caucasian syndicates; the control, organization and structure of the recently revived Chinese distribution network may well be different.

operations at this level are founded on an extensive financial and criminal base which provides the contacts and ancillary services required to remain in business. Operations at this level are syndicated or organized,* but only a small percentage are controlled by the Mafia.† Many high-ranking importers and distributors have been implicated in other criminal activities such as gambling, disposal of stolen property, loan sharking, prostitution, jury tampering and murder.[137, 147]

The establishment of this financial and criminal base is a necessary prerequisite for dealers aspiring to the upper levels of heroin distribution.[137] In Canada these upper levels of distribution have not yet been subject to the same degree of competition that has altered the structure of the American market.[31] Access and control are tightest at the upper levels of distribution, but become progressively more relaxed as one approaches the street level. Generally, a dealer's purchasing price is a function of his access: the closer to the source he obtains the heroin, the cheaper it is. At any level of distribution, a dealer must absorb the profits and overhead of the intermediaries between himself and the initial source of the heroin.

Traditionally, as police pressures increase, the participants in the illicit trade have been forced to restrict their dealing to one level of the marketplace in order to minimize their risks. In Canada and the United States, the development of these highly specialized distribution roles is a reaction to the increasing use of undercover agents and conspiracy prosecutions.[31, 137] As the number of independent levels of distribution increases, a dealer's selling price rises proportionally since his selling price is dependent on his purchasing price and his risks. The term "risk" includes any activity that involves investing capital, possible losses due to theft, or increases in the likelihood of prosecution or the severity of a sentence that might be imposed. Importing drugs across a border, selling during a 'panic', selling in small quantities or to unfamiliar purchasers, or being in a position to draw police attention are all factors that would increase a dealer's risk and, therefore, his selling price. Risk is strongly weighted in favour of the upper-level distributors who bear the greatest risk of significant financial loss but the least risk of criminal prosecution.

Structure of the Distribution System‡

The heroin market is hierarchical in structure. Upon entering Canada the heroin will usually flow through at least four independent levels before reaching the consumer.§ This hierarchical structure has evolved specifically

* The terms 'syndicated' or 'organized' refer only to those large-scale, sophisticated, criminal enterprises characterized by a hierarchical division of labour and rational attempts to avoid the efforts of law enforcement.

† See footnote on page 570.

‡ This discussion of heroin distribution in Canada reflects the 1971 Vancouver situation as portrayed in several Commission studies.[86, 137, 146, 147, 149]

§ The structure of the American heroin distribution system is somewhat more complex than the Canadian model, usually involving between five and seven levels of distribution.

to minimize risks of criminal prosecution and financial loss. The following discussion (Illustrated by Figures B.5 and B.6) describes the basic model for the distribution of Middle Eastern-European heroin in Canada.* It should be noted, however, that there are scores of possible variations, especially at the middleman level and below, which cannot be portrayed in such figures.

The Canadian importer. Each major importing syndicate is run by one or two key men who have the contacts and capital to purchase from the European refiners and sell to the city distributors of North America. Basically, these importers are financiers importing heroin for a small number of large city distributors. The importers maintain agents in Europe to deliver the cash, pick up the heroin, and arrange for Canadian delivery. The heroin may be hidden in freight or carried into Canada by couriers in their luggage or taped to their bodies. In most cases the courier is completely expendable as his capture rarely endangers the rest of the operation.

The importer's operation is well insulated from any incriminating transactions. He is never in possession of the heroin and most of the risk is borne by his couriers and employees. The importer is virtually immune to prosecution unless he sells directly to an undercover agent or he is set up for prosecution by one of his employees or clients. An entire year's operations may include only three or four shipments. The relatively low visibility of importation operations do not necessitate the widespread corruption of governmental and law enforcement officials that characterize the much more highly visible cultivation and refinement stages of the international trade.

The city distributor. A city distributor's operation is composed of four key employees: the top man, the courier, the back-end man and the front-end man (see Figure B.6). The 'top man' (or men) runs the operation and hires the other employees; he has the contacts and the capital to purchase bulk heroin from the importers in eastern Canada. His heroin is delivered by a courier or, occasionally, is sent through the mail. When the heroin arrives it is hidden at a secret address ('stash') where it is later picked up by the back-end man.

The 'back-end man' is responsible for the heroin once it arrives. It is vital to keep the back-end man's identity secret for he is the only man who can link the rest of the syndicate to the heroin itself. Sometimes a lower-level employee is hired specifically to help with the heroin 'cutting' (dilution) and 'capping' (encapsulation of heroin for resale); in other syndicates the back-end man will do this himself.

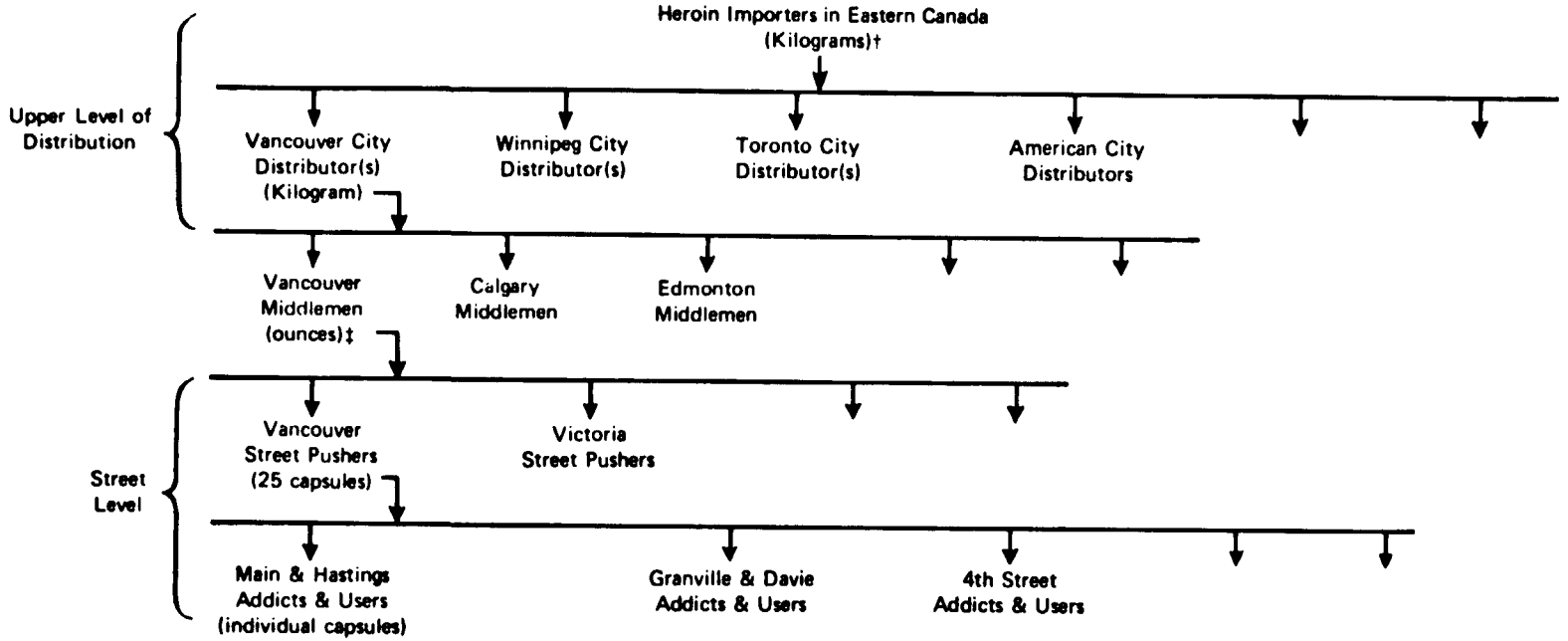
The heroin is weighed and placed in a flour sifter with a fixed quantity of diluents, usually milk sugar (lactose). The exact ratio of heroin to the diluents depends on the desired purity of the final 'capped' product. The

* The Middle Eastern-European distribution network is used as the basic model in the following figures and discussion because it has supplied the bulk of the heroin entering Canada since the Second World War. The Mexican and Southeast Asian distribution systems may differ from this basic model.

FIGURE B.5

Traditional Pattern of Heroin Distribution in Canada*

(1971–1972)



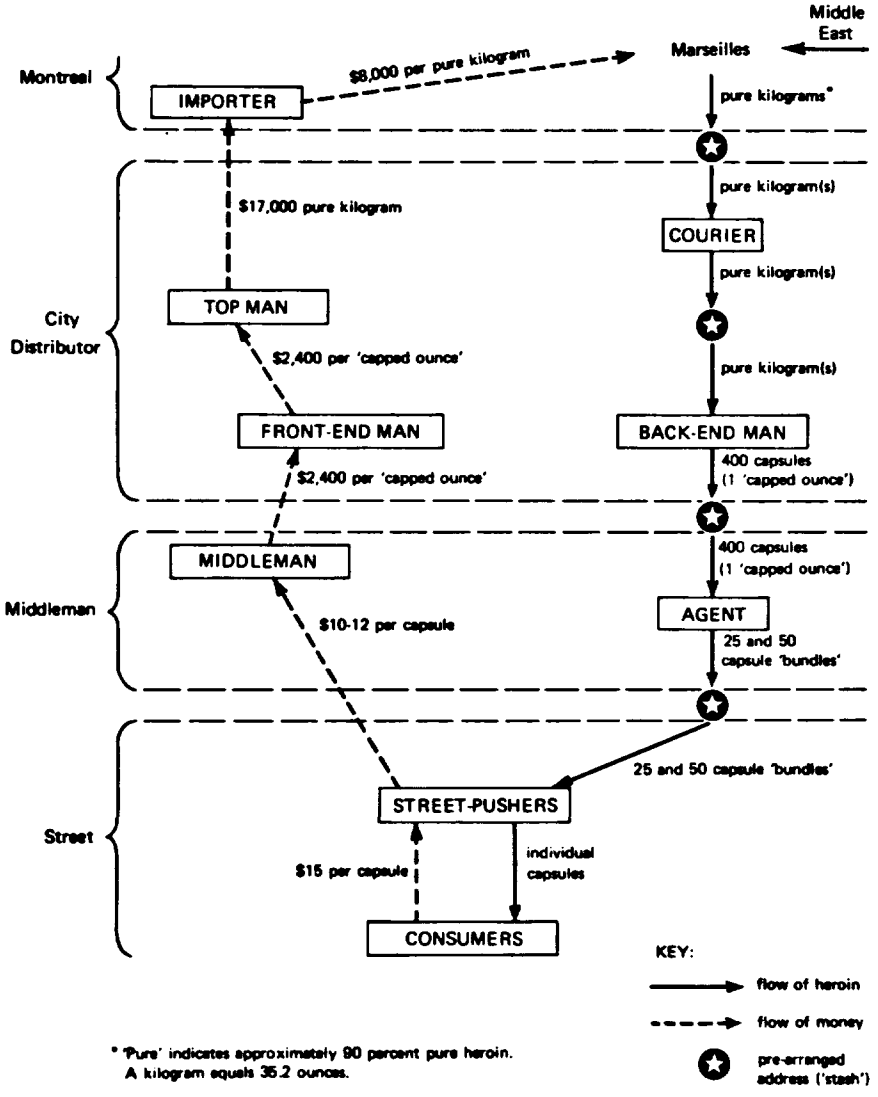
* Vancouver is used as the primary distribution centre in this figure, although similar patterns exist in some other large Canadian cities.

