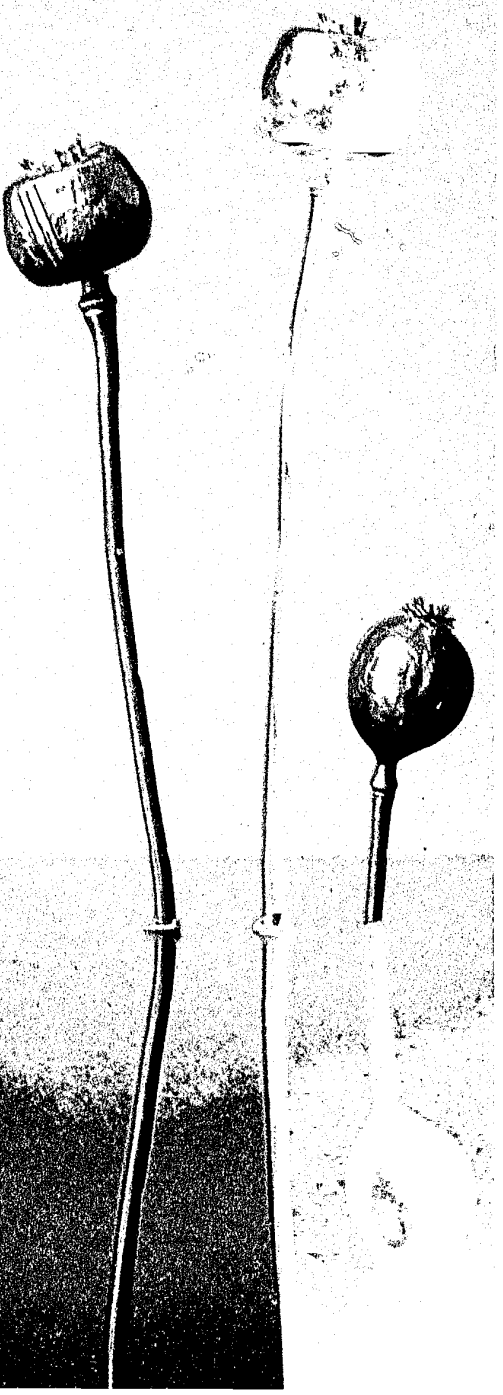
U.S. Department of Justice
Drug Enforcement Administration

DRUGS OF ABUSE

1988 EDITION



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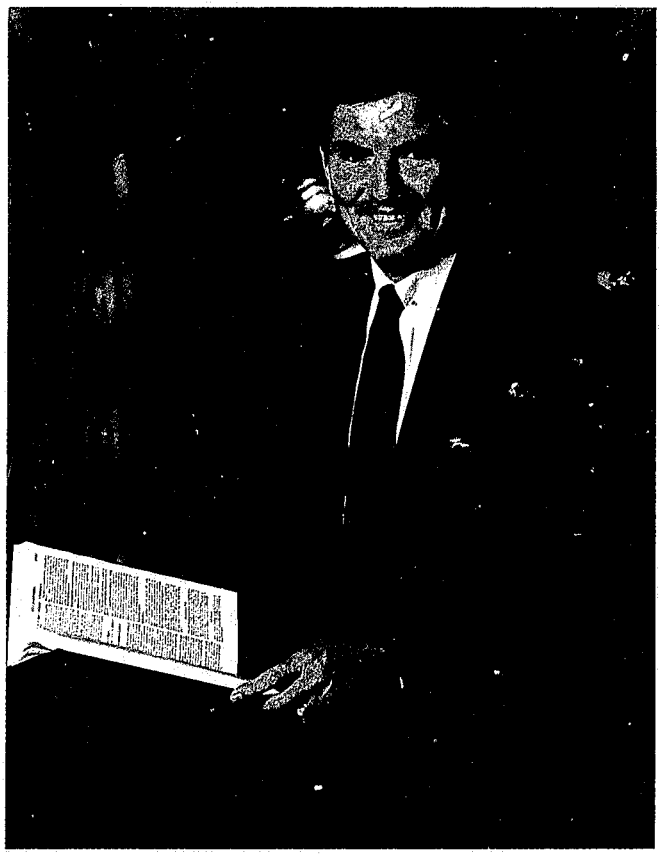


Message From The Administrator

Factual, accurate information on drug abuse and the federal drug laws is an essential weapon in all areas of the federal effort to control drug abuse in the United States. The vital need for complete and readily available information exists in all of the five major elements of our national strategy to prevent drug abuse and drug trafficking–international cooperation, education and prevention, treatment, research, and law enforcement. It is particularly important in the areas of law enforcement and education, where so much of our efforts and attention is focused today.

Drugs of Abuse has been acclaimed by educators, scientists, public officials, law enforcement officers, and civic leaders as a practical and easily used reference for a consensus of current scientific findings within the framework of federal law. This publication was first published in 1975 as Volume 6, No. 2 of *Drug Enforcement* magazine. Periodic revisions have been produced as additional information has become available and as federal statutes have changed.

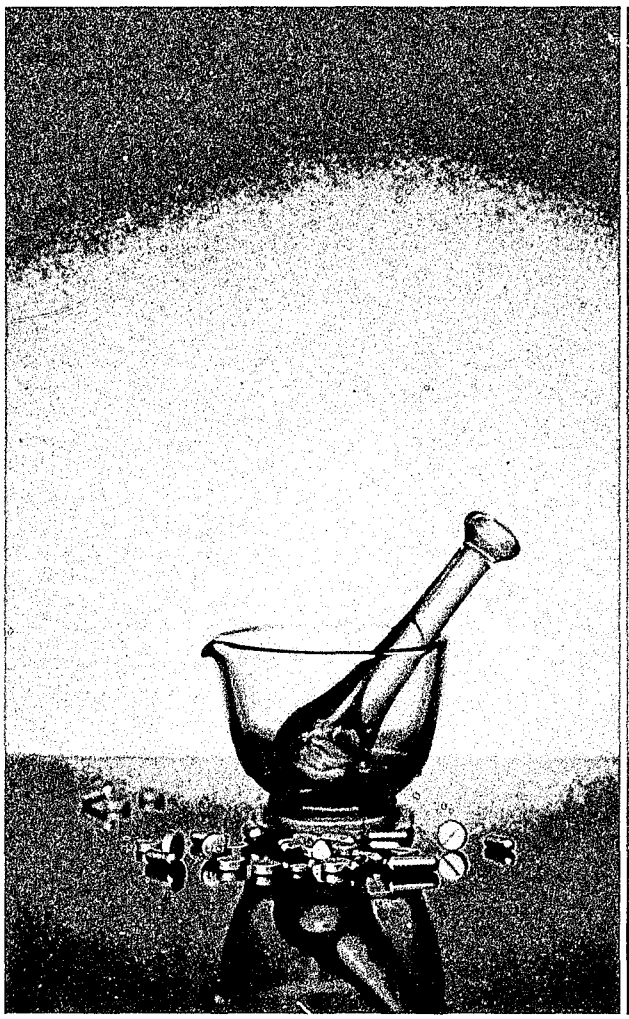
While new drugs and new forms of old drugs have appeared, and while the elements of drug laws and our enforcement techniques continue to change, one thing remains constant: all the drugs discussed in this publication can have a substantial and detrimental effect on the health and welfare of the American people.

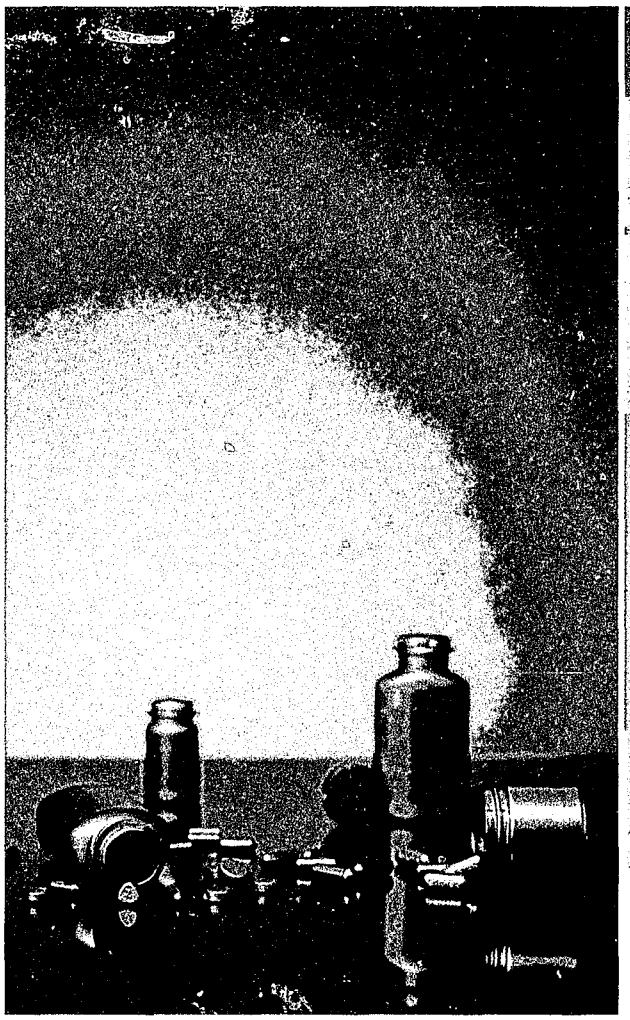
The drugs and their dangers vary, and those differences are presented here in a format designed for quick use and ease of understanding. Many of these drugs have legitimate medical uses, but are liable to psychological and physical dependence. Others so affect the central nervous system that they render the user dangerous to himself and those around him. All of them pose recognizable social as well as behavioral problems.

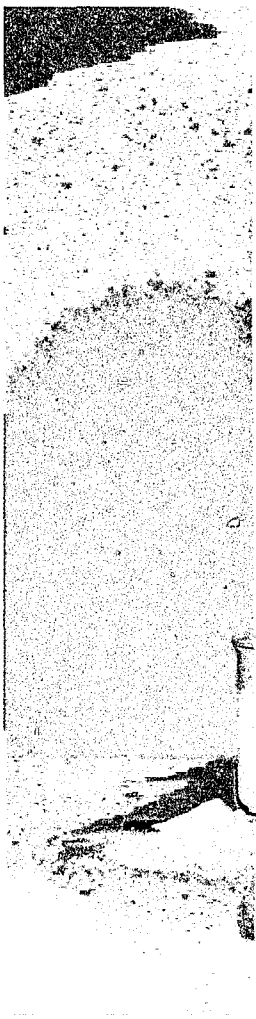
The foundation of the federal fight against drugs is Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, commonly known as the Controlled Substances Act. The basic provisions of that law were strengthened by the Congress in 1984 and again with the Anti-Drug Abuse Act of 1986. It is significant to note that a major segment of the latter, the Narcotics Penalties and Enforcement Act, provides for mandatory minimum sentences. These laws are discussed in detail in this publication.

The success of any national effort ultimately depends on the public attitude and the extent to which it can be focused on the problems. To that end, *Drugs of Abuse* is provided as a means to alert and inform a concerned and aware citizenry–and its public servants, those who enforce its laws. I ask all who use this publication to join actively and aggressively in the ongoing efforts to mobilize public support and involvement in the war on drugs, both in the United States and abroad.

The demand for and supply of illicit drugs can be abated only through continuing cooperation and complete commitment at all levels–federal, state, and local. I hope that this new edition of *Drugs of Abuse* assists you in *your* active participation.







Drugs of Abuse

John C. Lawn
Administrator

William F. Alden
Chief, Office of Congressional
and Public Affairs

Harri j. Kramer
Chief, Communication Services Staff

Paul E. Fitzgerald–Editor
Suzanne T. Rice–Art Director

The Attorney General has determined that publication of this periodical is necessary in the transaction of the public business required by law of the Department of Justice.

Table of Contents

The Controlled Substances Act

The Controlled Substances Act (CSA), Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, is the legal foundation of the Government's fight against abuse of drugs and other substances. This law is a consolidation of numerous laws regulating the manufacture and distribution of narcotics, stimulants, depressants, and hallucinogens.

I Controlling Drugs or Other Substances

Formal Scheduling

The CSA places all substances which were in some manner regulated under existing federal law into one of five schedules. This placement is based upon the substance's medical use, potential for abuse, and safety or dependence liability. The Act also provides a mechanism for substances to be controlled, or added to a schedule; decontrolled, or removed from control; and rescheduled or transferred from one schedule to another. The procedure for these actions is found in Section 201 of the Act (21 U.S.C. 811).

Proceedings to add, delete, or change the schedule of a drug or other substance may be initiated by the Department of Health and Human Services (HHS), by DEA, or by petition from any interested person: the manufacturer of a drug, a medical society or association, a pharmacy association, a public interest group concerned with drug abuse, a state or local government agency, or an individual citizen. When a petition is received by DEA, the agency begins its own investigation of the drug.

The agency also may begin an investigation of a drug at any time based upon information received from law enforcement laboratories, state and local law enforcement and regulatory agencies, or other sources of information.

Once DEA has collected the necessary data, the Administrator of DEA, by authority of the Attorney General, requests from HHS a scientific and medical evaluation and recommendation as to whether the drug or other substance should be controlled or removed from control. This request is sent to the Assistant Secretary of Health of HHS. HHS solicits information from the Commissioner of FDA, evaluations and recommendations from the National Institute on Drug Abuse, and on occasion from the scientific and medical community at large. The Assistant Secretary (by authority of the Secretary) compiles the information and transmits back to DEA a medical and scientific evaluation regarding the drug or other substance, a recommendation as to whether the drug should be controlled, and in what schedule it should be placed.

The medical and scientific evaluations are binding on DEA with respect to scientific and medical matters. The recommendation on scheduling is binding only to the extent that if HHS recommends that the substance not be controlled, DEA may not control the substance.

Once DEA has received the scientific and medical evaluation from HHS, the Administrator will evaluate all available data and make a final decision whether to propose that a drug or other substance should be controlled and into which schedule it should be placed.

The threshold issue is whether the drug or other substance has potential for abuse. If a drug does not have a potential for abuse, it cannot be controlled. Although the term potential for abuse is not defined in the CSA, there is much discussion of the term in the legislative history of the Act. The following items are indicators that a drug or other substance has a potential for abuse:

(1) There is evidence that individuals are taking the drug or drugs containing such a substance in amounts sufficient to create a hazard to their health or to the safety of other individuals or of the community; or

(2) There is significant diversion of the drug or drugs containing such a substance from legitimate drug channels; or

(3) Individuals are taking the drug or drugs containing such a substance on their own initiative rather than on the basis of medical advice from a practitioner licensed by law to administer such drugs in the course of his professional practice; or

(4) The drug or drugs containing such a substance are new drugs so related in their action to a drug or

drugs already listed as having a potential for abuse to make it likely that the drug will have the same potentiality for abuse as such drugs, thus making it reasonable to assume that there may be significant diversions from legitimate channels, significant use contrary to or without medical advice, or that it has a substantial capability of creating hazards to the health of the user or to the safety of the community. Of course, evidence of actual abuse of a substance is indicative that a drug has a potential for abuse.

In determining into which schedule a drug or other substance should be placed, or whether a substance should be decontrolled or rescheduled, certain factors are required to be considered. Specific findings are not required for each factor. These factors are listed in Section 201 (c), 21 U.S.C. 811(c), of the CSA and are as follows:

(1) The drug's actual or relative potential for abuse.

(2) Scientific evidence of the drug's pharmacological effects. The state of knowledge with respect to the effects of a specific drug is, of course, a major consideration, e.g., it is vital to know whether or not a drug has a hallucinogenic effect if it is to be controlled because of that. The best available knowledge of the pharmacological properties of a drug should be considered.

(3) The state of current scientific knowledge regarding the substance. Criteria (2) and (3) are closely related. However, (2) is primarily concerned with pharmacological effects and (3) deals with all scientific knowledge with respect to the substance.

(4) Its history and current pattern of abuse. To determine whether or not a drug should be controlled, it is important to know the pattern of abuse of that substance, including the socio-economic characteristics of the segments of the population involved in such abuse.

(5) The scope, duration, and significance of abuse. In evaluating existing abuse, the Administrator must know not only the pattern of abuse but whether the abuse is widespread. In reaching his decision, the Administrator should consider the economics of regulation and enforcement attendant to such a decision. In addition, he should be aware of the social significance and impact of such a decision upon those people, especially the young, that would be affected by it.

(6) What, if any, risk there is to the public health. If a drug creates dangers to the public health, in addition to or because of its abuse potential, then these dangers must also be considered by the Administrator.

(7) The drug's psychic or physiological dependence liability. There must be an assessment of the extent to which a drug is physically addictive or psychologically habit-forming, if such information is known.

(8) Whether the substance is an immediate precursor of a substance already controlled. The CSA allows inclusion of immediate precursors on this basis alone into the appropriate schedule and thus safeguards against possibilities of clandestine manufacture.

After considering the above listed factors, the Administrator must make specific findings concerning the drug or other substance. This will determine into which schedule the drug or other substance will be placed. These schedules are established by the CSA. They are as follows:

Schedule I

✔ The drug or other substance has a high potential for abuse.

✔ The drug or other substance has no currently accepted medical use in treatment in the United States.

✔ There is a lack of accepted safety for use of the drug or other substance under medical supervision.

Schedule II

✔ The drug or other substance has a high potential for abuse.

✔ The drug or other substance has a currently accepted medical use in treatment in the United States or a currently accepted medical use with severe restrictions.

✔ Abuse of the drug or other substance may lead to severe psychological or physical dependence.

Schedule III

✔ The drug or other substance has a potential for abuse less than the drugs or other substances in Schedules I and II.

✔ The drug or other substance has a currently accepted medical use in treatment in the United States.

✔ Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.

Schedule IV

✔ The drug or other substance has a low potential for abuse relative to the drugs or other substances in Schedule III.

✔ The drug or other substance has a currently accepted medical use in treatment in the United States.

✔ Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in Schedule III.

Schedule V

✔ The drug or other substance has a low potential for abuse relative to the drugs or other substances in Schedule IV.

✔ The drug or other substance has a currently accepted medical use in treatment in the United States.

✔ Abuse of the drug or other substances may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in Schedule IV.

When the Administrator of DEA has determined that a drug or other substance should be controlled, decontrolled, or rescheduled, a proposal will be published in the *Federal Register* setting forth the schedule for which control is proposed, or that a substance should be decontrolled, and inviting all interested persons to file comments with DEA. Affected parties may also request a hearing with DEA. If no hearing is requested, DEA will evaluate all comments received and publish a final order in the *Federal Register*, controlling the drug as proposed or with modifications based upon the written comments filed. This order will set the effective dates for imposing the various requirements imposed under the CSA.

If a hearing is requested, DEA will enter into discussions with the party or parties requesting a hearing in an attempt to narrow the issue for litigation. If necessary, a hearing will then be held before an Administrative Law Judge. The Judge will take evidence on factual issues and hear arguments on legal questions regarding the control of the drug. Depending on the scope and complexity of the issues, the hearing may be brief or quite extensive. The Administrative Law Judge, at the close of the hearing, prepares findings of fact and conclusions of law and a recommended decision which is submitted to the Administrator of DEA. The Administrator will review these documents, as well as the underlying material, and prepare his own findings of fact and conclusions of law (which may or may not be the same as those drafted by the Administrative Law Judge). The Administrator then publishes a final order in the *Federal Register* either scheduling the drug or other substance or declining to do so.

Once the final order is published in the *Federal Register*, interested parties have 30 days to appeal to a U.S. Court of Appeals to challenge the order. Findings of fact by the Administrator are deemed conclusive if supported by "substantial evidence." The order imposing controls is not stayed during the appeal, however, unless so ordered by the Court.

Emergency or Temporary Scheduling

In 1984, the CSA was amended by the Comprehensive Crime Control Act of 1984. This Act included a provision which allows the Administrator of DEA to place a substance, on a temporary basis, into Schedule I when necessary to avoid an imminent hazard to the public safety.

This emergency scheduling authority permits the scheduling of a substance which is not currently controlled, is being abused, and is a risk to the public health while the formal rulemaking procedures described in the CSA are being conducted. This emergency scheduling applies only to substances with no accepted medical use. A temporary scheduling order may be issued for one year with a possible extension of up to six months if formal scheduling procedures have been initiated. The proposal and order are published in the *Federal Register* as are the proposals and orders for formal scheduling.

Controlled Substance Analogues

A new class of substances was created by the Anti-Drug Abuse Act of 1986. Controlled substance analogues are substances which are not controlled substances, but may be found in the illicit traffic. They are structurally or pharmacologically similar to Schedule I or II controlled substances. A controlled substance analogue has no legitimate medical use. A substance which meets the definition of a controlled substance analogue that is intended for human consumption is treated under the CSA as if it were a controlled substance in Schedule I.

International Treaty Obligations

United States treaty obligations may require that a drug or other substance be controlled under the CSA, or rescheduled if existing controls are less stringent than those required by the treaty. The procedures for these scheduling actions are found in Section 201(d) of the Act.

The United States is a party to the Single Convention on Narcotic Drugs of 1961, designed to establish effective control over international and domestic traffic in narcotics, coca leaf, cocaine, and cannabis. A second treaty, the Convention on Psychotropic Substances of 1971, which entered into force in 1976, is designed to establish comparable control over stimulants, depressants, and certain hallucinogens. Congress ratified this treaty in 1980.

II Regulation

The CSA creates a closed system of distribution for those authorized to handle controlled substances. The cornerstone of this system is the registration of all those authorized by DEA to handle controlled substances. All individuals and firms that are registered are required to maintain complete and accurate inventories and records of all transactions involving controlled substances, as well as security for the storage of controlled substances.

Registration

Any person who handles or intends to handle controlled substances must obtain a registration issued by DEA. A unique number is assigned to each legitimate handler of controlled drugs: importer, exporter, manufacturer, wholesaler, hospital, pharmacy, physician, and researcher. This number must be made available to the supplier by the customer prior to the purchase of a controlled substance. Thus, the opportunity for unauthorized transactions is greatly diminished.

Recordkeeping

The CSA requires that complete and accurate records be kept of all quantities of controlled substances manufactured, purchased, and sold. Each substance must be inventoried every two years. Some limited exceptions to the recordkeeping requirements may apply to certain categories of registrants.

From these records it is possible to trace the flow of any drug from the time it is first imported or manufactured through the wholesale level, to the pharmacy or hospital that dispensed it, and then to the actual patient who received the drug. The mere existence of this requirement is sufficient to discourage many forms of diversion. It actually serves large corporations as an internal check to uncover diversion, such as pilferage by employees.

There is one distinction between scheduled items for recordkeeping requirements. Records for Schedule I and II drugs must be kept separate from all other records of the handler; records for Schedule III, IV, and V substances must be kept in a "readily retrievable" form. The former method allows for more expeditious investigations involving the highly abusable substances in Schedules I and II.

Distribution

The keeping of records is required for distribution of a controlled substance from one manufacturer to another, from manufacturer to wholesaler, and from wholesaler to dispenser. In the case of Schedule I and II drugs, the supplier must have a special order form from the customer. This order form (DEA Form 222) is issued by DEA only to persons who are properly registered to handle Schedules I and II. The form is preprinted with the name and address of the customer. The drugs must be shipped to this name and address. The use of this device is a special reinforcement of the registration requirement; it makes doubly certain that only authorized individuals may obtain Schedule I and II drugs. Another benefit of the form is the special monitoring it permits. The form is issued in triplicate: the customer must keep one copy for his own files; he forwards two copies to the supplier who, after filling the order, keeps a copy for his own records and forwards the third copy to the nearest DEA office.

For drugs in Schedules III, IV, and V, no order form is necessary. The supplier in each case, however, is under an obligation to verify the authenticity of his customer. The supplier is held fully accountable for any drugs which are shipped to a purchaser who does not have a valid registration.

Those registrants registered as manufacturers and distributors in Schedules I, II, or III narcotics are also required to submit periodic reports to DEA of their manufacturing and distribution transactions. They are also required to file annual inventories of the Schedule I, II, or III narcotic controlled substances that they handle. This data is entered into a system called the Automated Reports and Consolidated Orders System (ARCOS). It enables DEA to monitor the distribution of controlled substances throughout the country, and to identify retail level registrants that receive unusual quantities of controlled substances.

Dispensing to Patients

The dispensing of a controlled substance is the delivery of the controlled substance to the ultimate user, who may be a patient or research subject. Special control mechanisms operate here as well. Schedule I drugs are those which have no currently accepted medical use in the United States; they may, therefore, be used in the United States only in research situations. They generally are supplied by only a limited number of firms to properly registered and qualified researchers. Controlled substances may be dispensed by a practitioner by direct administration, by prescription, or by dispensing from office supplies. Records must be maintained by the practitioner of all dispensing of controlled substances from office supplies and of certain administrations. The CSA does not require the practitioner to maintain copies of prescriptions, but certain states require the use of multiple copy prescriptions for Schedule II and other specified controlled substances.

The determination to place drugs on prescription is within the jurisdiction of FDA. Unlike other prescription drugs, however, controlled substances are subject to additional restrictions. Schedule II prescription orders must be written and signed by the practitioner; they may not be telephoned into the pharmacy except in an emergency. In addition, a prescription for a Schedule II drug may not be refilled; the patient must see the physician again in order to obtain more drugs. For Schedule III and IV drugs the prescription order may be either written or oral (that is, by telephone to the pharmacy). In addition, the patient may (if authorized by the doctor) have the prescription refilled on his own up to five times and at anytime within six months from the date of the initial dispensing .

Schedule V includes some prescription drugs and many over-the-counter narcotic preparations, including antitussives and antidiarrheals. Even here, however, the law imposes restrictions beyond those normally required for the over-the-counter sales; for example, the patient must be at least 18 years of age, must offer some form of identification, and have his name entered into a special log maintained by the pharmacist as part of a special record.

Quotas

DEA limits the quantity of Schedule I and II controlled substances which may be produced in the United States in any given calendar year. By utilizing available data on sales and inventories of these controlled substances, and taking into account estimates of drug usage provided by the FDA, DEA establishes annual aggregate production quotas for Schedule I and II controlled substances. The aggregate production quota is allocated among the various manufacturers who are registered to manufacture the specific drug. DEA also allocates the amount of bulk drug which may be procured by those companies which prepare the drug into dosage units.

Security

DEA registrants are required by regulation to maintain certain security for the storage and distribution of controlled substances. Manufacturers and distributors of Schedule I and II substances must store controlled substances in specially constructed vaults or highly rated safes, and maintain electronic security for all storage areas. Lesser physical security requirements apply to retail level registrants such as hospitals and pharmacies.

All registrants are required to make every effort to ensure that controlled substances in their possession are not diverted into the illicit market. This requires operational as well as physical security. For example, registrants are responsible for ensuring that controlled substances are distributed only to other registrants that are authorized to receive them, or to legitimate patients and consumers.

III Penalties

The CSA provides penalties for unlawful manufacturing, distribution, and dispensing of controlled substances. The penalties are basically determined by the schedule of the drug or other substance, and sometimes are specified by drug name, as in the case of marijuana. As the statute has been amended since its initial passage in 1970, the penalties have been altered by Congress. The following charts are an overview of the penalties for trafficking or unlawful distribution of controlled substances. This is not inclusive of the penalties provided under the CSA.

Federal Trafficking Penalties

Narcotics Penalties & Enforcement Act of 1986

CSA	PENALTY		Quantity	DRUG	Quantity	PENALTY	
	2nd Offense	1st Offense				1st Offense	2nd Offense
I and II	Not less than 10 years. Not more than life. If death or serious injury, not less than life. Fine of not more than $4 million individual, $10 million other than individual.	Not less than 5 years. Not more than 40 years. If death or serious injury, not less than 20 years. Not more than life. Fine of not more than $2 million individual, $5 million other than individual.	100-999 gm mixture	HEROIN	1 kg or more mixture	Not less than 10 years. Not more than life. If death or serious injury, not less than 20 years. Not more than life. Fine of not more than $4 million individual, $10 million other than individual.	Not less than 20 years. Not more than life. If death or serious injury, not less than life. Fine of not more than $8 million individual, $20 million other than individual.
			500-4,999 gm mixture	COCAINE	5 kg or more mixture		
			5-49 gm mixture	COCAINE BASE	50 gm or more mixture		
			10-99 gm or 100-999 gm mixture	PCP	100 gm or more or 1 kg or more mixture		
			1-10 gm mixture	LSD	10 gm or more mixture		
			40-399 gm mixture	FENTANYL	400 gm or more mixture		
			10-99 gm mixture	FENTANYL ANALOGUE	100 gm or more mixture		

	Drug	Quantity	First Offense	Second Offense
	Others*	Any	Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million not individual.	Not more than 30 years. If death or serious injury, life. Fine $2 million individual, $10 million not individual.
III	All	Any	Not more than 5 years. Fine not more than $250,000 individual, $1 million not individual.	Not more than 10 years. Fine not more than $500,000 individual, $2 million not individual.
IV	All	Any	Not more than 3 years. Fine not more than $250,000 individual, $1 million not individual.	Not more than 6 years. Fine not more than $500,000 individual, $2 million not individual.
V	All	Any	Not more than 1 year. Fine not more than $100,000 individual, $250,000 not individual.	Not more than 2 years. Fine not more than $200,000 individual, $500,000 not individual.

*Does not include marijuana, hashish, or hashish oil. (See separate chart.)

Federal Trafficking Penalties - Marijuana

Narcotics Penalties & Enforcement Act of 1986

Quantity	Description	First Offense	Second Offense
1,000 kg or more	**Marijuana** Mixture containing detectable quantity*	Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than $4 million individual, $10 million other than individual.	Not less than 20 years, not more than life. If death or serious injury, not less than life. Fine not more than $8 million individual, $20 million other than individual.
100 kg to 1,000 kg	**Marijuana** Mixture containing detectable quantity*	Not less than 5 years, not more than 40 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than $2 million individual, $5 million other than individual.	Not less than 10 years, not more than life. If death or serious injury, not less than life. Fine not more than $4 million individual, $10 million other than individual.
50 to 100 kg	**Marijuana**	Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual, $5 million other than individual.	Not more than 30 years. If death or serious injury, life. Fine $2 million individual, $10 million other than individual.
10 to 100 kg	**Hashish**		
1 to 100 kg	**Hashish Oil**		
100 or more plants	**Marijuana**		
Less than 50 kg	**Marijuana**	Not more than 5 years. Fine not more than $250,000, $1 million other than individual.	Not more than 10 years. Fine $500,000 individual, $2 million other than individual.
Less than 10 kg	**Hashish**		
Less than 1 kg	**Hashish Oil**		

*Includes hashish and hash oil

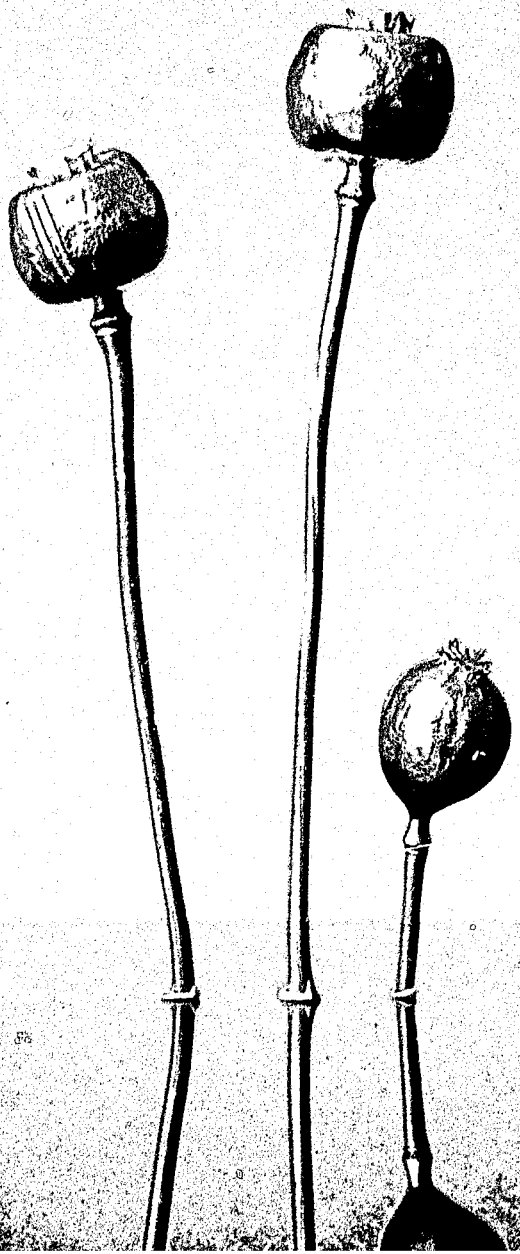
(Marijuana is a Schedule I controlled substance.)