† Unit of purchase at each level is indicated in parentheses.

‡ The heroin is sold in 400 capsule lots commonly referred to as 'capped ounces'.

FIGURE B.6

STRUCTURE OF A TYPICAL CANADIAN CITY DISTRIBUTION SYSTEM (1971–72)



* 'Pure' indicates approximately 90 percent pure heroin. A kilogram equals 35.2 ounces.

mixture is sifted two or three times to ensure an equal consistency, then placed on a sheet of glass and rolled to the thickness of a No. 5 capsule.* In Vancouver the majority of the 'cappers' are addicts who are paid in heroin capsules for their services. One ounce of 90 per cent pure heroin is usually diluted to produce slightly more than two ounces of heroin mixture which in turn yields close to 900 street capsules. These capsules are then packaged in 100-capsule lots and wrapped in a balloon or condom. The back-end man then places 400 capsules (called a 'capped ounce') in an air-tight container and hides it at a secret location. The address of the stash is then relayed to the top man.

The 'front-end man' is the salesman; it is his job to make contact with the middleman. In most cases the middleman buys in 400 or 800 capsule lots. Once a buy has been arranged, the top man tells the front-end man the location of the stash. The middleman hands the cash to the front-end man and in return is given this address.†

Neither the middleman nor the front-end man know the identity of the back-end man. The problems of prosecuting a well-run city distribution system are obvious: the top man and front-end man, who are usually known to the police, never see or touch the heroin, and the back-end man is unknown to the police.

The middleman. Generally the middleman is an independent criminal entrepreneur. Although he is not necessarily part of any larger criminal syndicate, he usually requires criminal contacts and at least a few thousand dollars to start his operation. Some middlemen are addicts, but the individuals above this distribution level are not. It is not unusual for a middleman to dilute the capsules before reselling them, thus substantially increasing his profits. Typically, the 400 capsules are divided into 25- and 50-capsule 'bundles' which are wrapped in balloons or condoms and 'stashed'. The middleman or his agent then makes contact with the 'street pushers' and arranges for the sale of the bundles. Again, the same procedure may be followed as in the case of the city distributor's operation: the pusher pays for the bundle and, in return, is told the location where it is hidden.

With the recent expansion of Canada's addict population, some newly addicted persons with previous multi-drug distribution experience have become small-volume middlemen. These persons obtain their heroin from a variety of sources including lower-level distributors in American cities close to the Canadian border, mailings from Europe, and traditional contacts within the city distribution systems.

The street pusher. Street pushers are addicts who sell heroin to support their dependency. Upon receipt of his bundle(s), a street pusher divides the capsules into ten or fifteen capsule lots which he re-wraps in

* In Canada, street doses of heroin are usually packaged in No. 5 capsules.

† City distributors may also sell pure heroin to middlemen in bulk ounces for around $2,400 per ounce. In this case, the additional risks and expenses involved in capping are transferred from the city distributor to the middleman.

individual condoms or balloons. When he is ready to sell his heroin, he places the balloon or condom in his mouth to allow him to swallow it if he is approached by police officers, and proceeds to the local addict hang-out.

Many of those who peddle heroin receive the substance on consignment; generally, they are required to give the consignor (the middleman) $12 for every capsule they sell at $15. At least some street peddlers pay cash for their bundles and are thereby able to purchase them at a somewhat lower per-capsule price that seldom falls below ten dollars. Sales of 50 to 75 capsules daily are not uncommon. While a per-capsule mark-up of between three and five dollars would appear to make street-level heroin peddling a profitable venture, wherever there has been an illicit heroin market it has been noted that street pushers make only slight profits. Most of the potential profits are absorbed by the street pushers' own drug use. As Lyle has described the situation:

> Among addict dealers on the street, no one makes money for long. It's just an endless, hard scramble, up one day and down the next. . . . The addict buys what he can, uses what he needs, sells the rest, if any.[88]

Heroin users do not see anything very special about drug selling or drug sellers. One reason for this lack of special status is that 'putting out stuff' is in no way an exotic activity since at one time or another most heroin users of any tenure have themselves sold heroin. And secondly, heroin users are, by necessity, eminently practical people and tend to talk about, evaluate, and generally see a variety of activities strictly in terms of their potential to raise money for the purchase of heroin. Heroin peddling is one way of making it through the world and, for a number of reasons, a preferred way. For one thing, it obviously provides one with easy and somewhat cheaper access to heroin itself. Furthermore, heroin peddling is seen as safer and slightly more enjoyable than other ways of making the necessary money to support such drug use.

The street-level heroin peddler represents the lowest level of a stratified organization set up specifically to distribute heroin. Consequently, the street pusher is subject to the conditions of distribution determined by those—usually the middleman or his agent—who directly supply him with this drug. One of the things controlled is access to the occupation of street-level heroin peddling. Like all businesses—legitimate or otherwise—heroin-distributing syndicates seek reliable employees, at all levels, who can do their job and do it reasonably well. Consequently, it is virtually impossible for one to become a street pusher unless one is not only a user, but a user of some tenure in the scene since one must have been around long enough to know and be trusted by a local middleman. Regular street peddling, then, not only implies heroin use but extensive involvement in the heroin scene as well.

The Scope of the Canadian Distribution System

In terms of the international market, Canada is far more significant as a heroin transfer centre than as a consumer market.[125, 137, 149] The great bulk of the heroin entering Canada is destined for the American addict population. During the 1971/72 fiscal year, heroin seizures in Canada amounted to 88.7 kilograms* compared to 26.5 kilograms in 1970/71 and 17.2 kilograms in 1969/70. In the first half of the latest fiscal year (April 1 to September 30, 1972) an additional 12 kilograms of heroin were seized in Canada and 45.8 kilograms were seized elsewhere ". . . as a direct result of [R.C.M. Police] assistance and co-operation with authorities in other countries".[165]

Authorities show wide differences in their estimates of total heroin use in Canada. The R.C.M. Police, for example, estimate that ". . . approximately 76 kilograms of heroin are consumed in Canada each year".[165] However, on the basis of consumption norms used by the American Bureau of Narcotics and Dangerous Drugs,[32] it appears that Canada's addict and user population consumes closer to 300 kilograms of heroin a year. This estimate is based on the assumption that Canada's addict population is approximately 15,000.

To understand the intricacies of the Canadian heroin distribution system it is necessary to examine the sources, suppliers, distribution networks and consumption patterns at the regional level, drawing whatever national and international implications the data warrants. For the purposes of this analysis, Canada has been divided into five regions: the Atlantic Provinces, Quebec, Ontario, the Prairie Provinces and British Columbia.

A REGIONAL DESCRIPTION OF HEROIN DISTRIBUTION

The Atlantic Provinces

No large-scale heroin operation has yet been uncovered in the Atlantic Provinces.[68, 149] However, Halifax, as a year-round port and terminal for international flights, probably has been used by both Canadian and American importers as a port of entry for heroin shipments.

The Atlantic Provinces have never had a significant heroin addict population, and even now arrests for heroin offences are extremely rare. A Commission field study of drug use in the Atlantic Provinces, conducted in May 1972, found that heroin was not regularly available although occasional supplies do reach Halifax's small addict and user population and infrequently appear in other large Maritime cities.[58] Methadone was easily available in the Halifax drug scene in late 1971 and the first half of 1972 as a result of diversion of licit methadone stocks (see B.2 *Opiate Narcotics*, "Legal Sources

* It should be noted, however, that 50 of these 88.7 kilograms were confiscated in one seizure.[89]

and Illegal Distribution", above). The implementation of the methadone control program in June 1972, however, significantly reduced the street availability of this drug.

Quebec

Outside of Montreal, no large-scale heroin distribution operations have been reported in Quebec.[149] Montreal became the centre of Canadian heroin importing and one of the major North American ports of entry as a result of the Chinese syndicates' failure to re-establish their trans-Pacific distribution system after the Second World War,[38] changes in the control of heroin refinement in Europe,[59, 99] and increased customs inspections and narcotics law enforcement on the American east coast.[59] However, Montreal's importance as a continental trans-shipment centre has declined with the development of new international sources of heroin and a more diffuse control over the American east coast market.[31]

In 1971 it was reported that two or three Montreal syndicates were importing heroin from French-Corsican suppliers in France.[137, 149] These importers paid between $6,000 and $8,000 per kilogram, depending on the size of the purchase and the quality of the heroin.[137] They supplied numerous city distributors in New York and Canadian city distributors in Toronto, Winnipeg and Vancouver.* Due to the relatively small quantities purchased, Canadian distributors paid about $17,000 per kilogram whereas American large-volume buyers paid between $12,000 and $14,000.[137, 147, 149]

The heroin importer realizes a gross profit of between 70 and 140 per cent on his initial investment for an operation that might last a month and involves minimal personal and financial risk. The majority of the heroin is brought through customs in freight or by couriers arriving on international flights originating in Western Europe.[137] Whenever possible, an importer will use couriers with informal or formal customs immunity, such as diplomats or members of airline crews.[31, 59, 99]

The R.C.M. Police have indicated that, prior to 1972, Montreal has never had a large opiate-using population.[125, 149] In the early and mid-1960s street heroin was readily available in Montreal at seven or eight dollars per capsule. This relatively inexpensive source attracted lower-level distributors from Toronto and smaller consumer centres who did not have the criminal contacts to buy at the higher levels of distribution in their own cities. These dealers would drive to Montreal, pick up 100 to 200 capsules at eight dollars each, and resell them to street addicts for $15 or $20 per capsule.[149]

* There are conflicting opinions concerning Vancouver's present source of heroin. The R.C.M. Police indicate that Vancouver is still largely supplied with Middle Eastern-European heroin from Montreal,[146] while the American B.N.D.D. and some newspaper reports suggest that Vancouver is now primarily supplied by local distributors who import Southeast Asian heroin from Chinese refiners and traffickers.[88, 40, 100] Although it is known that large quantities of Southeast Asian heroin are smuggled into Vancouver for the American market, there is no reliable estimate of the quantity that remains in Vancouver for local distribution.[88]

In the late 1960s supplies of heroin for local consumption became very erratic and the Montreal addict and user population declined significantly. By early 1972, however, heroin was once again generally available in Montreal and methadone, as a consequence of indiscriminate prescribing, could be easily purchased on the street for around one dollar per 10-milligram tablet. Illicit methadone sources have declined since the implementation of the more rigorous prescribing regulations of June 1972, but heroin, at that time, was more readily available to Montreal's using population than at any other time in recent history.[56, 58] Hull has also witnessed increased street availability of heroin over the past two years.[58]

Ontario

In 1971 the heroin distribution system in Ontario was dominated by one importer-distributor and several city distributors in the province's largest urban centres. Ontario heroin-importing operations are generally far smaller than those in Montreal and tend to serve only the Canadian market. Ontario's largest importing operation was ended by police arrests in 1961, and since then Ontario heroin traffickers have concentrated on distribution as opposed to importation. Although several Ontario city distribution operations have been prosecuted over the past decade, police efforts to interrupt the major city distributors in Toronto have not, as yet, been successful. One of these operations is controlled by local Italian syndicates with Mafia connections in Italy and the American east coast. A second is composed of French Canadians with supply contacts in Montreal and France.[67, 149] In the past few years several smaller city distributors have also established operations in the Toronto area.

Traditionally Toronto and Hamilton were the only Ontario cities with large enough using populations to support a permanent distribution network. In recent years, however, regular heroin distribution systems have emerged in the Ottawa-Hull area and throughout southern Ontario. These smaller markets are chiefly supplied by syndicate contacts in Montreal and Toronto, intermittent mailings from abroad, and small-scale smuggling of heroin street-doses from Buffalo, Detroit and other nearby American cities. Lower-level independent heroin dealers in Toronto and Hamilton have, since the mid-1960s, also purchased small supplies in American border cities.[58, 67, 149]

Toronto has by far the largest addict population in Ontario, and is second only to Vancouver nationally. Until 1969 the heroin street scene was centred at the corners of Dundas and Pembroke Streets in the heart of the 'red light' district and in Toronto's Chinatown.[67, 149] Over the past few years, however, the street scene has diffused throughout Toronto's downtown district. A new street scene has emerged around the Keele Street-St. Clair, 'Little Italy' area, and there is some evidence of occasional suburban youth involvement in this 'ghetto' market. Toronto's user and addict population has significantly increased since 1970; most of these new heroin users have had extensive multi-drug use experience and many are first generation Canadians

whose traditional parental values conflict with the contemporary urban life style that culturally characterizes Toronto.[58, 67, 149]

It is also during the past few years that the smaller heroin-using population of southern Ontario has evolved. Windsor, London, Fort Erie, Sarnia, St. Catherine's, Stratford, Hamilton-Burlington and Chatham now have small pockets of regular and occasional users, and heroin supplies to these cities are constant, although subject to quality and price fluctuations. Ottawa's heroin users are part of the Ottawa-Hull market which is supplied by middlemen contacts in both Toronto and Montreal. This population, as well, has only developed since 1971 and is less stable than those in southern Ontario.[58]

The Prairie Provinces

There are no major heroin-importing operations in the Prairie Provinces; Manitoba is supplied by Montreal importers, Alberta by Vancouver city distributors, and Saskatchewan (which has no regular supply) by lower-level traffickers in Vancouver, Edmonton and Regina.[58, 97, 149] The heroin-using populations in all three provinces have grown in the past few years with the most marked increase occurring in Alberta—particularly in Edmonton.[58]

Heroin use in Manitoba is concentrated in Winnipeg where a traditional, small street-addict population has recently been augmented by younger users with extensive multi-drug experience. Saskatchewan has a relatively small number of heroin addicts and users who primarily reside in Regina and Saskatoon. Lax prescribing resulted in easy street availability of methadone in Saskatchewan, but this situation has changed since the federal methadone regulations of June 1972.

The Alberta heroin-using scenes are centred in Edmonton and Calgary, with Edmonton having the largest addict concentration in the Prairie provinces. Supplies to both cities' traditional heroin-using populations are regular, although it is not uncommon for newer addicts to pool their funds so that one of their members can travel to Vancouver to purchase heroin for the entire group to share. It appears, consequently, that Alberta's traditional and newer addicts are not buying heroin from the same Vancouver sources.[58]

British Columbia

For the past few years, four or five city distributors have been operating in the Vancouver heroin market.[146, 147] Most of their heroin is apparently purchased from Montreal importers, but some of these distributors occasionally import heroin directly from Southeast Asia and, less frequently, from Mexico.[147] Recently there have been reports of Chinese syndicates importing large quantities of Southeast Asian heroin into Vancouver. While much of this heroin is destined for American distributors, the Commission has recently been informed that increasing proportions of Vancouver's street heroin is of Southeast Asian origin and is locally distributed by Chinese traffickers.[82, 146, 150]

New syndicates have a particularly difficult time establishing in Vancouver as they do not know the scene, and must learn who to trust and how the police operate. Consequently, the most successful Vancouver distributing operations are composed of local Caucasians. Some local Chinese and out-of-province Italian and French syndicates have suffered major arrests within months of their attempts to establish city distributor operations in the Vancouver area.[147]

Vancouver is the centre of heroin consumption and distribution in British Columbia. Although no major heroin-importing operation has yet been discovered outside of Vancouver, numerous lower-level distributors have, within the past few years, developed street-dealing operations throughout the province, including such cities as Victoria, Nanaimo, Prince George, Prince Rupert, Kamloops and Surrey. The size and stability of these new markets cannot yet be determined. In addition to supplying these smaller British Columbia markets, Vancouver is the primary source of the heroin consumed in Edmonton and Calgary. The middlemen in these cities apparently buy directly from Vancouver city distributors.[58, 147, 149] The Vancouver street scene has undergone substantial changes in the last four or five years. In the late 1960s the local scene was restricted to the Main and Hastings area (called 'the corner') which was reputed to contain 60 per cent of all Canadian heroin addicts.[122] Other substantial heroin street scenes have since developed in the Granville and Davies area and in the Fourth and Arbutus area. The first two areas are still dominated by traditional heroin addicts, while the third is composed almost exclusively of what the police describe as 'hippie'-type users.[147]

Street pushers ordinarily deal heroin in cafés or other relatively public locations. However, as police pressure on these three street scenes increased, the heroin trade tended to diffuse to small-scale 'house operations' throughout the city. By dealing from private homes street pushers are able to temporarily avoid police surveillance. Police efforts to close these house operations have succeeded in driving some of the trade back to the traditional street corners, but the trend to a diversification of outlets continues. A significant number of former cannabis and hallucinogen distributors now deal in heroin, and access to heroin at the street level is far freer than it was several years ago.[58, 147]

The heroin addict and user population has been increasing throughout British Columbia since the beginning of this decade. British Columbia heroin is generally considered the most potent in Canada and it is readily available in almost all urban centres in the province. Instances of diversion of methadone to illicit street channels have been reduced since the June 1972 federal methadone prescribing regulations.[58]

THE ECONOMICS OF THE DISTRIBUTION SYSTEM

Large-scale heroin importation and distribution is a major economic enterprise requiring substantial capital. The profits at this level of distribution

are enormous, particularly if the operators can avoid prosecution. However, some of the dealers' costs are extremely difficult to account for, such as legal fees, thefts by other criminals, internal thefts by employees, loss through police seizures, and the salaries of specialized employees.[147] One cannot simply view the economics of heroin distribution in terms of a perpetually successful enterprise; there is a very real possibility of spending ten to fifteen years in prison or being murdered by one's associates. Although both upper-level distributors and their entire syndicates have been successfully prosecuted, the Canadian distribution system as a whole has remained intact since 1962. The elimination of individuals and syndicates provides continuous opportunities for upward mobility among aspiring dealers at the middleman level. This situation also attracts established criminals from non-drug fields.

Law enforcement efforts aimed at upper-level distributors are more successful in raising their financial risks than their risks of prosecution. Police pressure causes these key distributors to specialize their operations by adding more independent levels to the distribution chain. The added cost of this increased division of labour is passed on to the ultimate consumer, and the relative effectiveness of enforcement and these distributors' profits remain the same while the costs of law enforcement continue to rise.

As one approaches the middle and lower levels of distribution, the risk of arrest rises sharply and the potential for profit decreases. At the middleman level of distribution the returns are still substantial considering the initial investment. At the street level, however, the profits are small and arrest is virtually inevitable.[147]

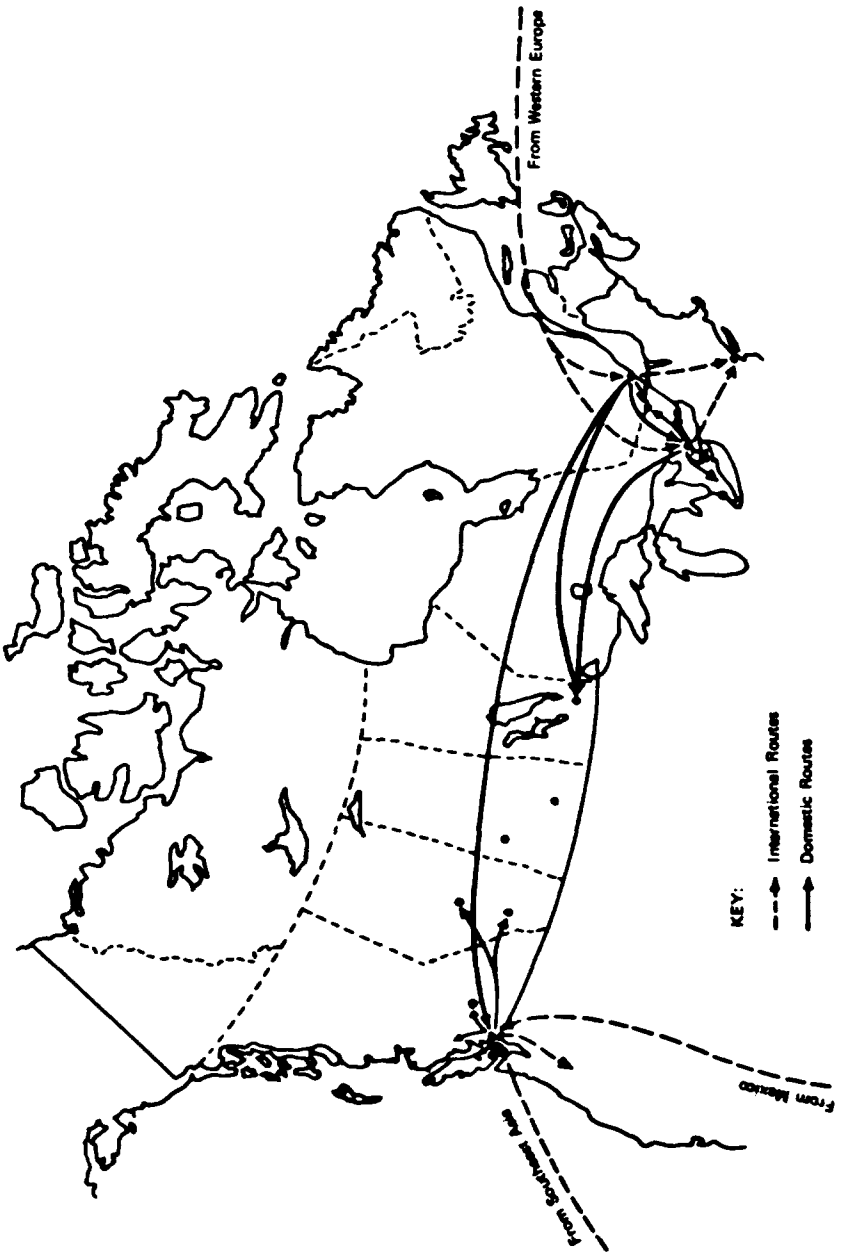
SUMMARY AND CONCLUSION

Once heroin enters Canada the bulk of it is tightly controlled by a small number of importers and city distributor syndicates. Most persons at these levels have extensive criminal records and are known to the police. The organization and management of these syndicates are specifically designed to avoid prosecution as those in control have the financial and criminal contacts necessary to utilize all legal and illegal means of protecting themselves. Even the arrests of major importers or city distributors have only temporary effects on the distribution system; there are more than enough aspiring dealers to take the place of those arrested.