Regulatory Requirements

CONTROLLED SUBSTANCES	SCHEDULE I	SCHEDULE II	SCHEDULE III	SCHEDULE IV	SCHEDULE V
REGISTRATION	required	required	required	required	required
RECORDKEEPING	separate	separate	readily retrievable	readily retrievable	readily retrievable
DISTRIBUTION RESTRICTIONS	order forms	order forms	records required	records required	records required
DISPENSING LIMITS	research use only	Rx: written; no refills	Rx: written or oral; refills *Note 1*	Rx: written or oral; refills *Note 1*	OTC (Rx drugs limited to M.D.'s order)
MANUFACTURING Security	vault/safe	vault/safe	secure storage area	secure storage area	secure storage area
MANUFACTURING Quotas	yes	yes	NO but some drugs limited by Schedule II	NO but some drugs limited by Schedule II	NO but some drugs limited by Schedule II
IMPORT/EXPORT Narcotic	permit	permit	permit	permit	permit to import; declaration to export
IMPORT/EXPORT Non-Narcotic	permit	permit	*Note 2*	declaration	declaration
REPORTS TO DEA by Manufacturer/Distributor Narcotic	yes	yes	yes	manufacturer only	manufacturer only
REPORTS TO DEA by Manufacturer/Distributor Non-Narcotic	yes	yes	*Note 3*	*Note 3*	no

NOTE 1 - With medical authorization, refills up to 5 in 6 months
NOTE 2 - Permit for some drugs, declaration for others
NOTE 3 - Manufacturer reports required for specific drugs

Narcotics



The term narcotic in its medical meaning refers to opium and opium derivatives or synthetic substitutes.[1]

Narcotics are essential in the practice of medicine: they are the most effective agents known for the relief of intense pain. They are also used as cough suppressants as well as a centuries-old remedy for diarrhea.

Under medical supervision, narcotics are administered orally or by intramuscular injection. As drugs of abuse, however, they also are sniffed, smoked, or self-administered by the more direct routes of subcutaneous ("skin-popping") and intravenous ("mainlining") injection.

The relief of suffering, whether of physical or psychological origin, may result in a short-lived state of euphoria. The initial effects, however, are often unpleasant, leading many to conclude that those who persist in their illicit use may have latent personality disturbances. Narcotics tend to induce pinpoint pupils and reduced vision, together with drowsiness, apathy, decreased physical activity, and constipation. A larger dose may induce sleep, but there is an increasing possibility of nausea, vomiting, and respiratory depression—the major toxic effect of the opiates. Except in cases of acute intoxication, there is no loss of motor coordination or slurred speech as in the case of the depressants.

To the extent that the response may be felt to be pleasurable, its intensity may be expected to increase with the amount of the dose administered. Repeated use, however, will result in increasing tolerance: the user must administer progressively larger doses to attain the desired effect, thereby reinforcing the compulsive behavior known as drug dependence.

Physical dependence refers to an alteration of the normal functions of the body that necessitates the continued presence of a drug in order to prevent the withdrawal or abstinence syndrome, which is characteristic of each class of addictive drugs. The intensity of physical symptoms experienced during the withdrawal period is related directly to the amount of narcotic used each day.

Deprivation of an addictive drug causes increased excitability of those same bodily functions that have been depressed by its habitual use.

With the deprivation of narcotics, the first withdrawal signs are usually experienced shortly before the time of the next scheduled dose. Complaints, pleas, and demands by the addict are prominent, increasing in intensity and peaking from 36 to 72 hours after the last dose, then gradually subsiding. Symptoms, such as watery eyes, runny nose, yawning, and perspiration, appear about 8 to 12 hours after the last dose. Thereafter, the addict may fall into a restless sleep. As the abstinence syndrome progresses, restlessness, irritability, loss of appetite, insomnia, goose flesh, tremors, and finally yawning and severe sneezing occur. These symptoms reach their peak at 48 to 72 hours. The patient is weak and depressed, with nausea and vomiting. Stomach cramps and diarrhea are common. Heart rate and blood pressure are elevated. Chills alternating with flushing and excessive sweating are also characteristic symptoms. Pains in the bones and muscles of the back and extremities occur as do muscle spasms and kicking movements, which may be the source of the expression "kicking the habit." At this time an individual may become suicidal. Without treatment the syndrome eventually runs its course and most of the symptoms will disappear in 7 to 10 days. How long it takes to restore physiological and psychological equilibrium, however, is unpredictable. For a few weeks following withdrawal the addict will continue to think and talk about his use of drugs and be particularly susceptible to an urge to use them again.

The withdrawal syndrome may be avoided by reducing the dose of narcotic over a one-to-three-week period. Detoxification of an addict can be accomplished by substituting oral methadone for the illicit narcotic and gradually reducing the dose. However, since the addict's entire pattern of life usually is built around drug taking, narcotic dependence is never entirely resolved by withdrawal alone.

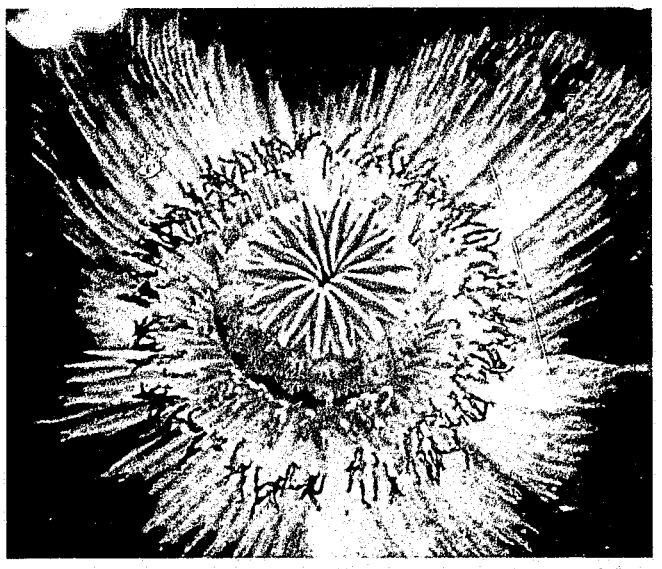
Since addicts tend to become preoccupied with the daily ritual of obtaining and taking drugs, they often neglect themselves and may suffer from malnutrition, infections, and unattended diseases or injuries. Among the hazards of narcotic addiction are toxic reactions to contaminants, such as quindine, sugars, and talcum power, as well as unsterile needles and injection techniques, resulting in abscesses, blood poisoning , hepatitis, and AIDS.[2]

Since there is no simple way to determine the purity of a drug that is sold on the street, the potency is unpredictable, posing the ever present danger of an unintentional overdose. A person with a mild overdose may be stuporous or asleep. Larger doses may induce a coma with slow, shallow respiration. The skin becomes clammy cold, the body limp, and the jaw relaxed; there is a danger that the tongue may fall back, blocking the air passageway. If the condition is sufficiently severe, convulsions may occur, followed by respiratory arrest and death. Specific antidotes for narcotic poisoning are available at hospitals.

[1] *Cocaine, ecgonine, and coca leaves, classified as narcotics under the CSA, are discussed in the section on stimulants, Page 36.*

[2] *See* Drug Abuse and AIDS, *by the National AIDS Program Office of the U.S. Public Health Service, regarding intravenous transmission of communicable diseases, on Page 54.*

The poppy Papaver somniferum is the main source of nonsynthetic narcotics



The milky fluid oozes from incisions in the unripe seedpod

Since ancient times the fluid has been scraped by hand and air dried to produce opium

Narcotics of Natural Origin

The poppy *Papaver somniferum* is the main source of the nonsynthetic narcotics. It was grown in the Mediterranean region as early as 300 B.C. and has since been cultivated in countries around the world, such as Hungary, Turkey, India, Burma, China, Lebanon, Pakistan, Afghanistan, Laos, and Mexico.

The milky fluid that oozes from incisions in the unripe seedpod has, since ancient times, been scraped by hand and air dried to produce opium gum. A more modern method of harvesting is by the industrial poppy straw process of extracting alkaloids from the mature dried plant. The extract may be in either liquid, solid, or powder form. Most poppy straw concentrate made available commercially is a fine brownish powder with a distinct odor. More than 400 tons of opium or its equivalent in poppy straw concentrate are legally imported annually into the United States

Opium—There were no legal restrictions on the importation or use of opium until the early 1900s. In those days, patent medicines often contained opium without any warning label. Today, there are state, federal, and international laws governing the production and distribution of narcotics substances, and there is little abuse of opium in the United States.

At least 25 alkaloids can be extracted from opium. These fall into two general categories, each producing markedly different effects. The first, known as the phenanthrene alkaloids, represented by morphine and codeine, are used as analgesics and cough suppressants; the second, the isoquinoline alkaloids, represented by papaverine (an intestinal relaxant) and noscapine (a cough suppressant), have no significant influence on the central nervous system and are not regulated under the CSA.

Although a small amount of opium is used to make antidiarrheal preparations, such as paregoric, virtually all the opium imported into this country is broken down into its alkaloid constituents, principally morphine and codeine.

Morphine—The principal constituent of opium, ranging in concentration from 4 to 21 percent, morphine is one of the most effective drugs known for the relief of pain. It is marketed in the form of white crystals, hypodermic tablets, and injectable preparations. Its licit use is restricted primarily to hospitals. Morphine is odorless, tastes bitter, and darkens with age. It may be administered subcutaneously, intramuscularly, or intravenously, the latter method being the one most frequently resorted to by addicts. Tolerance and dependence develop rapidly in the user. Only a small part of the morphine obtained from opium is used medically. Most of it is converted to codeine and, secondarily, to hydromorphone.

Codeine—This alkaloid is found in raw opium in concentrations ranging from 0.7 to 2.5 percent. It was first isolated in 1832 as an impurity in a batch of morphine. Although it occurs naturally, most codeine is produced from morphine. As compared with morphine, codeine produces less analgesia, sedation, and respiratory depression. It is widely distributed in products of two general types. Codeine for the relief of moderate pain may consist of codeine tablets or be combined with other products, such as aspirin or acetaminophen (Tylenol). Some examples of liquid codeine preparations for the relief of coughs (antitussives) are Robitussin AC, Cheracol, and elixir of terpin hydrate with codeine. Codeine is also manufactured to a lesser extent in injectable form for the relief of pain. It is by far the most widely used naturally occurring narcotic in medical treatment.

Thebaine—A minor constituent of opium, thebaine is the principal alkaloid present in another species of poppy, *Papaver bracteatum*, which as been grown experimentally in the United States as well as in other parts of the world. Although chemically similar to both codeine and morphine, it produces stimulant rather than depressant effects. Thebaine is not used in this country for medical purposes, but it is converted into a variety of medically important compounds, including codeine, hydrocodone, oxycodone, oxymorphone, nalbuphine, naloxone, and the Bentley compounds. It is controlled in Schedule II of the CSA as well as under international law.

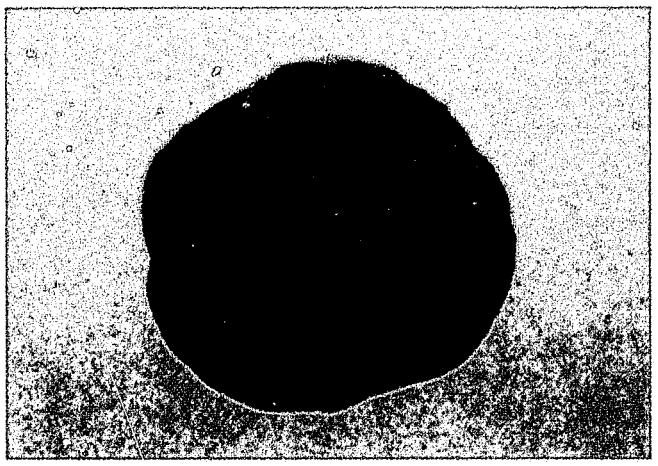
Semi-Synthetic Narcotics

The following narcotics are among the more significant synthetic substances that have been derived by modification of the chemicals contained in opium.

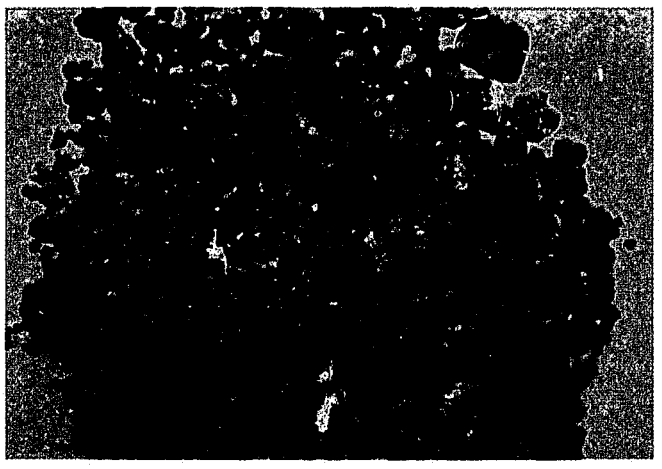
Heroin—First synthesized from morphine in 1874, heroin was not extensively used in medicine until the beginning of this century. The Bayer Company in Germany first started commercial production of the new pain remedy in 1898. While it received widespread acceptance, the medical profession for years remained unaware of its potential for addiction. The first comprehensive control of heroin in the United States was established with the Harrison Narcotic Act of 1914.

Pure heroin is a white powder with a bitter taste. Illicit heroin may vary in both form and color. Most illicit heroin is a powder which may vary in color from white to dark brown because of impurities left from the manufacturing process or the presence of additives, such as food coloring, cocoa, or brown sugar.

Pure heroin is rarely sold on the street. A "bag"–slang for a single dosage unit of heroin–may weigh



Opium

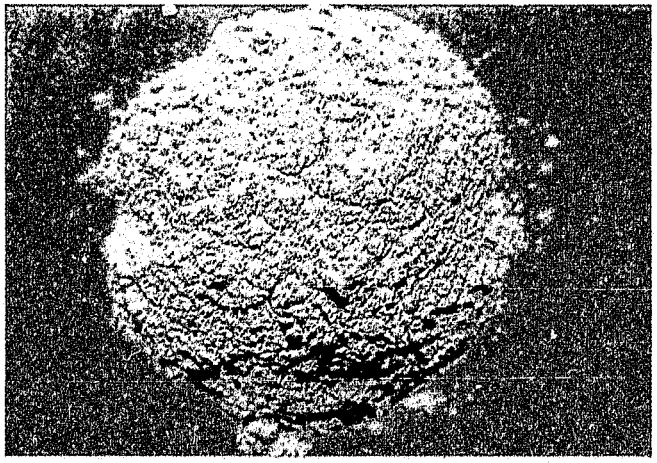


Mexican heroin

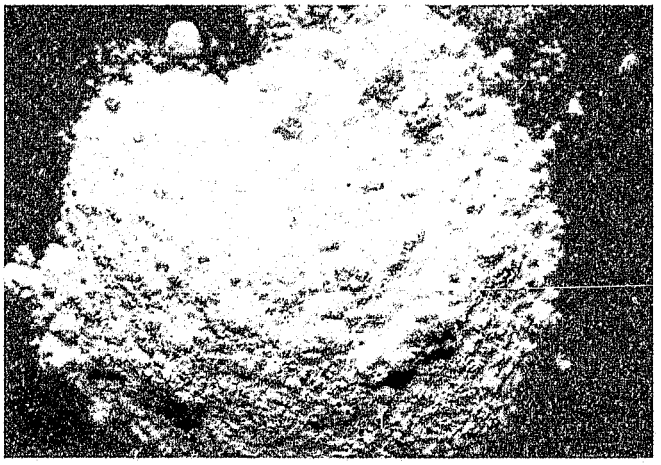
Field of poppies

Black tar heroin

Southwest Asian heroin



Highly refined Southwest Asian heroin or Southeast Asian heroin



about 100 mg. usually containing about five percent heroin. To increase the bulk of the material sold to the addict, diluents are mixed with the heroin in ratios ranging from 9 to 1 to as much as 99 to 1. Sugars, starch, powdered milk, and quinine are among the diluents used.

Another form of heroin known as "black tar" heroin has also become increasingly available in recent years, especially in the western United States. Black tar heroin is a crudely processed form of heroin illicitly manufactured in Mexico. It may be sticky like roofing tar or hard like coal, and it is dark brown to black in color. Black tar heroin is often sold on the street in its tar-like state, sometimes at purities ranging as high as 40-80 percent. Black tar heroin is sometimes diluted, however, by adding materials of similar consistency (such as burnt cornstarch), or by converting the tar heroin into a powder and adding conventional diluents, such as mannitol or quinine. It is most commonly used through injection.

Hydromorphone—Most commonly sold as Dilaudid, hydromorphone is the second oldest semi-synthetic narcotic analgesic. Marketed both in tablet and injectable form, it is shorter acting and more sedating than morphine, but its potency is from two to eight times as great. It is, therefore, a highly abusable drug, much sought after by narcotic addicts, who usually obtain it through fraudulent prescription or theft. The tablets, stronger than available liquid forms, may be dissolved and injected.

Oxycodone—Oxycodone is synthesized from thebaine. It is similar to codeine, but more potent and with a higher dependence potential. It is effective orally and is marketed in combination with aspirin as Percodan for the relief of pain. Addicts take Percodan orally or dissolve tablets in water, filter out the insoluble material, and "mainline" the active drug.

Etorphine and Diprenorphine—Two of the Bentley compounds, these substances are both made from thebaine. Etorphine is more than one thousand times as potent as morphine in its analgesic, sedative, and respiratory depressant effects. For human use, its potency is a distinct disadvantage because of the danger of overdose. Etorphine hydrochloride (M99) is used by veterinarians to immobilize large wild animals. Diprenorphine hydrochloride (M50-50), acting as an antagonist, counteracts the effects of etorphine. The manufacture and distribution of both substances are strictly regulated under the CSA.

Synthetic Narcotics

In contrast to pharmaceutical products derived directly or indirectly from narcotics of natural origin, synthetic narcotics are produced entirely within the laboratory. A continuing search for a product that will retain the analgesic properties of morphine without the consequent dangers of tolerance and dependence has yet to yield a drug that is not susceptible to abuse. The two that are most widely available are meperidine and methadone.

Meperidine (pethidine)—The first synthetic narcotic, meperidine, is chemically dissimilar to morphine but resembles it in its analgesic effect. It is probably the most widely used drug for the relief of moderate to severe pain. Available in pure form as well as in products containing other medicinal ingredients, it is administered either orally or by injection, the latter method being the most widely abused. Tolerance and dependence develop with chronic use, and large doses can result in convulsions or death.

Methadone and Related Drugs—German scientists synthesized methadone during World War II because of a shortage of morphine. Although chemically unlike morphine or heroin, it produces many of the same effects. Introduced into the United States in 1947 as an analgesic and distributed under such names as Amidone, Dolophine, and Methadone, it became widely used in the 1960s in the treatment of narcotic addicts. The effects of methadone differ from morphine-based drugs in that they have a longer duration of action, lasting up to 24 hours, thereby permitting administration only once a day in heroin detoxification and maintenance programs. Moreover, methadone is almost as effective when administered orally as it is by injection. But tolerance and dependence may develop, and withdrawal symptoms, though they develop more slowly and are less severe, are more prolonged. Ironically, methadone, designed to control narcotic addiction, has emerged in some metropolitan areas as a major cause of overdose deaths.

Closely related chemically to methadone is the synthetic compound levo-alpha-acetylmethadol (LAAM), which has an even longer duration of action (from 48 to 72 hours), permitting a further reduction in clinic visits and the elimination of take-home medication. Its potential in the treatment of narcotic addicts is under investigation.

Another close relative of methadone is propoxyphene, first marketed in 1957 under the trade name Darvon for the relief of mild to moderate pain. Less dependence-producing than the other opiates, it is less effective as an analgesic. Propoxyphene is in

Controlled Ingredient: **codeine phosphate 60 mg**
Trade Name: Tylenol with Codeine No. 4
CSA Schedule: III
Other Ingredient: acetaminophen 300 mg

Controlled Ingredient: **codeine phosphate 60 mg**
Trade Name: Empirin with Codeine No. 4
CSA Schedule: III
Other Ingredient: aspirin 325 mg

Controlled Ingredient: **codeine phosphate 60 mg**
Trade Name: A. P. C. with Codeine No. 4
CSA Schedule: III
Other Ingredients: aspirin 227 mg
phenacetin 162 mg
caffeine 32 mg

Controlled Ingredient: **codeine phosphate** *(vial)*
30 mg per ml
Trade Name: Codeine Phosphate Injection
CSA Schedule: II

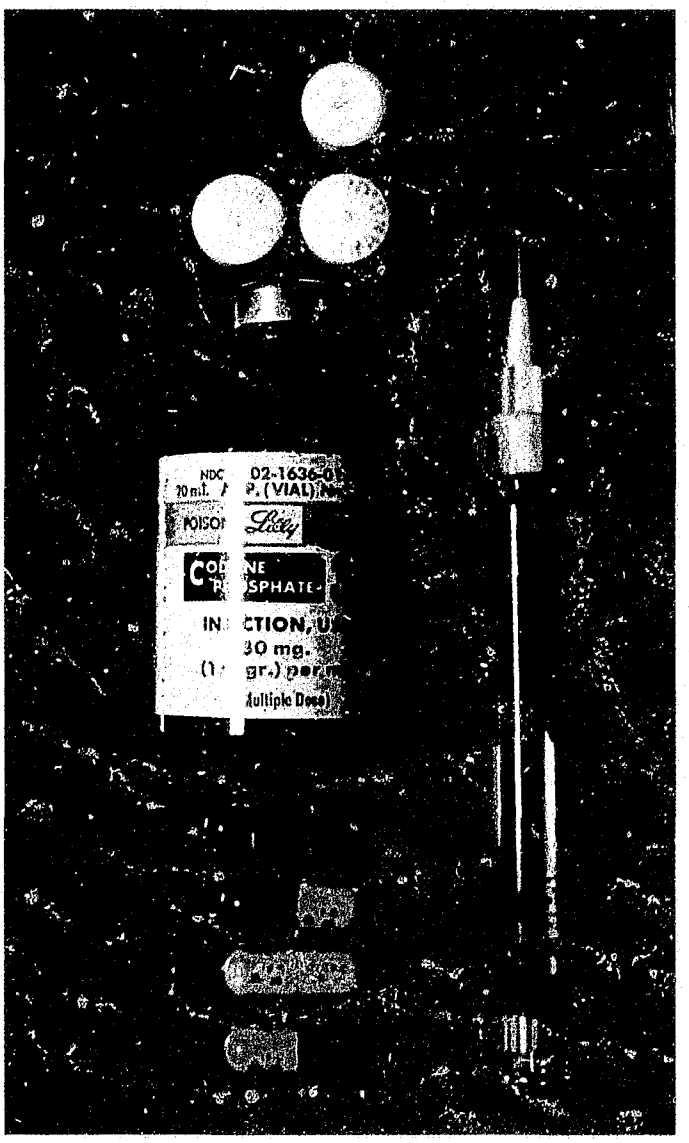
Controlled Ingredient: **codeine phosphate** *(syringe)*
30 mg in 2 ml
Trade Name: Codeine Phosphate Injection
CSA Schedule: II

Controlled Ingredient: **codeine phosphate 60 mg**
Trade Name: Tylenol with Codeine No. 4
CSA Schedule: III
Other Ingredient: acetaminophen 300 mg

Controlled Ingredients: **codeine phosphate 7.5 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 1
CSA Schedule: III
Other Ingredients: aspirin 200 mg
phenacetin 130 mg
caffeine 40 mg

Controlled Ingredients: **codeine phosphate 15 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 2
CSA Schedule: III
Other Ingredients: aspirin 200 mg
phenacetin 130 mg
caffeine 40 mg

Controlled Ingredients: **codeine phosphate 30 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 3
CSA Schedule: III
Other Ingredients: aspirin 200 mg
phenacetin 130 mg
caffeine 40 mg



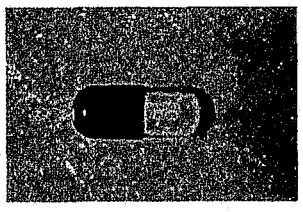
Schedule II and preparations containing it are in Schedule IV.

Narcotic Antagonists—The deliberate effort to find an effective analgesic that is not dependence-producing led to the development of compounds known as narcotic antagonists. These drugs, as the name implies, block or reverse the effects of narcotics. Naloxone (Narcan), having no morphine-like effects, was removed from the CSA when introduced as a specific antidote for narcotic poisoning in 1971. Nalorphine (Nalline), introduced into clinical medicine in 1951 and now in Schedule III, is called a narcotic agonist-antagonist. In a drug-free individual, it produces morphine-like effects; it counteracts these effects in an individual under the influence of narcotics.

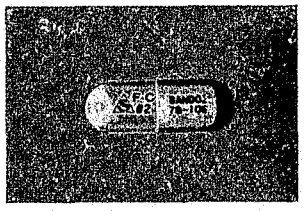
Another agonist-antagonist is pentazocine (Talwin). Introduced as an analgesic in 1967, it was determined to be an abusable drug and placed under Schedule IV in 1979. On the street, pentazocine is frequently used in combination with another drug: tripelennamine. This combination is commonly referred to as "T's and B's" or "T's and Blues" with "T" referring to Talwin and "B" indicating the blue PBZ (tripelennamine) tablet.

A further attempt at reducing the abuse of this drug was made in 1983 with the addition of naloxone to the pentazocine tablets. The new product, Talwin Nx, contains a quantity of antagonist sufficient to counteract the morphine-like effects of pentazocine if the tablets are dissolved and injected.

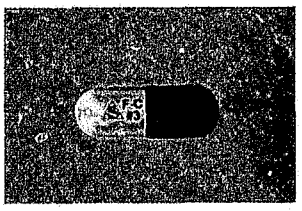
Controlled Ingredients: **codeine phosphate 7.5 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 1
CSA Schedule: III
Other Ingredients: aspirin 325 mg
caffeine 40 mg



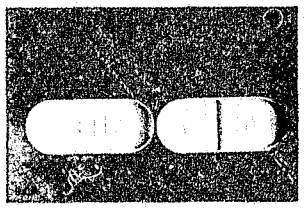
Controlled Ingredients: **codeine phosphate 15 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 2
CSA Schedule: III
Other Ingredients: aspirin 325 mg
caffeine 40 mg



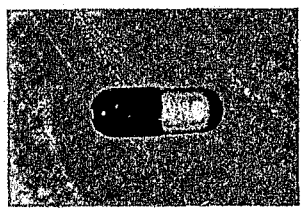
Controlled Ingredients: **codeine phosphate 30 mg**
butalbital 50 mg
Trade Name: Fiorinal with Codeine No. 3
CSA Schedule: III
Other Ingredients: aspirin 325 mg
caffeine 40 mg



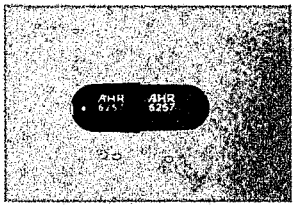
Controlled Ingredient: **codeine phosphate 30 mg**
Trade Name: Phenaphen-650 with Codeine
CSA Schedule: III
Other Ingredient: acetaminophen 650 mg



Controlled Ingredient: **codeine phosphate 15 mg**
Trade Name: Phenaphen with Codeine No. 2
CSA Schedule: III
Other Ingredient: acetaminophen 325 mg



Controlled Ingredient: **Codeine phosphate 30 mg**
Trade Name: Phenaphen with Codeine No. 3
CSA Schedule: III
Other Ingredient: acetaminophen 325 mg



Controlled Ingredient: **morphine sulfate 15 mg per ml**
Trade Name: Morphine Sulfate Injection *(syringe)*
CSA Schedule: II

Controlled Ingredient: **morphine sulfate**
Trade Name: Morphine Sulfate *(powder)*
CSA Schedule: II

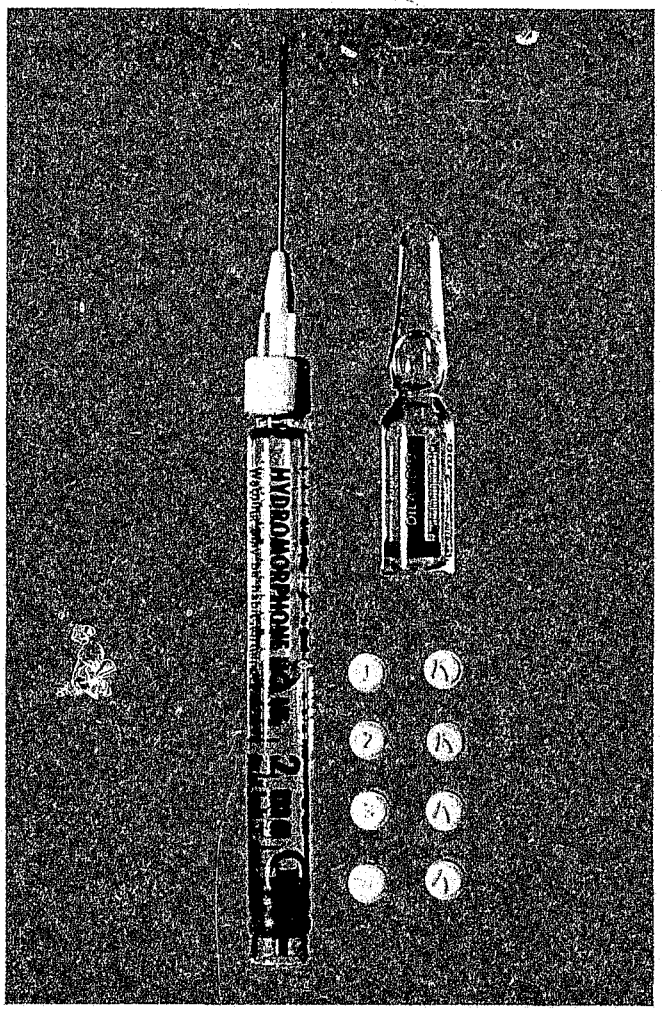
Controlled Ingredient: **morphine sulfate 15 mg per ml**
Trade Name: Morphine Sulfate Injection *(vial)*
CSA Schedule: II

Controlled Ingredient: **hydromorphone hydrochloride 2 mg per ml** *(syringe)*
Trade Name: Hydromorphone HCl
CSA Schedule: II

Controlled Ingredient: **hydromorphone hydrochloride 2 mg per ml** *(ampule)*
Trade Name: Dilaudid
CSA Schedule: II

Controlled Ingredient: **hydromorphone hydrochloride 1 mg**
Trade Name: Dilaudid
CSA Schedule: II

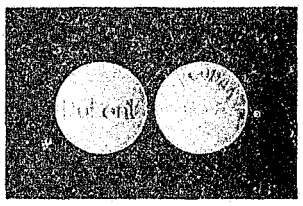
Controlled Ingredient: **hydromorphone hydrochloride 2 mg**
Trade Name: Dilaudid
CSA Schedule: II



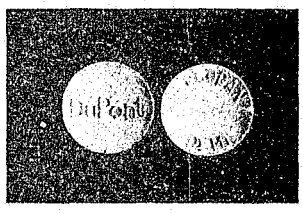
Controlled Ingredient: **hydromorphone hydrochloride 3 mg**
Trade Name: Dilaudid
CSA Schedule: II

Controlled Ingredient: **hydromorphone hydrochloride 4 mg**
Trade Name: Dilaudid
CSA Schedule: II

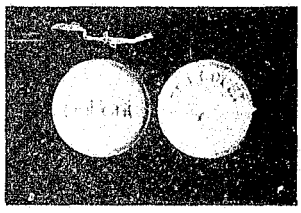
Controlled Ingredients: **oxycodone hydrochloride 4.5 mg**
oxycodone terephthalate 0.38 mg
Trade Name: Percodan
CSA Schedule: II
Other Ingredient: aspirin 325 mg



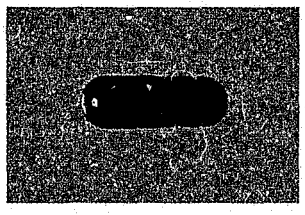
Controlled Ingredients: **oxycodone hydrochloride 2.25 mg**
oxycodone terephthalate 0.19 mg
Trade Name: Percodan-Demi
CSA Schedule: II
Other Ingredient: aspirin 325 mg



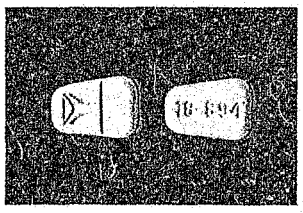
Controlled Ingredient: **oxycodone hydrochloride 5 mg**
Trade Name: Percocet
CSA Schedule: II
Other Ingredient: acetaminophen 325 mg



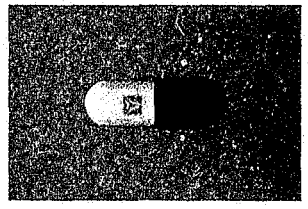
Controlled Ingredients: **oxycodone hydrochloride 4.5 mg**
oxycodone terephthalate 0.38 mg
Trade Name: Tylox
CSA Schedule: II
Other Ingredient: acetaminophen 500 mg



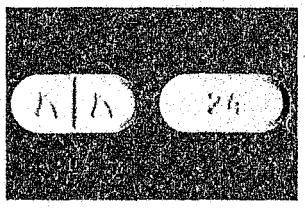
Controlled Ingredient: **hydrocodone 5 mg**
Trade Name: Tussionex
CSA Schedule: III
Other Ingredient: phenyltoloxamine 10 mg



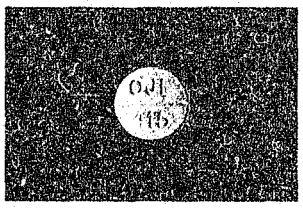
Controlled Ingredient: **hydrocodone 5 mg**
Trade Name: Tussionex
CSA Schedule: III
Other Ingredient: phenyltoloxamine 10 mg