The number of market participants increases dramatically at the middleman level. These levels of distribution have changed substantially in the last five years as the number of outlets and centres of consumption have increased and spread out. In the early 1960s there was no significant heroin trade outside of Montreal, Toronto, Winnipeg and Vancouver. Street distribution in these cities was highly centralized in the downtown areas. In order to obtain heroin, a user would have to go to a specific area to 'score' (purchase) and, in so doing, was likely to come into contact with the police.

FIGURE B.7

MAJOR CANADIAN HEROIN ROUTES



Within the major heroin-using cities the trade has diffused from these traditional dealing areas with the development of a greater number of outlets in various parts of each city. The recent establishment of house operations has further decentralized the trade. This decentralization is in large part an attempt to avoid police pressure at the traditional dealing centres and, to a lesser extent, an effort to service new populations of users. Many of these new users are unknown to the police, their pattern of heroin consumption is often sporadic, and they are not as readily identifiable as are the traditional addicts. These new users have not generally established stable distribution systems of their own, and will not be able to do so until they develop the necessary financial and criminal bases to sustain such operations. It is increasingly difficult for the police to keep up with the rapid development of new sources, outlets, and users. The evolution of small pockets of heroin use in smaller urban centres further complicates law enforcement efforts to curtail heroin distribution.

Present law enforcement efforts have resulted in significant seizures and arrests. The police have been able to keep the price of heroin fairly high and thus somewhat limit its availability. Despite these gains, heroin is more readily available than it was five years ago, and heroin use is increasing. The economics of heroin distribution and the wide range of legal and illegal methods of evading prosecution give the system tremendous flexibility.

B.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

LEGAL SOURCES AND LEGAL DISTRIBUTION

The distribution of amphetamine (including dextroamphetamine), benzphetamine, methamphetamine, phenmetrazine, phendimetrazine, and their salts, is controlled by the *Food and Drugs Act* and the *Food and Drug Regulations*. These drugs are listed in Schedule G of the Act in which they are referred to as "controlled drugs". Prior to 1973, distribution of these amphetamine and amphetamine-like drugs was regulated in the same fashion as the barbiturates (see B.7 *Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics,* "Legal Sources and Legal Distribution", below). However, due to "the over-prescribing of these drugs by some medical practitioners . . . [and] concern about the public health implications of amphetamine abuse", the *Food and Drug Regulations* were recently amended with new and stricter provisions regarding amphetamine, benzphetamine, methamphetamine, phenmetrazine and phendimetrazine coming into effect on January 1, 1973.[6] These drugs are now referred to as "designated drugs" which distinguishes them from the other "controlled drugs" in the Regulations. The amended Regulations restrict the right to "administer" (i.e., prescribe, give, sell, furnish, distribute or deliver) designated drugs to medical practitioners solely for the treatment of narcolepsy, hyperkinetic disorders in children, mental retardation (minimal brain dysfunction), epilepsy, Parkinsonism and hypotensive states

associated with anesthesia. Animals may be treated with these drugs for the depression of cardiac and respiratory centres.

The Minister of National Health and Welfare may, however, authorize a practitioner to administer a designated drug for other purposes if he considers such use to be "in the public interest or the interest of science". The newly restricted conditions for which amphetamines may be prescribed are to be periodically reviewed by "advisory committees" appointed by the medical profession, and may be altered "if the evidence indicates it to be advisable".[4]

In all cases where a medical practitioner administers a designated drug to a patient, he must notify the Department of National Health and Welfare of the name, age, sex and address of the patient, or, where the patient is an animal, the address of the animal's owner, the name, dosage and dose form of the designated drug, the date the drug was first administered and the practitioner's name and address. If it is the practitioner's intention that the "administered" dosage be consumed within a 30-day period, he must send his "notification" to the Department of National Health and Welfare within 33 days of the first administration of the drug. If the drug is intended to be used for therapy exceeding 30 days, the prescribing practitioner must also submit the name and address of another practitioner who has confirmed the diagnosis of the patient's illness, and he is to include the date of this confirmation in his official notification which must be sent to the Minister of National Health and Welfare within ten days of the confirming consultation.

The *Food and Drug Regulations* contain provisions dealing with the labelling of designated drugs and prohibit their manufacture, sale, import and export by anyone other than an authorized licensed dealer. Hospitals are prohibited from dispensing or administering designated drugs without the authorization or prescription of a medical practitioner. Pharmacists may supply these drugs to hospitals and, upon receipt of a written or verified verbal prescription or order, to private persons. Licensed dealers, pharmacists and hospitals must keep records of all Schedule G drug transactions (including designated drugs) for at least two years in a form which can be readily inspected, and must notify the Minister of National Health and Welfare of any thefts or losses of these drugs.

The simple possession of designated drugs is not prohibited by the *Food and Drugs Act*; however, possession for the purpose of trafficking is prohibited by the Act.

Figures regarding the licit manufacture and sale of amphetamines between 1966 and 1972 are presented in Table B.8. There are no parallel figures for phenmetrazine (Preludin®) and phendimetrazine (Dietrol®) as they were not added to Schedule G of the Act until November 1, 1971. Prior to this date, these amphetamine-like drugs were listed in Schedule F of the *Food and Drug Regulations* and, consequently, the official estimated consumption of these specific substances was unavailable as the importation,

manufacture and distribution of Schedule F drugs are not routinely monitored by any governmental control agency.*[31] However, pharmaceutical market survey estimates of phenmetrazine sales between 1966 and 1972 are available, and these data—derived from a stratified random sample of Canadian drug stores, 'discount houses' and hospitals—are presented in Tables B.5 and B.6.

Other amphetamine-like drugs, such as diethylpropion (Tenuate®), pipradrol (Meratran®), and methylphenidate (Ritalin®), are listed in Schedule F of the *Food and Drug Regulations,* and, consequently, official consumption estimates are not available for these substances. Pharmaceutical market survey estimates of methylphenidate sales to drug retailers and hospitals have, however, been provided to the Commission, and these data are presented in Tables B.5 and B.6. The laws regulating the distribution of these drugs are the same as those which govern the minor tranquilizers and non-barbiturate sedative-hypnotics (see B.7 *Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics,* "Legal Sources and Legal Distribution", below). The simple possession of these amphetamine-like drugs is not prohibited by the *Food and Drugs Act* or its *Regulations,* but they may only be sold to the general public on a doctor's prescription.

TABLE B.5

ESTIMATED LICIT SALES OF PHENMETRAZINE AND METHYLPHENIDATE TO DRUG STORES AND HOSPITALS, IN KILOGRAMS, FOR THE YEARS 1966 THROUGH 1972*

Year	Phenmetrazine	Methylphenidate
1966	585.0	51.0
1967	582.5	58.0
1968	545.0	71.0
1969	617.5	104.0
1970	552.5	94.0
1971	512.5	122.0
1972	302.5	123.0

* Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics. As 'discount houses' were not surveyed prior to 1971, the 1966 to 1970 data are thought to underproject sales of these drugs by approximately eight per cent.

Apart from phendimetrazine, all of the amphetamine and amphetamine-like drugs legally marketed in Canada are imported into this country in bulk or 'finished' form and then further processed and packaged for domestic distribution.

* The Bureau of Dangerous Drugs' figures for 1972 show an estimated consumption of 30.2 kilograms of phenmetrazine and 3,332.3 kilograms of phendimetrazine.[32]

TABLE B.6

ESTIMATED LICIT SALES OF PHENMETRAZINE AND METHYLPHENIDATE, BY DOSAGE UNITS, FOR THE YEARS 1966 THROUGH 1972*

(in millions of capsules or tablets)

Year	Phenmetrazine			Methylphenidate	
	25 mg.	50 mg.	75 mg.	10 mg.	20 mg.
1966	12.1	1.0	3.1	4.5	.3
1967	10.9	1.4	3.2	5.0	.4
1968	9.8	1.2	3.2	5.3	.9
1969	11.0	1.3	3.7	6.4	2.0
1970	10.6	1.1	3.1	7.8	.8
1971	8.3	1.3	3.2	10.4	.9
1972	4.2	.8	2.1	9.9	1.2

* Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics As 'discount houses' were not surveyed prior to 1971, the 1966 to 1970 data are thought to underproject sales of these drugs by approximately eight per cent.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

While 'speed freaks' have their own sources of illicitly manufactured stimulants (see "Illegal Sources and Illegal Distribution" below), the majority of the amphetamine and amphetamine-like drugs used non-medically or without benefit of prescription in Canada are legally manufactured by authorized pharmaceutical companies. Despite these companies' exercise of stringent precautionary measures, diversion of these substances to illicit channels of distribution still occurs. The extent of this diversion, however, is difficult to estimate. In the United States it has been calculated that between 8 and 12 billion amphetamine doses were manufactured annually during the 1960s,[16, 42, 46, 50] and that between 30 and 50 per cent of this production was diverted to the illicit amphetamine market.[25, 42] These total production figures represented sufficient amphetamine to provide every American with between 35 and 60 five-milligram doses every year, and led the United States House of Representatives Select Committee on Crime to note that "... the largest single source of speed [amphetamine] is the overproduction by legal manufacturers."*[50]

The over-supply of amphetamines does not appear to be as critical in Canada as in the United States. In fact, the per capita consumption of licitly manufactured amphetamines (as based on actual sales to retailers and

* In response to such investigations, the United States Bureau of Narcotics and Dangerous Drugs established an American 1972 amphetamine production quota at approximately 80 per cent below the 1971 production level.[5, 42, 46]

hospitals) has declined by approximately 74 per cent between 1966 and 1972. Table B.7 illustrates the approximate per capita consumption of amphetamine drugs in Canada over this seven-year period for persons fifteen years of age and over.*

This decreased production of legitimate amphetamines has probably resulted in fewer opportunities for illicit diversion, but there is still a signifi-

TABLE B.7

PER CAPITA CONSUMPTION OF AMPHETAMINES BETWEEN 1966 AND 1972

Year	—	Total
1966	Population (15 & over, in thousands)	13,423
	Consumption (kilograms)†	412.9
	Per capita consumption (mgs.)	30.8
1967	Population (15 & over, in thousands)	13,812
	Consumption (kilograms)†	378.9
	Per capita consumption (mgs.)	27.4
1968	Population (15 & over, in thousands)	14,179
	Consumption (kilograms)†	303.1
	Per capita consumption (mgs.)	21.4
1969	Population (15 & over, in thousands)	14,461
	Consumption (kilograms)†	270.0
	Per capita consumption (mgs.)	18.7
1970	Population (15 & over, in thousands)	14,814
	Consumption (kilograms)†	260.0
	Per capita consumption (mgs.)	17.6
1971	Population (15 & over, in thousands)	15,159
	Consumption (kilograms)†	208.0
	Per capita consumption (mgs.)	13.7
1972	Population (15 & over, in thousands)	15,508
	Consumption (kilograms)†	125.0*
	Per capita consumption (mgs.)	8.1

* Preliminary estimate only; actual sales for first nine months of 1972 were 95.1 kilograms.