Controlled Ingredient: **hydrocodone 5 mg**
Trade Name: Vicodin
CSA Schedule: III
Other Ingredient: acetaminophen 500 mg

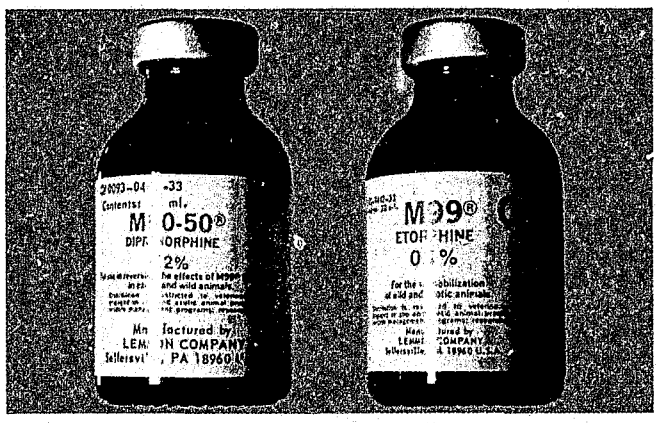


Controlled Ingredient: **hydrocodone bitartrate 5 mg**
Trade Name: Duradyne DHC
CSA Schedule: III
Other Ingredient: acetaminophen 500 mg



Controlled Ingredient: **diprenorphine hydrochloride 2 mg per ml**
Trade Name: M50-50
CSA Schedule: II

Controlled Ingredient: **etorphine hydrochloride 1 mg per ml**
Trade Name: M99
CSA Schedule: II

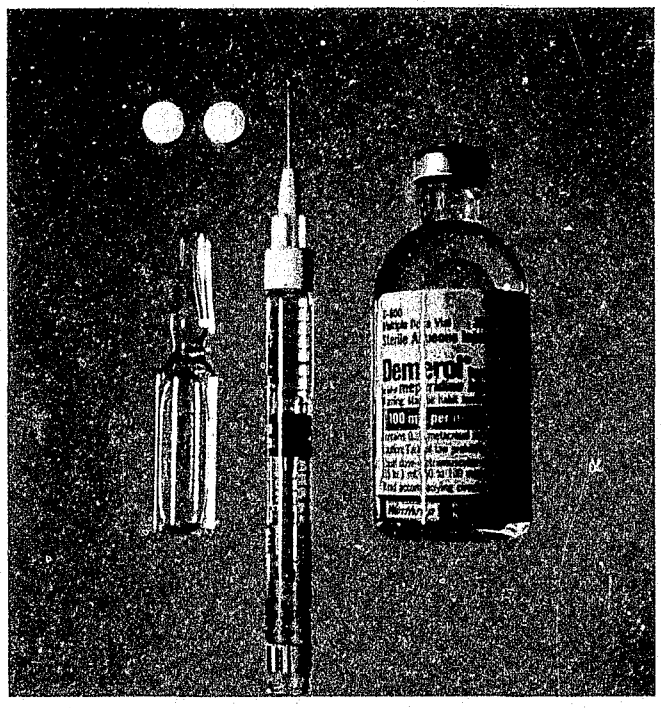


Controlled Ingredient: **meperidine hydrochloride 100 mg**
Trade Name: Demerol HCl *(tablets)*
CSA Schedule: II

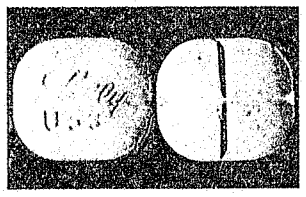
Controlled Ingredient: **meperidine hydrochloride 50 mg per ml** *(ampule)*
Trade Name: Demerol HCl
CSA Schedule: II

Controlled Ingredient: **meperidine hydrochloride 25 mg in 1 ml** *(syringe)*
Trade Name: Demerol HCl
CSA Schedule: II

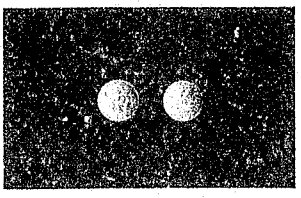
Controlled Ingredient: **meperidine hydrochloride 100 mg per ml** *(vial)*
Trade Name: Demerol HCl
CSA Schedule: II



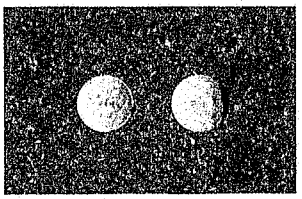
Controlled Ingredient: **methadone hydrochloride 40 mg**
Trade Name: Methadone HCl Diskets
CSA Schedule: II



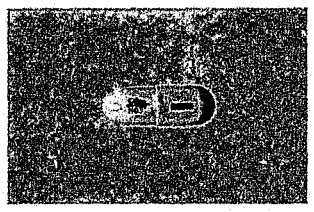
Controlled Ingredient: **methadone hydrochloride 5 mg**
Trade Name: Dolophine HCl
CSA Schedule: II



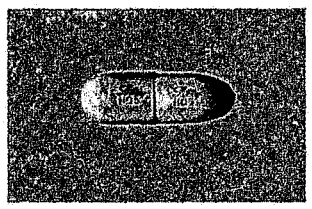
Controlled Ingredient: **methadone hydrochloride 10 mg**
Trade Name: Dolophine HCl
CSA Schedule: II



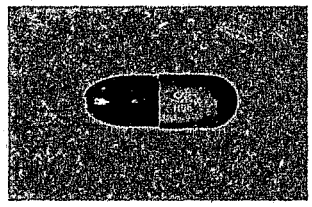
Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: Darvon
CSA Schedule: IV



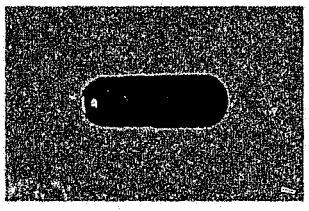
Controlled Ingredient: **propoxyphene hydrochloride 32 mg**
Trade Name: Darvon Compound
CSA Schedule: IV
Other Ingredients: aspirin 227 mg
phenacetin 162 mg
caffeine 32.4 mg



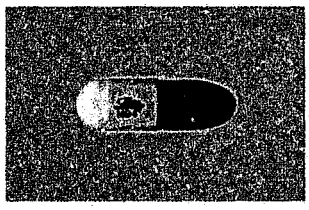
Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: Darvon Compound - 65
CSA Schedule: IV
Other Ingredients: aspirin 227 mg
phenacetin 162 mg
caffeine 32.4 mg



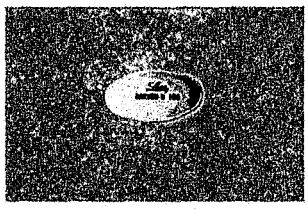
Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: SK - 65 Compound
CSA Schedule: IV
Other Ingredients: aspirin 227 mg
phenacetin 162 mg
caffeine 32.4 mg



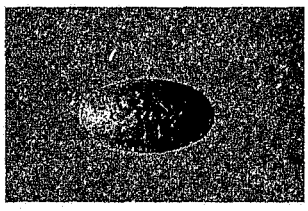
Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: Darvon with A.S.A.
CSA Schedule: IV
Other Ingredient: aspirin 325 mg



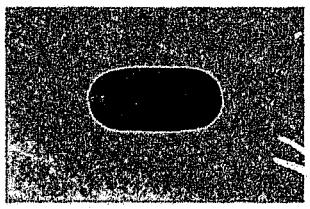
Controlled Ingredient: **propoxyphene napsylate 100 mg**
Trade Name: Darvon - N
CSA Schedule: IV



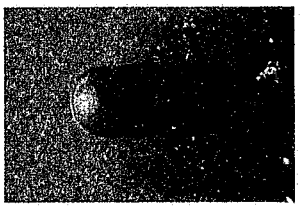
Controlled Ingredient: **propoxyphene napsylate 100 mg**
Trade Name: Darvon-N with A.S.A.
CSA Schedule: IV
Other Ingredient: aspirin 325 mg



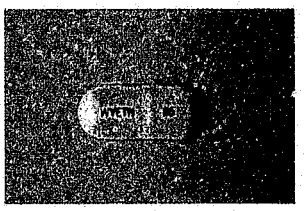
Controlled Ingredient: **propoxyphene napsylate 100 mg**
Trade Name: Darvocet-N 100
CSA Schedule: IV
Other Ingredient: acetaminophen 650 mg



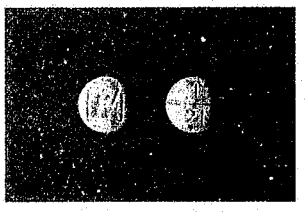
Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: SK-65 APAP
CSA Schedule: IV
Other Ingredient: acetaminophen 650 mg



Controlled Ingredient: **propoxyphene hydrochloride 65 mg**
Trade Name: Wygesic
CSA Schedule: IV
Other Ingredient: acetaminophen 650 mg

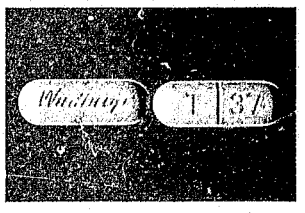


Controlled Ingredient: **pentazocine hydrochloride 50 mg**
Trade Name: Talwin
CSA Schedule: IV

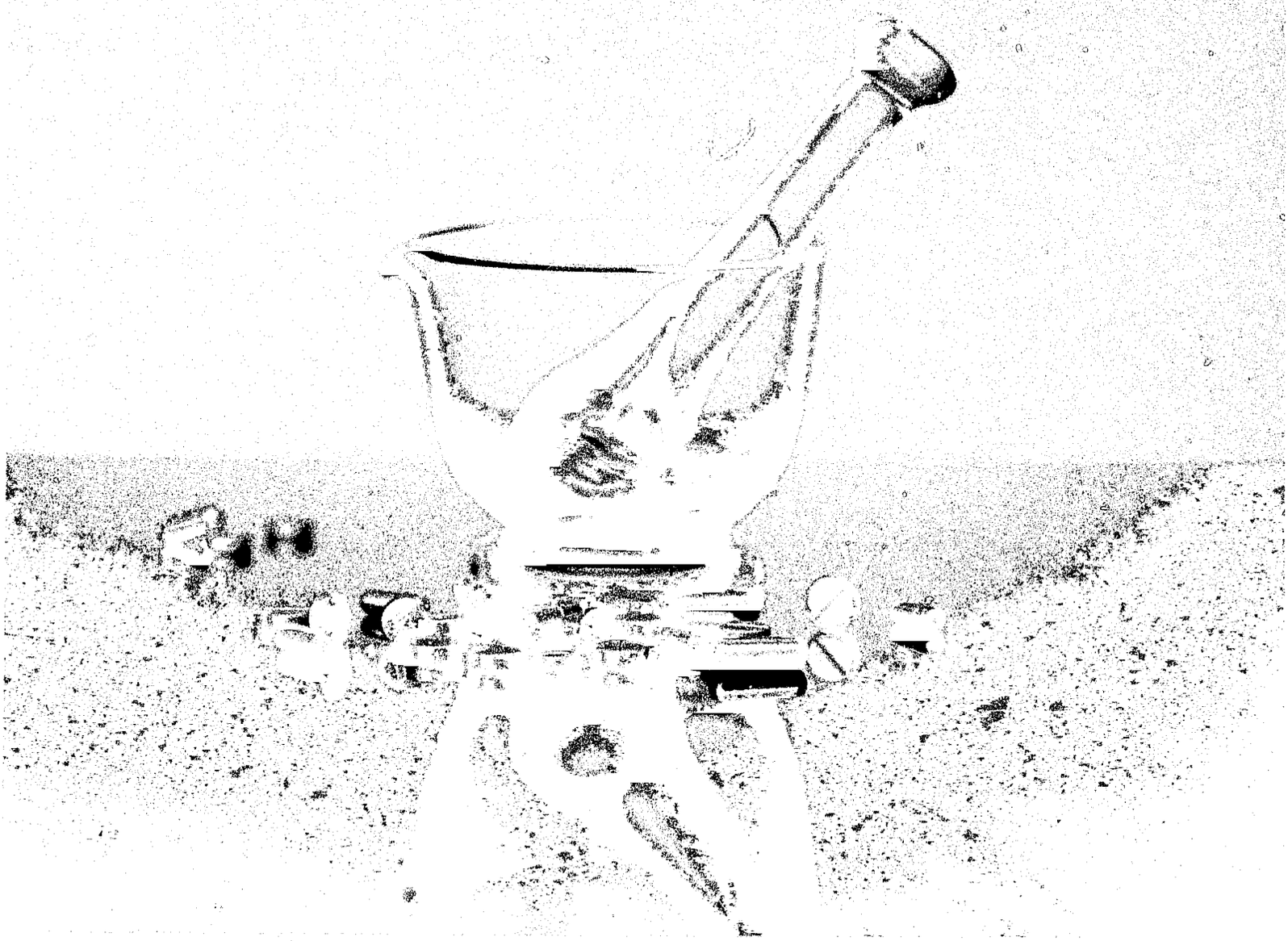


Controlled Ingredient: **pentazocine hydrochloride 50 mg**
Trade Name: Talwin Nx
CSA Schedule: IV
Other Ingredient: naloxone hydrochloride 0.5 mg

Controlled Ingredient: **pentazocine hydrochloride 25 mg**
Trade Name: Talacen
CSA Schedule: IV
Other Ingredient: acetaminophen 650 mg



Depressants



Substances regulated under the CSA as depressants have a potential for abuse associated with both physical and psychological dependence. Taken as prescribed as a physician, depressants may be beneficial for the relief of anxiety, irritability, and tension, and for the symptomatic treatment of insomnia. In excessive amounts, however, they produce a state of intoxication that is remarkably similar to that of alcohol.

As in the case of alcohol, these effects may vary not only from person to person but from time to time in the same individual. Low doses produce mild sedation. Higher doses, insofar as they relieve anxiety or stress, may produce a temporary sense of well-being; they may also produce mood depression and apathy. In marked contrast to the effects of narcotics, however, intoxicating doses invariably result in impaired judgment, slurred speech , and loss of motor coordination. In addition to the dangers of disorientation, resulting in a high incidence of highway accidents, recurrent users incur risks of long-term involvement with depressants.

Tolerance to the intoxicating effects develops rapidly, leading to a progressive narrowing of the margin of safety between an intoxicating and lethal dose. The person who is unaware of the dangers of increasing dependence will often increase the daily dose up to 10 or 20 times the recommended therapeutic level. The source of supply may be no farther than the family medicine cabinet. Depressants are also frequently obtained by theft, illegal prescription, or purchase on the illicit market.

In the world of illicit drug use, depressants often are used as self-medication to soothe jangled nerves brought on by the use of stimulants, to quell the anxiety of "flashbacks" resulting from prior use of hallucinogens, or to ease withdrawal from heroin. The dangers, it should be stressed, are compounded when depressants are used in combination with alcohol or other drugs. Chronic intoxication, though it affects every age group, is not common in middle age. The problem often remains unrecognized until the user exhibits recurrent confusion or an obvious inability to function. Depressants also serve as a means of suicide, a pattern particularly common among women.

The depressants vary with respect to their potential for overdose. Moderate depressant poisoning closely resembles alcoholic inebriation. The symptoms of severe depressant poisoning are coma, a cold clammy skin, a weak and rapid pulse, and a slow to rapid but shallow respiration. Death will follow if the reduced respiration and low blood pressure are not counteracted by proper medical treatment.

The abrupt cessation or reduction of high-dose depressant intake may result in a characteristic withdrawal syndrome, which should be recognized as a medical emergency more serious than that of any other drugs of abuse. An apparent improvement in the patient's condition may be the initial result of detoxification. Within 24 hours, however, minor withdrawal symptoms manifest themselves, among them anxiety and agitation, loss of appetite, nausea and vomiting, increased heart rate and excessive sweating, tremulousness and abdominal cramps. The symptoms usually peak during the second or third day of abstinence from the short-acting barbiturates or meprobamate; they many not be reached until the seventh or eighth day of abstinence from the long-acting barbiturates or benzodiazepines. It is during the peak period that the major withdrawal symptoms usually occur. The patient may experience convulsions indistinguishable from those occurring in grand mal epilepsy. More than half of those who experience convulsions will go on to develop delirium, often resulting in a psychotic state identical to the delirium tremens associated with the alcohol withdrawal syndrome. Detoxification and treatment must therefore be carried out under close medical supervision. While treatment techniques vary to some extent, they share common objectives: stabilization of the drug-dependent state to allay withdrawal symptoms followed by gradual withdrawal to prevent their recurrence.

Among the depressants that give rise to the general conditions described are chloral hydrate, a broad array of barbiturates, glutethimide, methaqualone, meprobamate, and the benzodiazepines.

Chloral Hydrate

The oldest of the hypnotic (sleep-inducing) drugs, chloral hydrate was first synthesized in 1862 and soon supplanted alcohol, opium, and cannabis preparations for inducing sedation and sleep. Its popularity declined after the introduction of the barbiturates. It has a penetrating, slightly acrid odor, and a bitter caustic taste. Its depressant effects, as well as resulting tolerance and dependence, are comparable to those of alcohol, and withdrawal symptoms resemble delirium tremens. Chloral hydrate is a liquid, marketed in the form of syrups and soft gelatin capsules. Cases of poisoning have occurred from mixing chloral hydrate with alcoholic drinks. Chloral hydrate is not a street drug of choice. Its main misuse is by older adults.

Barbiturates

Among the drugs most frequently prescribed to induce sedation and sleep by both physicians and

veterinarians are the barbiturates. About 2,500 derivatives of barbituric acid have been synthesized, but of these only about 15 remain in medical use. Small therapeutic doses tend to calm nervous conditions, and larger dozes cause sleep 20 to 60 minutes after oral administration. As in the case of alcohol, some individuals may experience a sense of excitement before sedation takes effect. If dosage is increased, however, the effects of the barbiturates may progress through successive stages of sedation, sleep, and coma to death from respiratory arrest and cardiovascular complications.

Barbiturates are classified as ultrashort, short, intermediate, and long-acting. The ultrashort-acting barbiturates produce anesthesia within one minute after intravenous administration. The rapid onset and brief duration of action make them undesirable for purposes of abuse. Those in current medical use are hexobarbital (Sombulex), methohexital (Brevital), thiamylal (Surital), and thiopental (Pentothal).

Among the short-acting and intermediate-acting barbiturates are pentobarbital (Nembutal), secobarbital (Seconal), and amobarbital (Amytal)—three of the drugs in the depressant category most sought after by abusers. The group also includes butabarbital (Butisol), talbutal (Lotusate), and aprobarbital (Alurate). After oral administration, the onset time of action is from 15 to 40 minutes and duration of action is up to 6 hours. Physicians prescribe short-acting barbiturates to induce sedation or sleep. Veterinarians use pentobarbital for anesthesia and euthanasia.

Long-acting barbiturates, which include phenobarbital (Luminal), mephobarbital or methylphenobarbital (Mebaral), and metharbital (Gemonil), have onset times of up to one hour and durations of action up to 16 hours. They are used medicinally as sedatives, hypnotics, and anticonvulsants. Their slow onset of action discourages their use for episodic intoxication, and they are not ordinarily distributed on the illicit market except when sold as something else. It should be emphasized, however, that all barbiturates result in a buildup of tolerance, and dependence on them is widespread.

Glutethimide

When glutethimide (Doriden) was introduced in 1954, it was said to be a safe barbiturate substitute without an addiction potential. Experience has shown, however, that glutethimide is yet another depressant having no particular advantage over the barbiturates and several important disadvantages. The sedative effects of glutethimide begin about 30 minutes after oral administration and last for 4 to 8 hours. Glutethimide is marketed as Doriden in 250 and 500 mg tablets. Because the effects of this drug are of long duration, it is exceptionally difficult to reverse overdoses, which often result in death.

Methaqualone

Methaqualone is a synthetic sedative chemically unrelated to the barbiturates, glutethimide, or chloral hydrate. It has been widely abused and has caused many cases of serious poisoning. It was placed in Schedule II in 1973 and rescheduled to Schedule I in 1984. It is administered orally and is rapidly absorbed from the digestive tract. Large doses can cause coma, which may be accompanied by thrashing movements or convulsions. Continued heavy use of large doses leads to tolerance and dependence.

Methaqualone was marketed in the United States under various brand names, such as Quaalude, Parest, Mequin, Optimil, Somnafac, and Sopor. Mandrax is a European name for methaqualone in combination with an antihistamine.

Mecloqualone, a chemical similar to methaqualone in all significant respects, is not legally sold in the United States and is in Schedule I.

Meprobamate

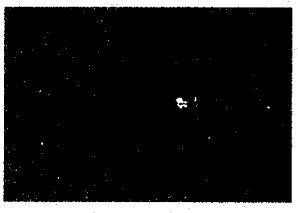
Meprobamate, first synthesized in 1950, introduced the era of mild or "minor" tranquilizers. In the United States today more than 70 tons of meprobamate are distributed annually under its generic name, as well as under brand names such as Miltown, Equanil, and SK-Bamate. Meprobamate is prescribed primarily for the relief of anxiety, tension, and associated muscle spasms. Its onset and duration of action are like those of the intermediate-acting barbiturates; it differs from them in that it is a muscle relaxant, does not produce sleep at therapeutic doses, and is relatively less toxic. Excessive use, however, can result in psychological and physical dependence.

Benzodiazepines

The benzodiazepine family of depressants relieve anxiety, tension, and muscle spasms, product sedation, and prevent convulsions. These substances are marketed as anxiolytics (mild or minor tranquilizers), sedatives, hypnotics or anticonvulsants based to some extent on differences in their duration of action. Twelve members of this group currently are marketed in the United States. They are alprazolam (Xanax), chlordiazepoxide (Librium), clonazepam (Clonopin), clorazepate (Tranxene), diazepam (Valium), flurazepam (Dalmane), halazepam (Paxipam), lorazepam (Ativan), midazolam (Versed), oxazepam (Serax), prazepam (Centrax), quazepam (Dormalin), temazepam (Restoril), and triazolam (Halcion). While the margin of safety associated with these drugs is considerable, overdose can occur, and continuous use for several months can result in psychic or physical dependence.

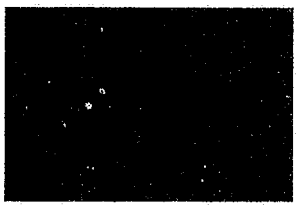
Librium and Valium are among the most widely prescribed drugs in this country. These drugs have a relatively slow onset but long duration of action. Prolonged use of excessive doses may result in physical and psychological dependence. Withdrawal symptoms develop approximately one week to 10 days after continual high doses are abruptly discontinued. The delay in appearance of the abstinence syndrome is due to the slow elimination of the drug from the body. When these drugs are used to obtain a "high," they are usually taken in conjunction with another drug, such as alcohol.

Controlled Ingredient: **chloral hydrate 500 mg**
Trade Name: Chloral Hydrate
CSA Schedule: IV

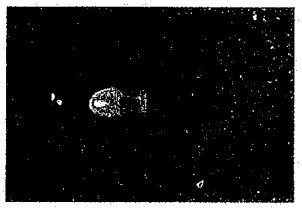


Controlled Ingredient: **chloral hydrate 500 mg**
Trade Name: Chloral Hydrate
CSA Schedule: IV

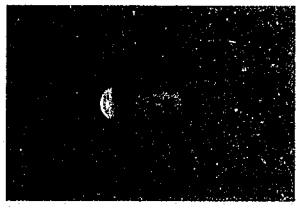
Controlled Ingredient: **chloral hydrate 500 mg**
Trade Name: Chloral Hydrate
CSA Schedule: IV



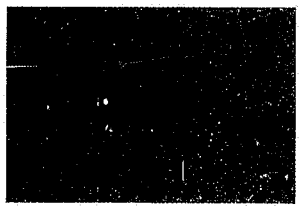
Controlled Ingredient: **amobarbital sodium 200 mg**
Trade Name: Amytal Sodium
CSA Schedule: II



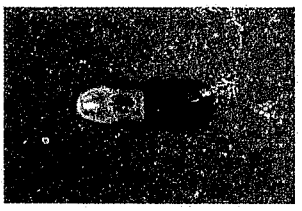
Controlled Ingredient: **pentobarbital sodium 100 mg**
Trade Name: Nembutal Sodium
CSA Schedule: II



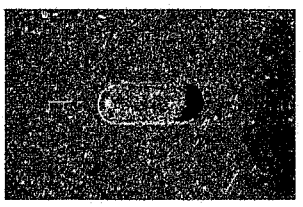
Controlled Ingredient: **secobarbital sodium 100 mg**
Trade Name: Seconal Sodium
CSA Schedule: II



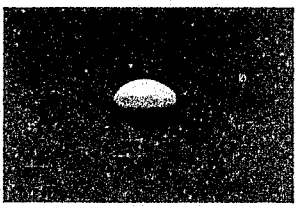
Controlled Ingredients: **amobarbital sodium 100 mg**
secobarbital sodium 100 mg
Trade Name: Tuinal
CSA Schedule: II



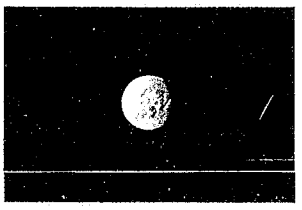
Controlled Ingredient: **talbutal 120 mg**
Trade Name: Lotusate
CSA Schedule: III



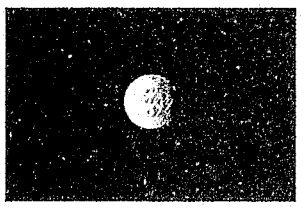
Controlled Ingredient: **phenobarbital 30 mg**
Trade Name: Luminal
CSA Schedule: IV



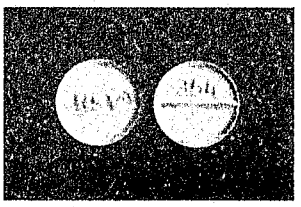
Controlled Ingredient: **phenobarbital 30 mg**
Trade Name: Phenobarbital
CSA Schedule: IV



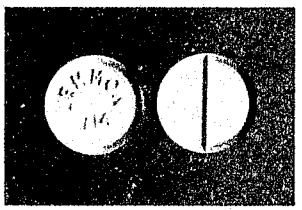
Controlled Ingredient: **phenobarbital 60 mg**
Trade Name: Phenobarbital
CSA Schedule: IV



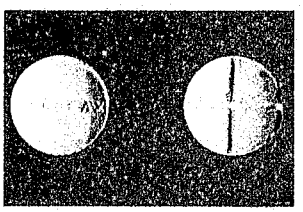
Controlled Ingredient: **glutethimide 500 mg**
Trade Name: Doriden
CSA Schedule: III



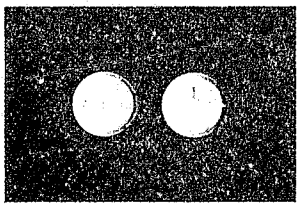
Controlled Ingredient: **methaqualone 300 mg**
Trade Name: Quaalude - 300
CSA Schedule: I (no longer marketed in U.S.)



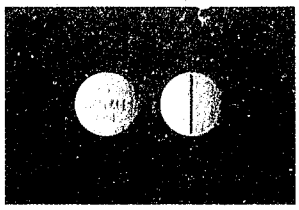
Controlled Ingredient: **methaqualone 250 mg**
Trade Name: Mandrax *(not marketed in U.S.)*
CSA Schedule: I
Other Ingredient: **diphenhydramine hydrochloride 25 mg**



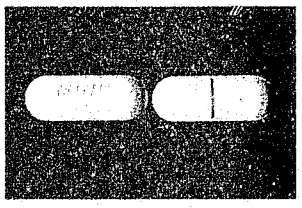
Controlled Ingredient: **meprobamate 400 mg**
Trade Name: Equanil
CSA Schedule: IV



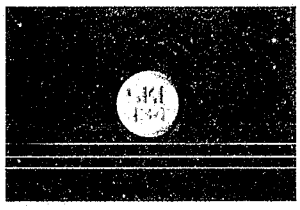
Controlled Ingredient: **meprobamate 400 mg**
Trade Name: Miltown
CSA Schedule: IV



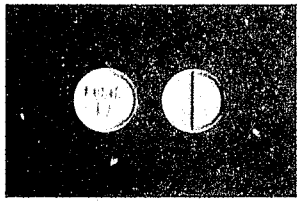
Controlled Ingredient: **meprobamate 600 mg**
Trade Name: Miltown 600
CSA Schedule: IV



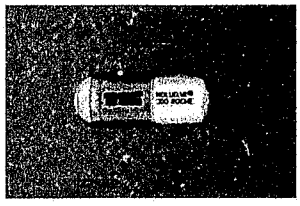
Controlled Ingredient: **meprobamate 400 mg**
Trade Name: SK-Bamate
CSA Schedule: IV



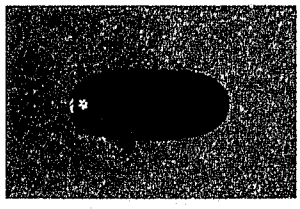
Controlled Ingredient: **methyprylon 200 mg**
Trade Name: Noludar
CSA Schedule: III



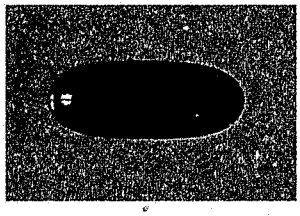
Controlled Ingredient: **methyprylon 300 mg**
Trade Name: Noludar - 300
CSA Schedule: III



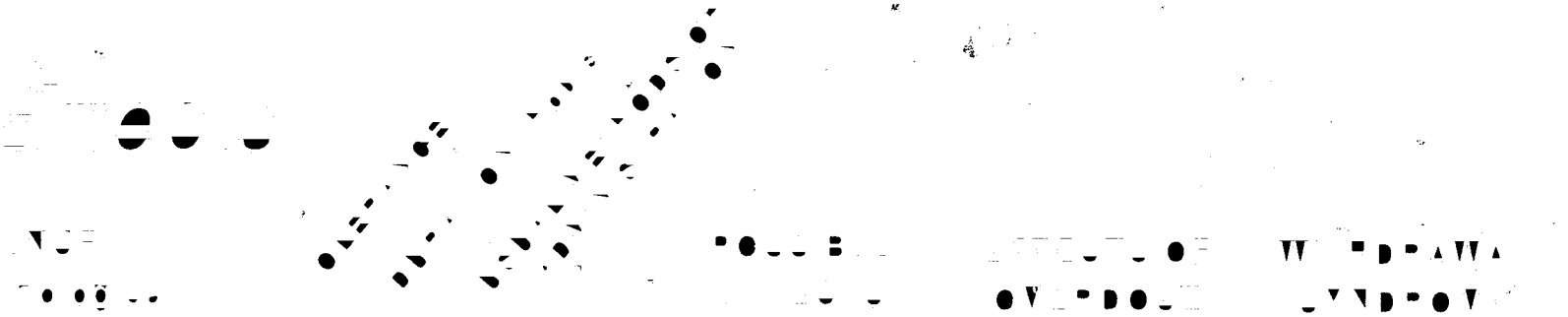
Controlled Ingredient: **ethchlorvynol 500 mg**
Trade Name: Placidyl
CSA Schedule: IV



Controlled Ingredient: **ethchlorvynol 750 mg**
Trade Name: Placidyl
CSA Schedule: IV

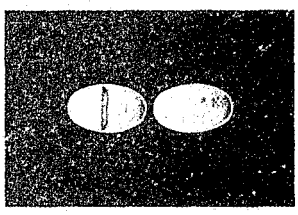


Opium	II III V	Dover's Powder, Paregoric Pare ectolin	Anal esic, antidiarrheal	Hi h
Morphine	II III	Morphine, MS-Contin, Roxanol, Roxanol-SR	Anal esic, antitussive	Hi h
Codeine	II III V	Tylenol w/Codeine, Empirin w/Codeine Robitussan A-C, Fiorinal w/Codeine	Anal esic, antitussive	Moderate
Heroin	I	Diacetylmorphine, Horse, Smack	None	Hi h
Hydromorphone	II	Dilaudid	Anal esic	Hi h
Meperidine (Pethidine)	II	Demerol, Mepergan	Analgesic	Hi h
Methadone	II	Dolophine, Methadone, Methadose	Analgesic	Hi h
Other Narcotics	I II III IV V	Numorphan, Percodan, Percocet, Tylox, Tussionex, Fentan l, Darvon, Lomotil, Talwin[2]	Analgesic, antidiarrheal, antitussive	Hi h-Low
Chloral Hydrate	IV	Noctec	H notic	Moderate
Barbiturates	II III IV	Amytal, Butisol, Fiorinal, Lotusate, Nembutal, Seconal, Tuinal, Phenobarbital	Anasthetic, anticonvulsant, sedative, hypnotic, veterinary euthanasia agent	High-Mod
Benzodiazepines	IV	Ativan, Dalmane, Diazepam, Librium, Xanax, Serax, Valium Tranxexe,, Verstran, Versed, Halcion, Paxi am, Restoril	Antianxiety, anticonvulsant, sedative, hypnotic	Low
Methaqualone	I	Quaalude	Sedative h notic	Hi h
Glutethimide	III	Doriden	Sedative, h notic	Hi h
Other Depressants	III IV	Equanil, Miltown, Noludar, Placid l, Valmid	Antianxiety, sedative, h notic	Moderate
Cocaine[1]	II	Coke, Flake, Snow, Crack	Local anesthetic	Possible
Amphetamines	II	Biphetamine, Delcobese, Desoxyn, Dexedrine, Obetrol	Attention deficit disorders, narcole s wei ht control	Possible
Phenmetrazine	II	Preludin	Wei ht control	Possible
Methylphenidate	II	Ritalin	Attention deficit disorders, narcolepsy	Possible
Other Stimulants	III IV	Adipex, Cylert, Didrex, Ionamin, Melfiat, Plegine, Sanorex Tenuate Te anil Prelu-2	Wei ht control	Po i l
LSD	I	Acid, Microdot	None	None
Mescaline and Peyote	I	Mexc, Buttons, Cactus	None	None
Amphetamine Variants	I	2,5-DMA, PMA, STP, MDA, MDMA, TMA, DOM, DOB	None	Unknown
Phencyclidine	II	PCP, Angel Dust, Hog	None	Unknown
Phencyclidine Analogues	I	PCE, PCPy, TCP	None	Unknown
Other Hallucinogens	I	Bufotenine, Ibogaine, DMT, DET, Psiloc bin, Psiloc n	None	None
Marijuana	I	Sinsemilla, Thai Sticks	None	Unknown
Tetrahydrocannabinol	II	THC Marinol	Cancer chemotherapy antinauseant	Unknown
Hashish	I	Hash	None	Unknown
Hashish Oil	I	Hash Oil	None	Unknown