† Actual sales to retailers and hospitals as reported by the Pharmaceutical Manufacturers Association of Canada.

cant difference (as illustrated in Table B.8) between the amount of amphetamine available for medical use and the amount actually sold in Canada for the years 1966 through 1972. In this seven-year period nearly twice as much amphetamine was manufactured in Canada for domestic medical use (3,495.9 kilograms) as was actually sold to hospitals and retailers (1,958.0 kilograms). The cumulative difference between these figures (1,537.9 kilo-

* The relatively small amount of amphetamine annually prescribed to hyperkinetic children has not been separated out of Table B.7. For conversion purposes, a usual single dose of amphetamine (including dextroamphetamine) is 10 milligrams, while the usual single dose of methamphetamine (which accounts for about one-sixth of legal Canadian amphetamines consumption) is five milligrams.

TABLE B.8

LICIT MANUFACTURE AND SALES OF AMPHETAMINES AND THE DIFFERENCES BETWEEN THEM, IN KILOGRAMS, FOR THE YEARS 1966 THROUGH 1972

Year	Imports*	Exports*	Conversion‡*	Minimum Available for Medical Use†	Actual Sales§	Differences‖
1966	1,062.8	25.1	—	1,037.7	412.9	624.8
1967	771.1	10.8	65.0	695.3	378.9	316.4
1968	585.6	30.0	65.0	490.6	303.2	187.4
1969	810.3	21.0	165.0	624.4	270.0	354.4
1970	591.9	32.5	250.0	309.3	260.0	49.3
1971	801.9	5.1	500.0	296.9	208.0	88.9
1972	74.3	32.6	—	41.7	125.0#	−83.3**
Totals	4,697.9	157.1	1,045.0	3,495.9	1,958.0	1,537.9

* Bureau of Dangerous Drugs figures.

† 'Imports' minus 'exports' and 'conversion'; does not include inventory prior to 1966.

‡ 'Conversion' to AN-1 (Aponeuron), a central nervous system stimulant, which is then legally exported to West Germany.

§ 'Actual sales' to retailers and hospitals. Figures courtesy of the Pharmaceutical Manufacturers Association of Canada.

‖ 'Differences' between the amount of amphetamine 'available for medical use' and the 'actual sales' of these drugs.

Preliminary estimate only; actual sales for first nine months of 1972 were 95.1 kilograms.

**Sales of pre-1972 manufacturers' inventories account for 'actual sales' being higher than the 'minimum available for medical use' in 1972.

grams) represents, according to the Pharmaceutical Manufacturers Association of Canada, "... imported amphetamine substances which are in the various levels or stages of inventory".[19] Their very existence, however, provides the opportunities for illicit diversion at various manufacturing, refining, storage and transfer stages.

In the recent past, the amphetamine-like drugs—particularly Preludin® (phenmetrazine) and Ritalin® (methylphenidate)—were more widely available in some Canadian illicit drug markets than any of the pharmaceutical amphetamine preparations. Phenmetrazine was not transferred from Schedule F of the *Food and Drug Regulations* to Schedule G of the *Food and Drugs Act* until November 1, 1971. Consequently, phenmetrazine loss and theft data prior to this date are unobtainable as losses and thefts of Schedule F drugs are not routinely monitored. However, growing medical concern about the use of amphetamines and the easy street availability of Preludin® and Ritalin® suggested increased diversion of these substances. Importation, sales, thefts and losses of methylphenidate remain officially unmonitored, and adequate phenmetrazine-related statistics have not yet been compiled.*

In the United States, legally manufactured amphetamine and amphetamine-like drugs have been diverted to illicit channels of distribution through the smuggling of legally exported stimulants back into the United States (chiefly from Mexico), the ordering of drugs from mail-order drug wholesalers that do not verify their customers' credentials, and occasional instances of physicians trafficking in large quantities of amphetamines without prescriptions.[9, 15, 24, 33, 34, 41, 50, 52] Cases of American physicians having operated "anti-obesity clinics" from which they routinely distributed amphetamines, without examinations or follow-up observations, have also been noted.[25, 44]

Diversion on the scale recorded in the United States has not been documented in Canada, although several very large seizures of legally produced stimulants (one involving 54,000 Preludins®[38] and a second involving 12,200 Dexedrine® tablets[1]) have been reported within the past two years. Besides this diversion (the sources for which remain unknown), amphetamine and amphetamine-like drugs have been obtained through careless or excessive prescribing on the part of some physicians, visits to several doctors, the refilling of unauthorized prescriptions, the forging or altering of prescription forms, and relatively small thefts from doctors' and pharmacists' offices.† [7, 18] Depending on the initial size of the illicit supply, these drugs are subdivided for wholesale and retail sales, eventually reaching the street at between ten and fifty cents a pill. Most of those amphetamine and amphetamine-like drugs obtained through fraudulent prescriptions, however, are either used by the person who procured them or freely given away to friends.

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* Reported thefts of phenmetrazine totalled 145 grams for the first six months of 1972.[39]

† Thefts of legally manufactured amphetamines rose through the 1960s but declined slightly in 1971. According to the Bureau of Dangerous Drugs, 61 grams were reported stolen in 1966, 153 grams in 1967, 295 grams in 1968, 310 grams in 1969, 582 grams in 1970, and 424 grams in 1971.[27, 29, 30] The accumulated reported thefts for this six-year period is equivalent to almost 200,000 ten-milligram doses of amphetamine.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

Several seizures of counterfeit amphetamine pills and ampule-filling machinery have been documented in the United States.[17, 46] However, most American illicitly manufactured amphetamine—and apparently all of that prepared in Canada—is available solely in a powdered form intended for the 'speed' market. The drug of choice is methamphetamine,* and the illegal laboratories which produce this substance are ordinarily located in the vicinity of a large speed-using clientele. Thus, 12 of 21 illicit methamphetamine laboratories seized by agents of the United States Bureau of Narcotics and Dangerous Drugs between 1966 and 1969 were in the State of California, serving the Haight-Ashbury speed scene.[17] Similarly, Canadian 'meth' laboratories are thought to operate primarily in the Toronto area.

A speed laboratory requires a skilled (although not necessarily professional) chemist, a dependable source for the chemical precursors of methamphetamine, the requisite equipment to manufacture the drug, a relatively secure location and a modest capital outlay. The relative ease with which methamphetamine can be produced has led to the emergence of laboratories at various levels of sophistication. According to Roger Smith:

> A speed laboratory may range from a well organized, highly efficient operation, capable of producing five to twenty-five pounds of speed per week consistently, to a kitchen or bathroom in a small apartment, producing less than an ounce a week, to a college chemistry laboratory where a student produces speed only occasionally, when he needs money or feels the chances of detection are slight.[46]

The smaller laboratories may only involve one or two persons who produce methamphetamine (at a cost of about $200 a pound) and sell it themselves in ounces to lower-level dealers. In the larger operations, however, the methamphetamine will only cost around $30 to $50 a pound to manufacture and will be sold in multi-pound lots. The chemist (who is usually hired by those sponsoring the venture) will probably have little or nothing to do with the selling of the drug.

In 1970, primary distributors were likely to pay between $500 and $600 a pound for large speed shipments or between $700 and $1,000 for individual pounds.† Some of these purchases entered the local market and others were

* Over 97 per cent of the seized amphetamine material destroyed by the Bureau of Dangerous Drugs during 1971 was methamphetamine.[46] Seizures of all amphetamines have risen dramatically since the mid-sixties. According to the Bureau of Dangerous Drugs, 14,522 seized grams were officially destroyed between January 1966 and July 1972.[46] The accumulated seizures for this six- and one half-year period is equivalent to nearly 3,000,000 five-milligram doses of methamphetamine. Furthermore, 3,200 grams of seized phenmetrazine (an amphetamine-like drug) were destroyed between January and July of 1972, and an additional 70 pounds (approximately 32,000 grams) of this drug were reported seized during one police operation in Toronto in January 1973.[18] This single Toronto seizure is equivalent to more than one-third of all the phenmetrazine legally imported into Canada for domestic processing and distribution during the previous year. The usual single dose of phenmetrazine is 25 milligrams (i.e., one-fortieth of a gram).

† Illicit methamphetamine prices have risen dramatically over the past few years and are presently between 50 and 100 per cent higher than those quoted in this section.

transported (often by motorcycle gang members, many of whom are heavily involved in speed dealing) to secondary speed centres that were not serviced by their own laboratories. Much of the speed in Montreal, for example, came from Toronto or a few cities in the north eastern United States, and some of this speed was then carried to Quebec City and Halifax. The methamphetamine was then subdivided from pounds into quarter-pounds which, depending on the demand, the quality of the speed, and the distance from its manufacturing source, sold for between $250 and $400 each. True ounces were then sold for between $120 and $150 to lower-level dealers (usually speed users themselves) who diluted the drug with a variety of substances (such as dextrose or monosodium glutamate) and sold 'half-ounces' to street dealers for between $75 and $85 and 'quarter-ounces' for approximately $40 or $45. The street dealers (who are all 'speeders') diluted the speed further and then sold it in 'grams' or 'spoons' ($10 to $25), 'half-grams' ($5 to $15) and 'hits' (one, two or three dollars) to members of the using community.* Street dealers rarely realize their potential profit as they personally consume much of their dealing supply and, consequently, are considered fortunate to return their initial investment. As Smith has noted, "as in almost all illicit marketplaces, it is the top level personnel who realize substantial profits with minimal risks, and the individuals enmeshed in the deviant culture who assume the most immediate risks with little compensation."[48]

Credit arrangements exist at the top levels of the methamphetamine distribution system, but, at the lower levels, a down payment is a necessary prerequisite for credit advancement—and even then it is only extended to those few persons considered trustworthy. There is no credit in time of speed famines and cash is always demanded if the quantity sold is under one-quarter ounce. Small amounts of speed, however, may be purchased with valuable—and usually stolen—articles that are easily resalable.

Some speed distribution networks are highly organized enterprises with a stratified dealing structure, territorial rights and hired debt collectors.† However, these networks are usually relatively unstable below the quarter-ounce distribution level and street dealers are continually being replaced or are involved in the dissolution or re-establishment of dealing partnerships.

It is difficult to estimate the amount of speed consumed in Canada, but a minimum of between ten and twenty pounds a week does not appear unreasonable. If divided into 'grams' for street sales, this quantity of methamphetamine could gross between $2.5 and $5 million annually, with at least one-tenth of this amount reverting to the original manufacturers-distributors of the drug. However, personal consumption at various lower distribution levels is so great that it is unlikely that more than one or two million dollars changes hands in the speed marketplace every year. Compared to the

* Quantities of speed weighing less than half an ounce are usually measured by eye with no recourse to scales, spoons or other standardized measuring devices.

† The use of physical force in the collection of debts contributes further violence to a scene that is already characterized by the casual possession and occasional use of firearms, and frequent 'rip-offs' (thefts) and 'burns' (fraudulent sales).

extremely large amounts of money ultimately exchanged for drugs in the cannabis and heroin scenes, the speed market remains a relatively insignificant illicit financial institution maintained by physical need at the bottom and more mercenary considerations at the top.

B.4 COCAINE

LEGAL SOURCES AND LEGAL DISTRIBUTION

Controls on the possession and distribution of cocaine are specified in the *Narcotic Control Act* and the *Narcotic Control Regulations*. The Regulations state that only a duly authorized "licensed dealer" may "manufacture, import or export, sell, give, transport, send, deliver or distribute a narcotic", including cocaine. Medical practitioners may only administer, prescribe, give, sell, or furnish cocaine to patients who are under their professional care and who require this drug for the condition for which they are receiving treatment. Hospitals are prohibited from dispensing or administering cocaine without the written order or prescription of a medical practitioner. Pharmacists may supply cocaine to hospitals and, upon receipt of written or verified verbal prescriptions, to private persons.

Penalties with regard to the unauthorized sale or possession of narcotic drugs, including cocaine, are specified in the *Narcotic Control Act*. Cocaine stocks and records of all transactions of licensed dealers, doctors, hospitals and pharmacists must be open to Department of National Health and Welfare inspection according to the *Narcotic Control Regulations*. All thefts from the above parties must be reported to the Minister of National Health and Welfare.

During the years 1961 to 1971 the estimated annual medical consumption of cocaine fluctuated between a high of 32.627 kilograms in 1965 and a low of 25.715 kilograms in 1970.[3]

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Although only relatively small amounts of cocaine are legally used in Canada, there are still thefts of this drug nearly every year. According to the Bureau of Dangerous Drugs, in 1968 and 1969 five and six ounces of cocaine, respectively, were stolen in Canada.[12, 14] In 1970 nearly 15 ounces were stolen and, in 1971, thefts of cocaine rose to approximately 23 ounces. This latter figure represents about one-fortieth of all the cocaine legally used in Canada in 1971.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

Illegal Sources and Production

The primary source for illicit cocaine reaching Canada is South America, particularly Bolivia, Peru, Chile, Colombia and Ecuador.[27] Since 100 kilo-

grams (220 pounds) of coca leaves yield only about one kilogram (2.2 pounds) of refined cocaine,[7, 29] the extraction process (which takes from three to four weeks) is conducted as close to the growing areas as possible in order to reduce the weight of smuggled goods.[27] If it is too difficult to complete the extraction process in these remote areas, the leaves are macerated with lime (yielding a pulp or paste which is still lighter than the leaves) and then carried further down the mountain where the extraction is completed.[8] The drug may cross various borders as raw leaves, paste, or as refined cocaine hydrochloride powder.[29]

Routes and Organization Within South America

Much of the coca leaf and cocaine produced in South America is transported through that continent to serve indigenous users (see Figure B.8).* Bolivian coca products are often smuggled into Brazil, Paraguay and north western Argentina (where a large number of Bolivian coca leaf chewers live and work), or along river routes through these countries to Uruguay. Cocaine reaching Brazilian, Argentinian and Uruguayan ports may then be smuggled into North America and Europe.[29] Some Bolivian leaves and paste are also transported into northern Chile for final processing and eventual export or shipment to southern distribution centres.[27, 29]

Illegal cocaine laboratories have also been found in Peru, Colombia and Ecuador.[27] From southern Peru the refined cocaine may be smuggled to Brazil, Bolivia or northwards through Colombia. This cocaine may then be shipped to North American and European markets. The Peruvian paste (as opposed to refined cocaine) may be transported northwards to Ecuador for final refinement and then to Colombia and Venezuela for domestic consumption and international shipment. Some Peruvian cocaine is shipped directly from northern Peru to Panama and North America.[29]

The numerous illegal cocaine laboratories in Peru, Bolivia, Chile, Ecuador and Colombia are independent enterprises which do not restrict their sales to individual syndicates.[27] The market is generally not well organized or tightly controlled and cocaine buyers need not establish criminal credentials before purchasing the drug.[1]

Routes and Organization Outside South America

Before the Cuban revolution Havana was a major trans-shipment point for Bolivian and Peruvian cocaine, as well as European heroin.[8] The situation has since changed and cocaine is now more likely to be transported by hired

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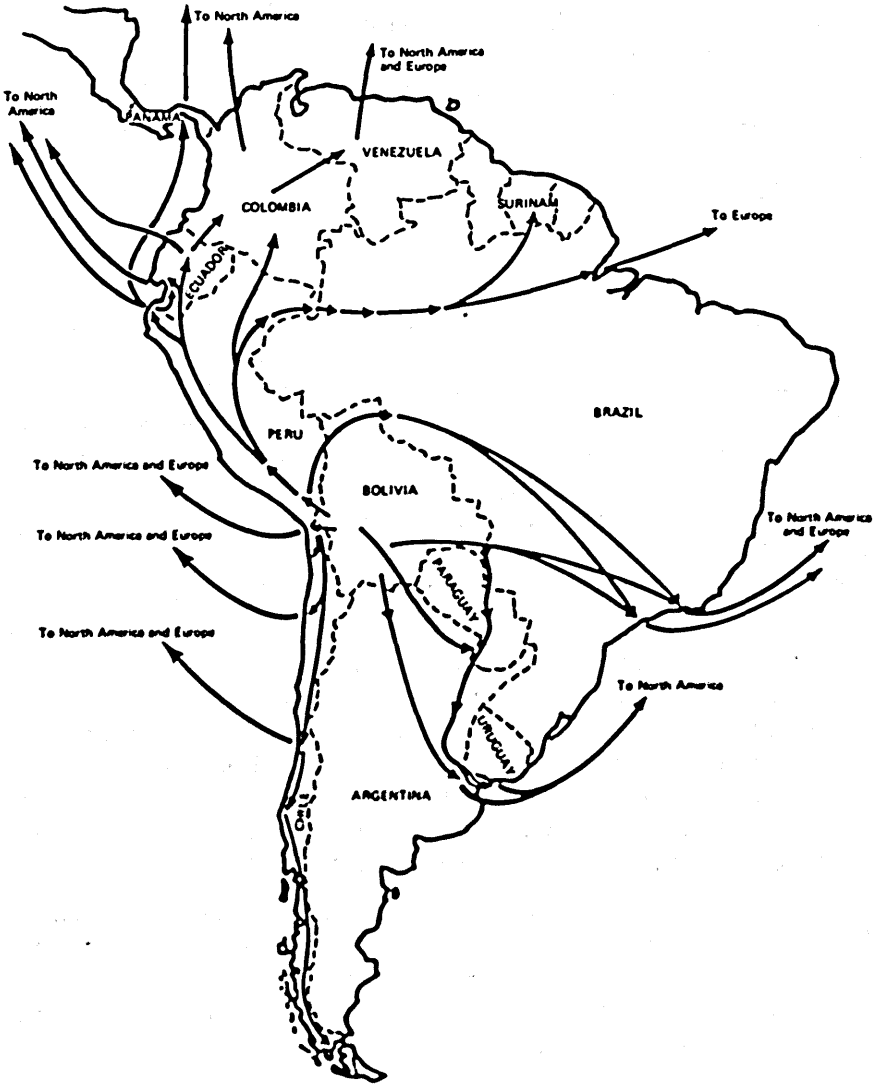
* In the major producing countries of Bolivia and Peru (where coca plant cultivation is legal), production of coca leaf is officially estimated at 13,000 tons per year. International medical, scientific and industrial (soft drink flavouring) needs are estimated to be 300 tons of coca leaf (i.e., about three tons of cocaine) per year. "Consequently", according to the United Nations Commission on Narcotic Drugs, "at least 97 per cent of the world production serves no useful purpose".[28]

FIGURE B.8

SOUTH AMERICAN COCAINE ROUTES



seamen and diplomats (acting as couriers) or private entrepreneurs. The United States Bureau of Narcotics and Dangerous Drugs claims that their,

> . . . investigation of Chilean traffickers has revealed the existance [*sic*] of a well organized, highly sophisticated international narcotics smuggling organization. . . which is responsible for smuggling vast amounts of French heroin and Chilean cocaine to United States recipients.[88]

Organizations such as this recruit seamen couriers to transport the cocaine to various United States port cities (particularly east-coast cities such as Miami, Savannah, Norfolk, Baltimore, Philadelphia and New York), or hire individual couriers (such as diplomats or pilots) to carry the cocaine into

European, Canadian, Mexican and American ports of entry via commercial airlines. According to the American Bureau of Narcotics and Dangerous Drugs, these couriers are usually paid $1,500 per kilogram for United States deliveries and $500 for each kilogram of cocaine delivered to Canadian and Mexican cities. In the latter case, additional couriers are then hired to cross the Canadian-American or Mexican-American borders.[28] Several air freight lines have also been utilized to smuggle cocaine into the United States via Panama to Miami, the major port of entry.[28]

Although the United States probably represents the largest single cocaine market outside of South America, there is considerable traffic in the drug in Mexico,[8] parts of Europe[20] and the Middle East.[8, 18] Police seizures of cocaine in India, Poland and New Zealand in 1969 indicate the international nature of such distribution.[26] The Canadian market is relatively small, although the demand for cocaine is certainly increasing among youthful multi-drug users. According to Commission sponsored field investigations, most of the cocaine available in Canada is purchased by individual entrepreneurs in large American cities or is imported, in small amounts, from Peru, Bolivia, Ecuador or Chile.[8, 19] Although these persons may establish United States or South American dealing contacts which are utilized on several occasions, they do not represent permanent and well organized criminal syndicates of the type which characterize the heroin trade and much of American cocaine trafficking.