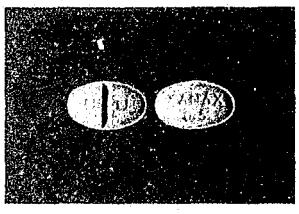


Hi_h	Yes	3-6	Oral, smoked	Euphoria, drowsiness, respiratory depression, constricted pupils, nausea	Slow and shallow breathing, clammy skin, convulsions, coma, possible death	Watery eyes, runny nose, yawning, loss of appetite, irritability, tremors, panic, cramps, nausea, chills and sweating
Hi_h	Yes	3-6	Oral, smoked, in'ected			
Moderate	Yes	3-6	Oral, in'ected			
Hi_h	Yes	3-6	Injected, sniffed, smoked			
Hi_h	Yes	3-6	Oral, injected			
Hi_h	Yes	3-6	Oral, in'ected			
Hi_h-Low	Yes	12-24	Oral, in'ected			
Hi_h-Low	Yes	Variable	Oral, in'ected			
Moderate	Yes	5-8	Oral	Slurred speech, disorientation, drunken behavior without odor of alcohol	Shallow respiration, clammy skin, dilated pupils, weak and rapid pulse, coma, possible death	Anxiety, insomnia, tremors, delirium, convulsions, possible death
High-Mod.	Yes	1-16	Oral			
Low	Yes	4-8	Oral			
Hi_h	Yes	4-8	Oral			
Moderate	Yes	4-8	Oral			
Moderate	Yes	4-8	Oral			
Hi_h	Yes	1-2	Sniffed, smoked, injected	Increased alertness, excitation, euphoria, increased pulse rate & blood pressure, insomnia, loss of appetite	Agitation, increase in body temperature, hallucinations, convulsions, possible death	Apathy, long periods of sleep, irritability, depression, disorientation
Hi_h	Yes	2-4	Oral, in'ected			
Hi_h	Yes	2-4	Oral, in'ected			
Moderate	Yes	2-4	Oral, injected			
Hi_h	Yes	2-4	Oral, in'			
Unknown	Yes	8-12	Oral	Illusions and hallucinations, poor perception of time and distance	Longer, more intense "trip" episodes, psychosis, possible death	Withdrawal syndrome not reported
Unknown	Yes	8-12	Oral			
Unknown	Yes	Variable	Oral, in'ected			
High	Yes	Days	Smoked, oral, injected			
Hi_h	Yes	Days	Smoked, oral, in'ected			
Unknown	Possible	Variable	Smoked, oral, in'ected sniffed			
Moderate	Yes	2-4	Smoked, oral	Euphoria, relaxed inhibitions, increased appetite, disoriented behavior	Fatigue, paranoia, possible psychosis	Insomnia, hyperactivity, and decreased appetite occasionally reported
Moderate	Yes	2-4	Smoked, oral			
Moderate	Yes	2-4	Smoked, oral			
Moderate	Yes	2-4	Smoked, oral			

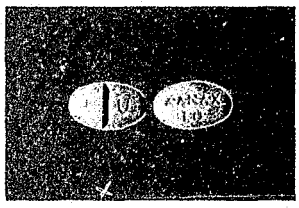
Controlled Ingredient: **alprazolam 0.25 mg**
Trade Name: Xanax
CSA Schedule: IV



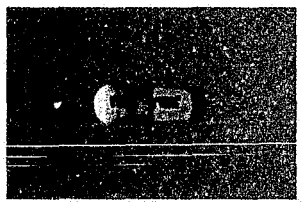
Controlled Ingredient: **alprazolam 0.5 mg**
Trade Name: Xanax
CSA Schedule: IV



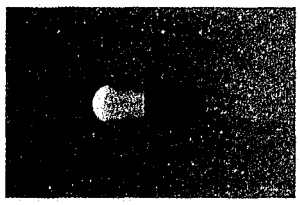
Controlled Ingredient: **alprazolam 1 mg**
Trade Name: Xanax
CSA Schedule: IV



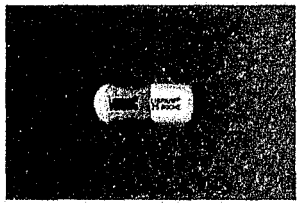
Controlled Ingredient: **chlordiazepoxide hydrochloride 5 mg**
Trade Name: Librium
CSA Schedule: IV



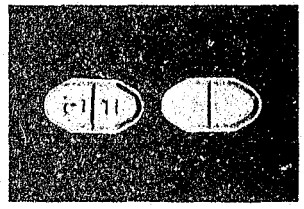
Controlled Ingredient: **chlordiazepoxide hydrochloride 10 mg**
Trade Name: Librium
CSA Schedule: IV



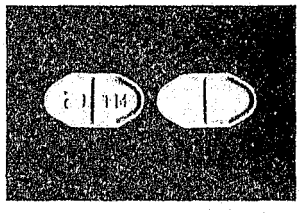
Controlled Ingredient: **chlordiazepoxide hydrochloride 25 mg**
Trade Name: Librium
CSA Schedule: IV



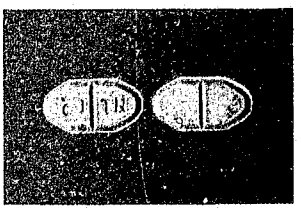
Controlled Ingredient: **clorazepate dipotassium 3.75 mg**
Trade Name: Tranxene
CSA Schedule: IV



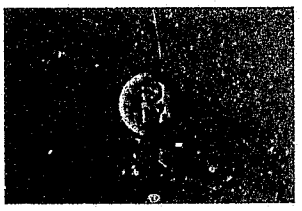
Controlled Ingredient: **clorazepate dipotassium 7.5 mg**
Trade Name: Tranxene
CSA Schedule: IV



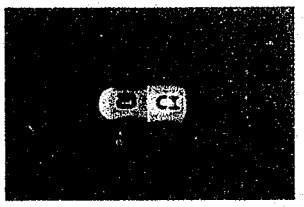
Controlled Ingredient: **clorazepate dipotassium 15 mg**
Trade Name: Tranxene
CSA Schedule: IV



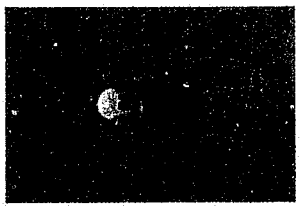
Controlled Ingredient: **clorazepate dipotassium 22.5 mg**
Trade Name: Tranxene - SD
CSA Schedule: IV



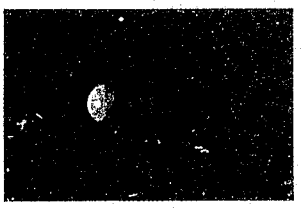
Controlled Ingredient: **clorazepate dipotassium 3.75 mg**
Trade Name: Tranxene
CSA Schedule: IV



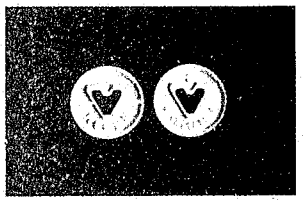
Controlled Ingredient: **clorazepate dipotassium 7.5 mg**
Trade Name: Tranxene
CSA Schedule: IV



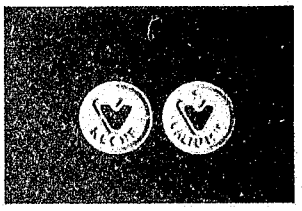
Controlled Ingredient: **clorazepate dipotassium 15 mg**
Trade Name: Tranxene
CSA Schedule: IV



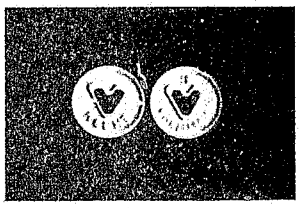
Controlled Ingredient: **diazepam 2 mg**
Trade Name: Valium
CSA Schedule: IV



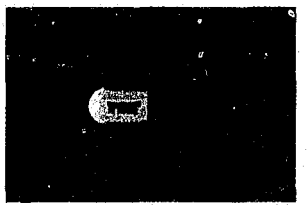
Controlled Ingredient: **diazepam 5 mg**
Trade Name: Valium
CSA Schedule: IV



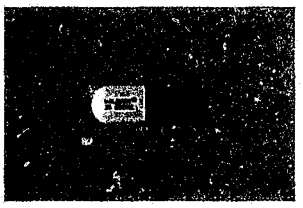
Controlled Ingredient: **diazepam 10 mg**
Trade Name: Valium
CSA Schedule: IV



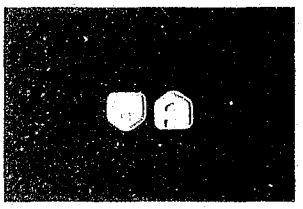
Controlled Ingredient: **flurazepam 15 mg**
Trade Name: Dalmane
CSA Schedule: IV



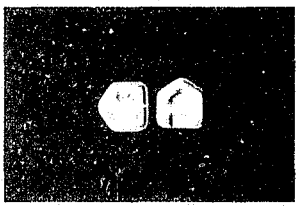
Controlled Ingredient: **flurazepam 30 mg**
Trade Name: Dalmane
CSA Schedule: IV



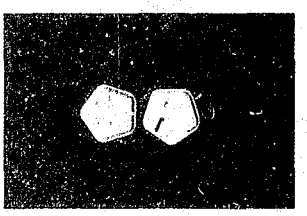
Controlled Ingredient: **lorazepam 0.5 mg**
Trade Name: Ativan
CSA Schedule: IV



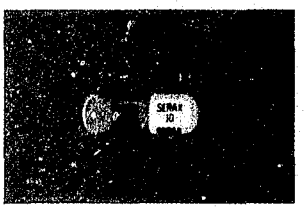
Controlled Ingredient: **lorazepam 1.0 mg**
Trade Name: Ativan
CSA Schedule: IV



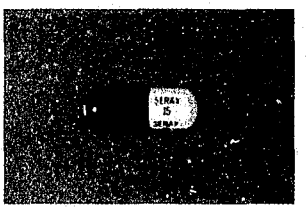
Controlled Ingredient: **lorazepam 2.0 mg**
Trade Name: Ativan
CSA Schedule: IV



Controlled Ingredient: **oxazepam 10 mg**
Trade Name: Serax
CSA Schedule: IV

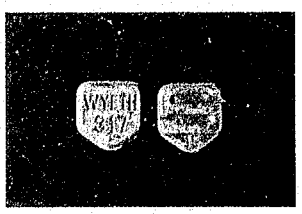


Controlled Ingredient: **oxazepam 15 mg**
Trade Name: Serax
CSA Schedule: IV

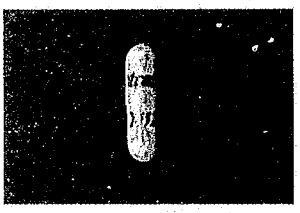


Controlled Ingredient: **oxazepam 30 mg**
Trade Name: Serax
CSA Schedule: IV

Controlled Ingredient: **oxazepam 15 mg**
Trade Name: Serax
CSA Schedule: IV

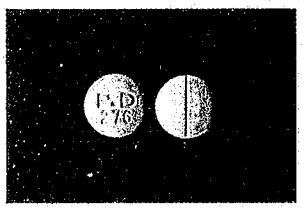


Controlled Ingredient: **prazepam 5 mg**
Trade Name: Centrax
CSA Schedule: IV

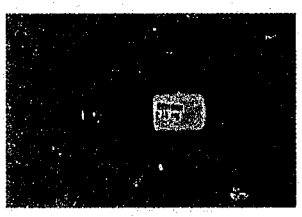


Controlled Ingredient: **prazepam 10 mg**
Trade Name: Centrax
CSA Schedule: IV

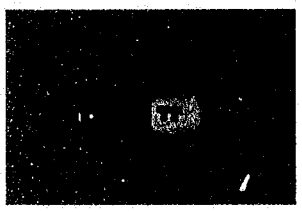
Controlled Ingredient: **prazepam 10 mg**
Trade Name: Centrax
CSA Schedule: IV



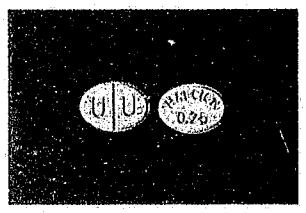
Controlled Ingredient: **temazepam 15 mg**
Trade Name: Restoril
CSA Schedule: IV



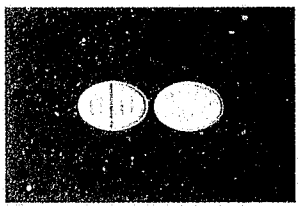
Controlled Ingredient: **temazepam 30 mg**
Trade Name: Restoril
CSA Schedule: IV



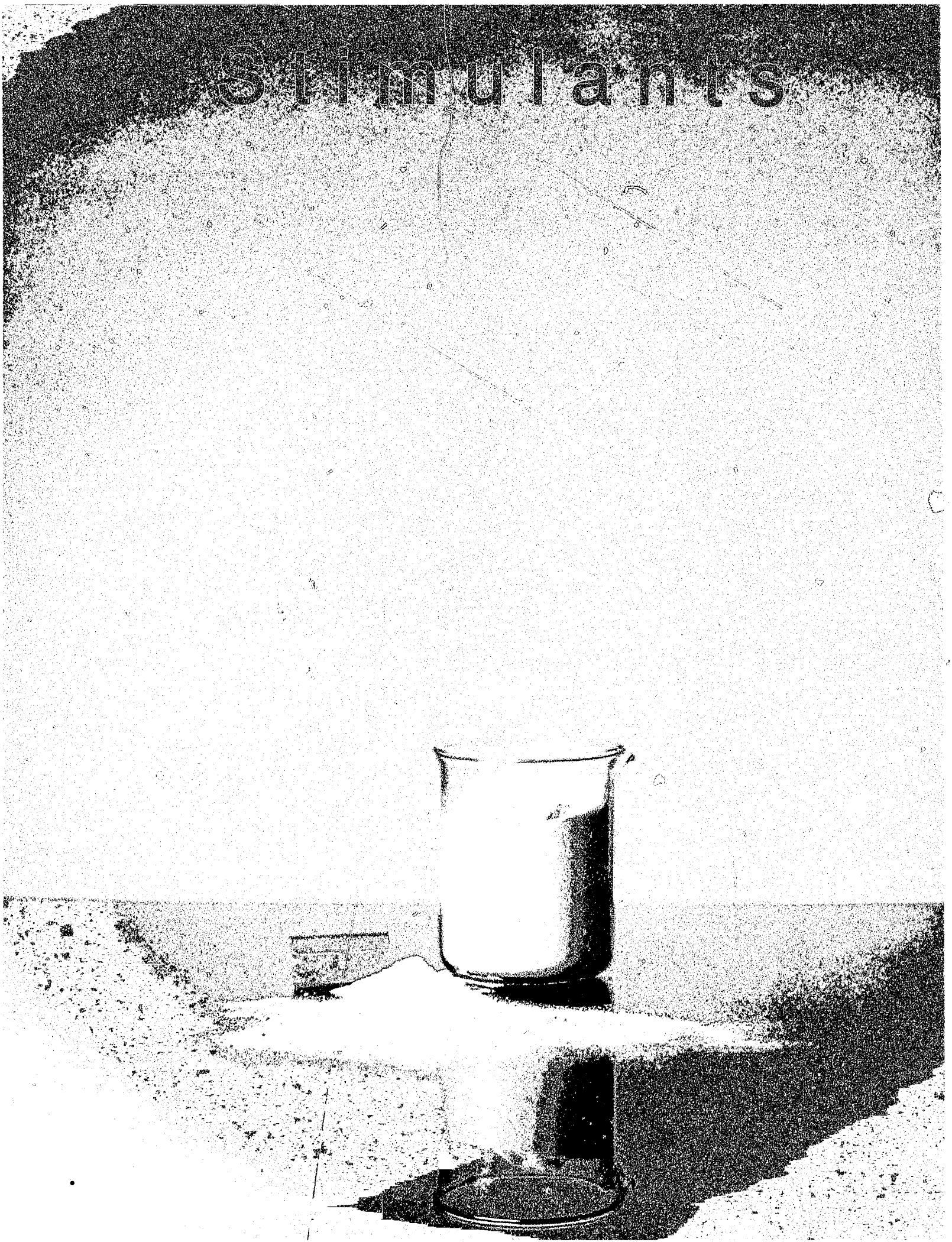
Controlled Ingredient: **triazolam 0.25 mg**
Trade Name: Halcion
CSA Schedule: IV



Controlled Ingredient: **triazolam 0.5 mg**
Trade Name: Halcion
CSA Schedule: IV



Stimulants



The two most prevalent stimulants are nicotine in tobacco products and caffeine, the active ingredient of coffee, tea, and some bottled beverages that are sold in every supermarket. When used in moderation, these stimulants tend to relieve fatigue and increase alertness. They are an accepted part of our culture.