Seizures

While police seizures, at best, only account for between five and ten per cent of the amount of illicit drugs actually distributed,[25] they still serve as a useful index of changes in trafficking patterns. Statistics on seizures in the United States since 1966 indicate the recent and growing popularity of cocaine in North America (see Table B.9). From these figures (which represent only federal Bureau of Narcotics, and Dangerous Drugs seizures) it appears as though cocaine distribution is accelerating in a fashion similar to that experienced by cannabis a few years ago. According to the R.C.M. Police, Canadian cocaine seizures have risen consistently from an "unappreciable quantity" in fiscal year 1969/70 to 2.65 pounds in 1971/72.[22] Total Canadian distribution, however, is unlikely to exceed 150 kilograms a year, while the B.N.D.D. has estimated that twice this amount may be smuggled into the United States every month.[1, 28]

Prices and Distribution

While the American cocaine market appears to be ultimately controlled by organized criminal syndicates, there is presently no evidence of such systematized and monolithic control in Canada. Cocaine is increasingly available in Canada's larger urban centres (particularly Montreal, Ottawa, Toronto, Winnipeg and Vancouver), but it is unlikely that a single importa-

TABLE B.9

POUNDS OF COCAINE SEIZED IN THE UNITED STATES FOR 1966–1971

Year	Pounds Seized
1966	19
1967	26
1968	63
1969	52
1970	354
1971	436

Source: Kurke, M. I. (Chief, Information Development and Analysis Division, United States Bureau of Narcotics and Dangerous Drugs, Washington, D.C.) Letter to the Commission, October 16, 1972.

tion exceeds five kilograms and the largest Canadian sales are usually fractions of a pound.

Canadian cocaine importers are generally young adults who have had extensive experience in dealing (and occasionally importing) drugs such as marijuana, hashish, hallucinogens and, very rarely, opium. These persons, either individually or in small groups, travel to the cocaine growing or refining countries in South America where they arrange to purchase 'pure' cocaine for between $1,000 and $3,000 a kilogram. (In the larger South American cities, a kilogram of cocaine may cost as much as $5,000 if the middlemen cannot be bypassed.) Transportation, hotels and incidental expenses may add as much as $3,000 to each of these buying expeditions.

The cocaine is then smuggled into Canada, usually by commercial plane or air freight, through various resourceful methods. Additionally, small shipments of cocaine are occasionally mailed to Canada from South America or, if possible, a less conspicuous posting location. The powdery composition of the drug and its very high per-weight value make small quantities of cocaine easy to hide and, consequently, difficult for customs officials to detect. Despite the increased smuggling of this drug, a large importation seizure has yet to occur in Canada.

Upon arrival at its Canadian destination the pure cocaine is divided among those who subsidized the purchase. Some of this pure cocaine is occasionally distributed to other dealers (some of whom may operate in other cities) for between $12,000 and $14,000 a pound, but most of it remains with the importers who initially dilute the drug with lactose or dextrose by 50 to 100 per cent and sell it in ounces to local sub-dealers.

In American cities the distribution network is somewhat different as importing syndicates sell pure kilograms to large distributors who, in turn, sell diluted pounds, or parts thereof, to dealers lower in the cocaine distribu-

tion hierarchy. The United States prices are also lower than those in Canada, perhaps reflecting the greater availability of the drug. As reported by Woodley,

> In the illegal drug business, cocaine is sold cut [diluted] in $10 or $20 capsules...; teaspoons [between $65 and $75] and tablespoons [$150]...; "pieces", which are four tablespoons, or about an ounce [$550]; parts of "keys" (kilograms, 2.2 pounds) from eighths, quarters [about $4,500], halves, all the way to whole keys of pure cocaine, which cost, in New York anywhere from $14,000 to $20,000.[85]

In contrast, Montreal and Toronto cocaine distributors ordinarily sell approximately 50 per cent pure cocaine for around $750 an ounce (pure ounces, which are very rarely available, command at least $1,000 each), while similarly diluted half- and quarter-ounces are sold for between $400 and $500 and $200 and $300, respectively. The purchaser of these 'weights' is likely to further dilute the drug and sell it in grams (for between $40 and $60 each, depending on its purity and the number of grams bought simultaneously) or half-grams (at between $25 and $35 each). If cocaine were commercially available from a pharmacist, his normal mark-up would indicate a retail price of no more than $50 an ounce.

The relatively unorganized nature of the Canadian cocaine distribution system is reflected in the irregular availability of the drug and the lack of price, purity and quantity standardization even within the same city. As the cocaine-using population (almost all of whom occasionally 'snort' rather than inject the drug) continues to expand, the market is likely to be serviced by better organized and more experienced drug distributors who recognize the significant profits to be made from such ventures. At this time, however, the cocaine market more closely approximates the Canadian marijuana market of the early 1960s than the heroin distribution network which cocaine is erroneously but often considered a part of.

B.5 HALLUCINOGENS

LEGAL SOURCES AND LEGAL DISTRIBUTION

The laws controlling the distribution and possession of hallucinogens are contained in Part IV of the *Food and Drugs Act* and Part J of the *Food and Drug Regulations*. Hallucinogens are referred to as "restricted drugs" in both the Act and its Regulations. These legislative measures came into effect in August 1969. At that time it became illegal for unauthorized persons to possess, sell, manufacture, export or import LSD, DET, DMT and STP (DOM).* MDA, MMDA and LBJ were added to the Schedule of restricted drugs in December 1969, and in May 1970 a number of dimethoxyampheta-

* The unauthorized sale of LSD was originally prohibited in 1962, but comprehensive hallucinogen control measures (including a possessional offence) were not enacted until August 1969.

mines were also added. Harmaline and harmalol, the most recent additions, were included in this Schedule in November 1971. All restricted drugs are presently listed in Schedule H of the *Food and Drugs Act.*

This Act and its Regulations limit the possession of restricted drugs to institutions and persons authorized by the Minister of National Health and Welfare. Federal analysts and inspectors, police and court officers, and staff members of the Department of National Health and Welfare may also possess these restricted drugs if such possession is "for the purpose and in connection with" their employment. Persons or institutions authorized by the Minister to possess or distribute these substances must keep a record of their stocks and transactions for Department of National Health and Welfare inspection, and must notify the Minister of National Health and Welfare and local law enforcement authorities of "any loss or theft of a restricted drug".

At the present time a government official within the Health Protection Branch of the Department of National Health and Welfare has been designated as the only "licensed dealer" of restricted drugs in Canada.[11] Qualified investigators wishing to conduct research with these drugs must apply for their purchase through an institution (including universities, hospitals, and departments or agencies of the federal or provincial governments) to this "licensed dealer" who must receive ministerial approval before he distributes restricted drugs.

Current research involving restricted drugs is focussed primarily on animal studies and investigations into improved analytical methodology.[11] Requests for the use of restricted drugs in clinical studies (involving human subjects) have not been approved in Canada since 1969.

Several varieties of organic hallucinogens (including nutmeg, morning glory seeds, woodrose, amanita muscaria ['magic mushroom'] and psilocybin) are not included in either Schedule H (restricted drugs) or G (controlled drugs) of the *Food and Drugs Act,* in Schedule F of the *Food and Drug Regulations* or in the Schedule of the *Narcotic Control Act.* Consequently, the importation, possession and sale of these substances are not prohibited. However, these drugs are rarely available in the Canadian drug market and are generally used, if at all, for non-psychotropic purposes. Mescaline is controlled under Schedule F of the *Food and Drug Regulations* and may be legally purchased only on the written or oral prescription of a licensed medical practitioner. However, even if an individual possessed such a prescription, it would, at present, be impossible to have it filled at any pharmacy as commercial pharmaceutical mescaline is not available in Canada. All legally distributed supplies of mescaline have been used exclusively for research or experimental medical purposes.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Except for a very few authorized experimental programs, there have been no legal sources for and no legal distribution of the more popular hallu-

cinogenic drugs in Canada since August 1969. Some hallucinogenic drugs, however, are available as legally manufactured prescription veterinary substances, and there is reason to believe that one of these, PCP, may have been occasionally diverted to the underground market where it has been packaged and sold as the 'peace pill', as 'THC', and as mescaline. This drug first became popular among Canadian hallucinogen users during 1970 and 1971, and recent street-drug analyses and police seizures indicate that PCP is still readily available in the illicit market.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

All of the major hallucinogens in the illicit drug market (such as LSD, PCP and MDA) are either illegally produced in Canada or are smuggled into this country, primarily from the United States. The North American underground distribution of LSD (or 'acid'), the most popular and widely discussed hallucinogen, was not publicly noticed until 1962 when an "... illicit trade in the 25 mcg. tablets, 100 mcg. ampules, and in sugar cubes staturated [*sic*] with 100 mcg. of the agent..." was first reported on the American west coast.[4] Sandoz Pharmaceuticals, the only legal distributor of LSD, withdrew the drug from the clinical research market in early 1966 as a result of ". . . unforseeable public reaction. . .".[30] Sale of lysergic acid (an essential chemical precursor for LSD manufacture) to unauthorized customers was prohibited by the United States Food and Drug Administration around the same time, and all LSD distributed to authorized researchers was recalled. But, as Geller and Boas have noted, "... prior to 1966 one could still legally purchase lysergic acid from . . . [chemical suppliers] . . . for approximately fifty to seventy-five dollars a gram and a good many people were doing exactly that."[9] When LSD itself was made illegal,* the more determined manufacturers (now armed with the chemical know-how and several years of laboratory experience) simply moved their operations underground, obtained their chemical precursors from illicit sources, and continued to produce LSD while experimentally developing newer hallucinogens such as STP (which first appeared in California in mid-1967)[22, 23] and MDA (which gained widespread popularity in Canadian multi-drug scenes by the summer of 1969). LSD, however, remains the principal drug in the hallucinogen market and will be considered prototypical in the following discussion.†

LSD is manufactured in underground laboratories (called 'factories' or 'kitchens') in or close to cities in which there are large concentrations of

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* The illicit manufacture and sale of LSD were prohibited in the United States, as misdemeanours, under the federal Drug Abuse Control Amendments of 1965, which came into effect in April 1966. Illicit manufacture and sale were rescheduled as felonies in 1968 and a federal possessional offence was introduced at the same time. More importantly for illicit manufacturers at that time, the California legislature outlawed the possession and sale of LSD in the fall of 1966.[6, 16, 27]

† Small amounts of organic hallucinogens, such as mescaline, peyote and psilocybin, are reputed to occasionally enter the Canadian drug market. These supplies, however, are highly irregular and not associated with any major distribution network.

users.* While some laboratories are thought to exist in Toronto, Montreal and British Columbia, most of the LSD in Canada is illegally imported from American sources, chiefly in California. While it is generally conceded that LSD use has become less noticeable over the past few years, the United States Bureau of Narcotics and Dangerous Drugs noted that the drug was still being manufactured by perhaps as many as 100 clandestine laboratories across the United States in late 1971.[29]

The actual production of LSD requires a substantial financial outlay, access to illegal chemical precursors, and considerable chemical skill. Construction of an LSD laboratory necessitates a minimal expenditure of around $10,000 for basic equipment and chemical ingredients.[2, 14] According to Warner:

> The materials come from chemical and laboratory supply houses located in most of the major metropolitan areas. . . . The laboratory equipment is available to anyone able to pay the catalog prices. With the exception of lysergic acid, which is a controlled item, the precursors or chemicals necessary to make most of the popular hallucinogenic drugs can be purchased from these supply houses.[86]

The major difficulty encountered by LSD manufacturers is obtaining the essential chemical precursor: lysergic acid. This chemical is ordinarily secured through the chemical hydrolysis of ergotamine tartrate. While ergotamine tartrate can be obtained for authorized purposes from American chemical supply houses, it is usually purchased on the black market for between $15,000 and $20,000 a kilogram (2.2 pounds) or is smuggled into North America from Poland or Czechoslovakia where it is more readily available for about one-half of the American cost. One hundred grams of ergotamine tartrate is said to yield approximately nine grams of lysergic acid which, when subject to further chemical procedures, actually yields about five grams of LSD.†[15] These five grams of LSD, however, represent between 10,000 and 50,000 single-dosage units of the drug, depending on how it is subdivided for retail sale.

Large-scale LSD manufacturing is ordinarily sponsored by one or two major investors who are usually in their early twenties to early thirties and have the contacts and capital to initiate such a venture. Carey, in describing these individuals at the top of the LSD distribution hierarchy, has noted that:

> Minus the cost of lysergic acid and laboratory costs, the Mr. Big should take but two to three months to clear his major expenses for the year, and then

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* Nearly 50 per cent of the 72 illicit hallucinogen laboratories seized by agents of the United States Bureau of Narcotics and Dangerous Drugs between 1966 and 1969 were located in three states: California, Massachussetts and New York.[15]

† Some underground chemical manuals promise a yield of at least four times this high, or more than 20 grams of LSD from 100 grams of ergotamine tartrate.[82] Some San Francisco area underground chemists claim an LSD yield of as high as 33 per cent.[86]

his overhead is merely precautionary. The Mr. Big obviously needs but one motivation—*money*. Obviously, he must operate as a criminal, hiding his raw materials, his finished product, his laboratory, and even his chemist.*‡

In 1968 the major California 'chemists' are each said to have been manufacturing sufficient LSD to produce between 10,000 and 20,000 individual doses a month. These chemists' skills are highly valued (each earns between $1,000 and $2,000 a month) and, consequently, they are unlikely to be involved in the actual distribution of the drug.[2] Rather, the chemist will deliver the LSD in a crystalline or 'liquid' (in solution) form to the major investor and he, in turn, will sell grams or half-grams of the drug to other large-scale dealers or convert the drug to single-dosage units for sale in thousand-dose lots. Grams of LSD have sold for up to $4,000 each, but a steady deflation of the market since 1968 has lowered their price to between $500 and $600 apiece in California and between $750 and $1,200 apiece throughout most of Canada. The purchaser of grams, however, is still faced with the problem of converting the drug into individual doses.

The transformation process employed depends on whether the grams of LSD are initially liquid or crystalline. In the case of liquid grams, a blotter may be soaked in a known amount of the drug and then, after drying, divided into the desired number of 'hits' (single doses). Alternatively, gelatin may be added to a solution containing a known amount of the drug. This mixture is then dried and cut into uniform single doses which are sold as 'clear light' or 'window pane' acid.† Crystalline LSD is usually mixed (or 'buffed') with inert substances, such as lactose or baking soda (and, occasionally, non-toxic colouring), in an agitator for several hours.‡ This mixture is then 'capped' (placed into capsules) or 'tabbed' (compressed into tablets on professional machinery). The tabbing process may be performed by someone external to the particular dealership for between five and ten per cent of the LSD's value at this stage in the distributing network.

Whether the single doses of LSD are prepared from liquid or crystalline grams does not essentially affect the eventual yield: one gram (or one million micrograms) of LSD can be converted into 4,000 single doses, each of which contains 250 micrograms of the drug. Should the manufacturer desire smaller dosage units (and larger profits), he need simply add more 'buff' to his crystalline mixture. In this manner one gram of LSD will yield as many as 10,000 doses, each containing a potent 100 micrograms of LSD.

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* Some of the very early (pre-1968) underground LSD manufacturers appear to have been motivated more by a desire to 'turn on the world' than any mercenary considerations.

† Liquid LSD may also be 'dropped' on nearly any 'carrier', sugar cubes being the best known example of this method. This mode of packaging, however, has rarely been observed since the mid-sixties.

‡ Adulterants such as amphetamines or strychnine may be added at this stage of the packaging to produce certain effects considered more desirable or saleable by the manufacturer.

These tablets or capsules of LSD are quickly sold, in bulk lots, to a number of middle-level dealers, often on consignment. Although the price varies with the potency and quality of the drug, 4,000 or more doses will usually cost around $800 (or twenty cents each) in California, while smaller bulk purchases are calculated on a twenty-five cent per single-dose basis. Third-level dealers, who pay the middle-level dealers in cash for their supplies, are likely to purchase under one thousand units at a time for between thirty and forty-five cents a hit. They, in turn, sell smaller lots (usually well under one hundred) to street dealers for between fifty cents and one dollar a dose.

LSD is occasionally smuggled into Canada as liquid or crystalline grams,* but is more likely to initially appear as 'tabbed' grams (about 4,000 individual doses) which sell for a little over $1,000, or in thousand-hit lots which sell for around $400 each. These bulk purchases are then subdivided into smaller lots for sale to intermediary and street dealers, the per unit cost increasing with each exchange. Eventually LSD is sold to its consumers for around two or three dollars a single dose, although street prices as low as one dollar a dose have been reported.†

Persons who traffic in small amounts of LSD are ordinarily also engaged in the distribution of other drugs such as marijuana and hashish. 'Chemicals' (as the hallucinogens are generically referred to) are simply part of these dealers' regular inventory, although they are rarely aware of the actual substances they are selling. Their customers are similarly unaware, and hallucinogen dealers occasionally take advantage of this situation by claiming that their chemicals are whatever drug it is that's being sought. 'Strawberry acid', for example, may be sold as 'pink mescaline' to someone desiring an 'organic' drug. In some cases a dealer may, knowingly or otherwise, sell impurely or incompletely synthesized hallucinogens, or combinations of non-hallucinogenic drugs (or even inert substances) alleged to be 'chemicals'.[28] In both cases, however, it is not uncommon for customers to return for additional supplies after experiencing what they deem to be a 'good trip'.‡

For most hallucinogen users, the quality or purity of a given capsule or tablet does not appear to be as important as their subjective appreciation of the drug's effects. While these persons will question a dealer as to a drug's purity, they are usually in no position to dispute his claims. Consequently

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* LSD, in either liquid or crystalline form, is easier to smuggle through international customs than any other drug because of its relatively infinitesimal weight and the fact that it is odourless, colourless and tasteless.

† In the winter of 1967–68, a single-dose unit of LSD could still command between ten and fifteen dollars in the Canadian hallucinogens market. By the summer of 1968 the retail price had dropped to five or six dollars, and it has declined steadily ever since.

‡ Customers complaining of 'bad trips' to a dealer are usually informed that the problem rests in their psyche and not the drug. While bad trips on 'good acid' have been documented, it is also true that some adverse reactions are the consequence of ingesting hallucinogens of poor quality or substances that have no psychotropic properties.

they are likely to decide to purchase on the basis of their trust in and experience with the dealer, the availability of alternate sources, their familiarity with the drug in question, the occasional reports of other users, and the price of the drug.

Analyses of street LSD and other hallucinogens have generally found that a substantial percentage of the samples are something other than they were alleged to be.* Generally speaking, LSD, MDA and PCP—or some combination of these drugs—account for at least 90 per cent of the hallucinogens available in the illicit market. PCP is almost never alleged to be PCP when submitted for analysis, mescaline is extremely rare, and psilocybin has never been positively identified through a street-drug analysis program.

Marshman and Gibbins, in an analytical study of street drugs collected in Ontario (primarily Toronto) between January 1969 and February 1970, found that only 56 per cent of the 176 samples alleged to be LSD ". . . did in fact contain that substance in a relatively well purified form".[24] Another 22 per cent of these samples were the result of unsuccessful LSD synthesis and 18 per cent were "impure" LSD. Less than one per cent of the samples could not be identified, and four per cent contained no LSD at all. Only 62 per cent of those samples alleged to be MDA actually were MDA, and none of the 58 samples alleged to be mescaline actually contained this drug.

A Commission review of Canadian street-drug analysis (performed by numerous Canadian laboratories, from January 1970 to November 1972) found roughly similar results. Excluding LSD-PCP mixtures (which are reported as a separate drug category by the Health Protection Branch), slightly more than two-thirds of the 162 analysed samples alleged to be LSD were, in fact, relatively pure LSD. About five per cent of these samples were the products of faulty or incomplete LSD synthesis, and the remainder were either deceptions containing no LSD (17 per cent) or LSD mixed with other drugs such as MDA or barbiturates (9 per cent). Only 42 per cent of the 64 samples alleged to be MDA actually contained pure MDA, while an additional 20 per cent contained MDA mixed with other drugs such as LSD or amphetamine. In 27 per cent of the cases a drug other than MDA was present, and in the remaining 11 per cent of the analyses no drug was identified. Of 171 samples alleged to be mescaline, only five (3 per cent) contained any mescaline, whereas PCP, LSD or LSD in combination with other drugs constituted 59 per cent of the analyses. The remainder consisted of other drugs (20 per cent) or no drug at all (18 per cent).

Thus, an illicit hallucinogen user has, at best, about a fifty per cent chance of obtaining an unadulterated drug through street transactions.

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* Hallucinogens submitted to laboratories for analysis are often those suspected of being adulterated or the cause of adverse reactions. Consequently, the samples reviewed in this section can in no way be considered a random selection of hallucinogens in the Canadian market. These data are reviewed in more detail in Appendix A.5 *Hallucinogens and Their Effects.*