There are, however, more potent stimulants that because of their dependence-producing potential are under the regulatory control of the CSA. These controlled stimulants are available by prescription for medical purposes; they are also clandestinely manufactured for distribution on the illicit market.

Users tend to rely on stimulants to feel stronger, more decisive, and self-possessed. Because of the cumulative effects of the drugs, chronic users often follow a pattern of taking "uppers" in the morning and "downers," such as alcohol or sleeping pills, at night. Such chemical manipulation interferes with normal body processes and can lead to mental and physical illness.

Individuals who resort to stimulants for their euphoric effects consume large doses sporadically, over weekends or at night, often going on to experiment with other drugs of abuse. The consumption of stimulants may result in a temporary sense of exhilaration, superabundant energy, hyperactivity, extended wakefulness, and a loss of appetite. It may also induce irritability, anxiety, and apprehension. These effects are greatly intensified with administration by intravenous injection, which may produce a sudden sensation known as a "flash" or "rush." The protracted use of stimulants is followed, however, by a period of depression known as "crashing" that is invariably described as unpleasant. Since the depression can be easily counteracted by a further injection of stimulant, this abuse pattern becomes increasingly difficult to break. Heavy users may inject themselves every few hours, a process sometimes continued to the point of delirium, psychosis, or physical exhaustion.

Tolerance to both the euphoric and appetite suppressant effects develops rapidly. Doses large enough to overcome the insensitivity that develops may cause various mental aberrations, the early signs of which include repetitive grinding of the teeth, touching and picking the face and extremities, performing the same task over and over, a preoccupation with one's own processes, suspiciousness, and a sense of being watched. Paranoia with auditory and visual hallucinations characterizes the toxic syndrome resulting from continued high doses. Dizziness, tremor, agitation, hostility, panic, headache, flushed skin, chest pain with palpitations, excessive sweating, vomiting, and abdominal cramps are among the symptoms of a sublethal overdose. In the absence of medical intervention, high fever, convulsions, and cardiovascular collapse may precede the onset of death. It should be added that physical exertion increases the hazards of stimulant use since accidental death is due in part to their effects on the cardiovascular and temperature regulating systems. Fatalities under conditions of extreme exertion have been reported among athletes who have taken stimulants in moderate amounts.

If withdrawn from stimulants, chronic high-dose users exhibit profound depression, apathy, fatigue, and disturbed sleep for up to 20 hours a day. The immediate withdrawal syndrome may last for several days. There may also be a lingering impairment of perception and thought processes. Anxiety, an incapacitating tenseness, and suicidal tendencies may persist for weeks or months. Many experts now interpret these symptoms as indicating that stimulant drugs are capable of producing physical dependence. Whether the withdrawal syndrome is physical or psychological in origin is, in this instance, academic since the stimulants are recognized as among the most potent agents of reward and reinforcement that underlie the problem of dependence.

Cocaine

The most potent stimulant of natural origin, cocaine is extracted from the leaves of the coca plant (Erythroxylon coca), which has been grown in the Andean highlands of South America since prehistoric times. The leaves of the plant are chewed in the region for refreshment and relief from fatigue.

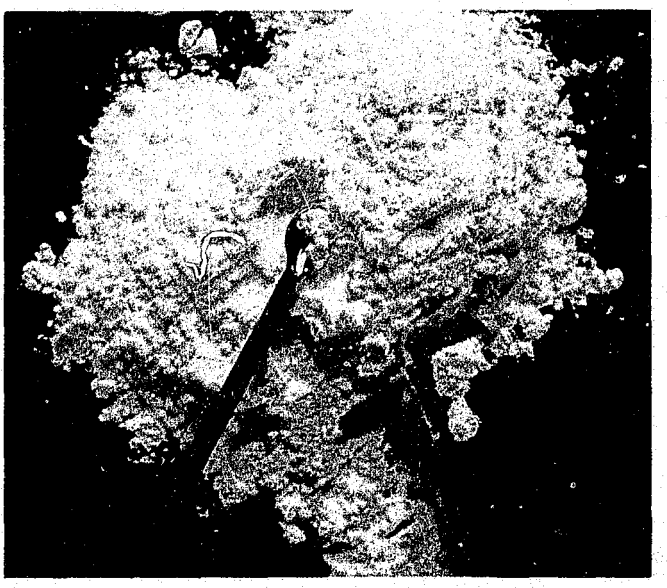
Pure cocaine, the principal psychoactive ingredient, was first isolated in the 1880s. It was used as an anesthetic in eye surgery for which no previously known drug had been suitable. It became particularly useful in surgery of the nose and throat because of its ability to anesthetize tissue while simultaneously constricting blood vessels and limiting bleeding. Many of its therapeutic applications are now obsolete because of the development of safer drugs as local anesthetics.

Illicit cocaine is usually distributed as a white crystalline powder, often diluted by a variety of other ingredients, the most common of which are sugars such as lactose, inositol, mannitol, and local anesthetics such as lidocaine. The frequent adulteration is to increase volume and thus to multiply profits.

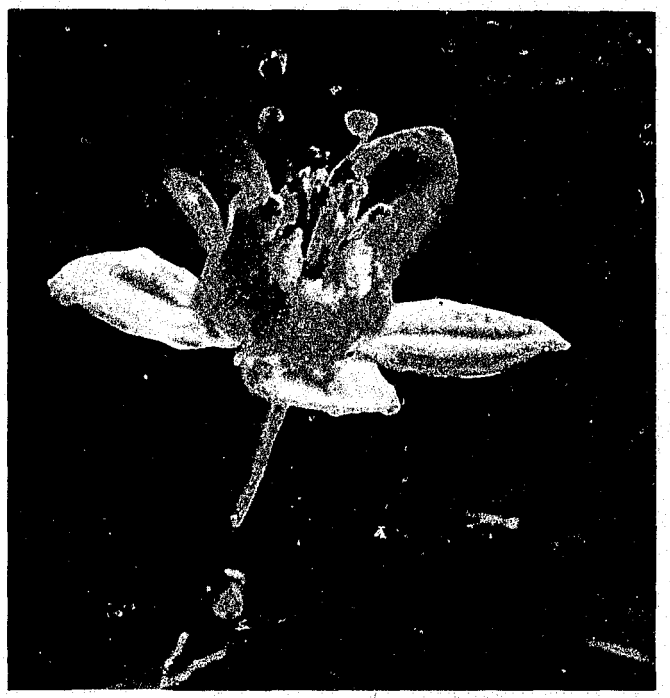
The drug is most commonly administered by being "snorted" through the nasal passages. Symptoms of repeated use in this manner may resemble the congested nose of a common cold.

The intensity of the psychological effects of cocaine, as with many psychoactive drugs, depends on the rate of entry into the blood. Intravenous injection or smoking produces an almost immediate intense experience. Cocaine hydrochloride, the usual form in which cocaine is sold, while soluble in water and

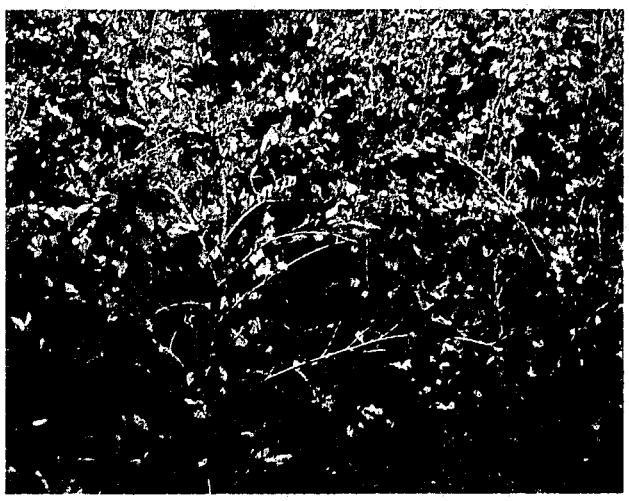
Cocaine hydrochloride



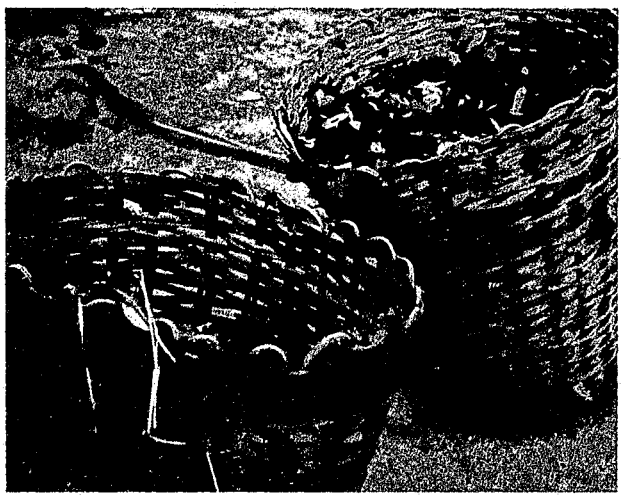
Coca flower



Coca leaf

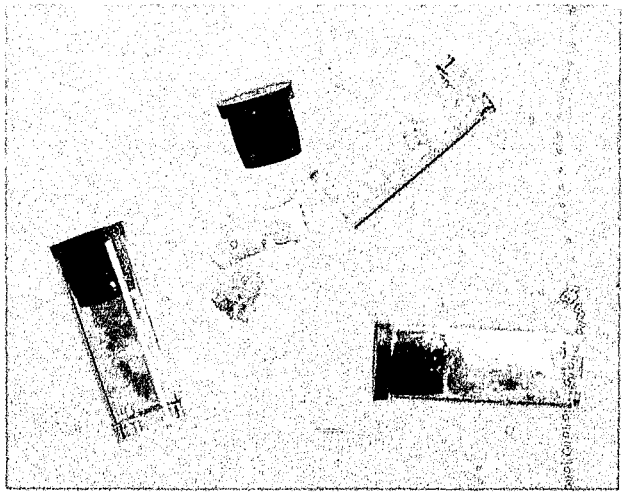


Field of coca bushes, with berries



Baskets of gathered coca leaves

Jungle maceration pit for leaching coca leaves



Crack

sometimes injected, is fairly insensitive to heat. Conversion of cocaine hydrochloride to cocaine base yields a substance that will become volatile when heated. "Crack," or cocaine base in the form of chips, chunks or "rocks," is usually vaporized in a pipe or smoked with plant material in a cigarette or a "joint." Inhalation of the cocaine fumes produces effects that are very fast in onset, very intense, and are quickly over. These intense effects are often followed within minutes by a dysphoric "crash," leading to frequently repeated doses and rapid addiction.

Because of the intensity of its pleasurable effects, cocaine has the potential for extraordinary psychic dependency. Recurrent users may resort to larger doses at shorter intervals until their lives are largely committed to their drug addiction. Anxiety, restlessness, and extreme irritability may indicate the onset of a toxic psychosis similar to paranoid schizophrenia. Tactile hallucinations so afflict some chronic users that they injure themselves in attempting to remove imaginary insects from under the skin. Others feel persecuted and fear that they are being watched and followed.

Excessive doses of cocaine may cause seizures and death from, for example, respiratory failure, stroke, cerebral hemorrhage, or heart failure. There is no specific treatment for cocaine overdose. Nor does tolerance develop to the toxic effects of cocaine. In fact, there are studies which indicate that repeated use lowers the dose at which toxicity occurs. There is no "safe" dose of cocaine.

Amphetamines

Amphetamine, dextroamphetamine, and methamphetamine are so similar in the effects they induce that they can be differentiated from one another only by laboratory analysis. Amphetamine was first used clinically in the mid-1930s to treat narcolepsy, a rare disorder resulting in an uncontrollable tendency to sleep. After the introduction of the amphetamines into medical practice, the number of conditions for which they were prescribed multiplied, as did the quantities made available.

For a time, they were sold without prescription in inhalers and other over-the-counter preparations. Abuse became popular. Many segments of the population, especially those concerned with extensive or irregular hours, were among those who used amphetamines orally in excessive amounts. "Speed freaks," who injected amphetamines, became known for their bizarre and often violent behavior. Over-the-counter availability (except inhalers) was terminated and amphetamines now are available only by prescription. Inhalers still are available over-the-counter.

Whereas a prescribed dose is between 2.5 and 15 mg per day, those on a "speed" binge have been known to inject as much as 1,000 mg every 2 or 3 hours. Recognition of the deleterious effects of these drugs and their limited therapeutic value led to a marked reduction in their use by the medical profession. The medical use of amphetamines is now limited to narcolepsy, attention deficit disorders in children, and certain cases of obesity—as a short-term adjunct to a restricted diet for patients resistant to other forms of therapy.

Their illicit use closely parallels that of cocaine in the range of its short-term and long-term effects. Despite broad recognition of the risks, clandestine laboratories produce vast quantities of amphetamines, particularly methamphetamine, for distribution on the illicit market.

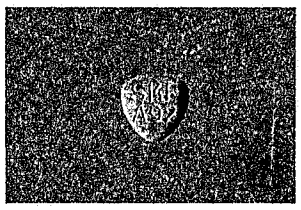
Phenmetrazine (Preludin) and Methylphenidate (Ritalin)

The medical indications, patterns of abuse, and adverse effects of phenmetrazine (Preludin) and methylphenidate (Ritalin) compare closely with those of the other stimulants. Phenmetrazine is medically used only as an appetite suppressant and methylphenidate mainly for treatment of attention deficit disorders in children. They have been subject to abuse in countries where freely available, as they are here in localities where medical practitioners write prescriptions on demand. While the abuse of these drugs involves both oral and intravenous use, most of the abuse involves the injection of tablets dissolved in water. Complications arising from such use are common since the tablets contain insoluble materials which, when injected, block small blood vessels and cause serious damage, especially in the lungs and retina of the eye.

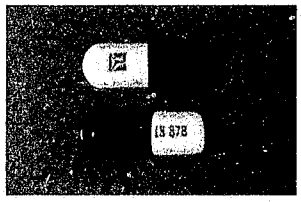
Anorectic Drugs

In recent years, a number of drugs have been manufactured and marketed to replace amphetamines as appetite suppressants. These so-called anorectic drugs include benzphetamine (Didrex), chlorphentermine (Pre-Sate, etc.), clortermine (Voranil), diethylpropion (Tenuate, Tepanil, etc.), fenfluramine (Pondimin), mazindol (Sanorex, Mazanor), phendimetrazine (Plegine, Bacarate, Melfiat, Statobex, Tanorex, etc.), phentermine (Ionamin, Adipex-P, etc.). They produce many of the effects of the amphetamines, but are generally less potent. All are controlled because of the similarity of their effects to those of the amphetamines. Fenfluramine differs somewhat from the others in that at low doses it produces sedation.

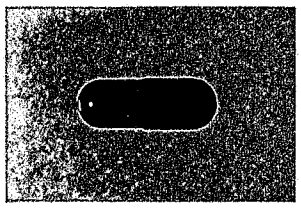
Controlled Ingredient: **amphetamine sulfate 10 mg**
Trade Name: Benzedrine
CSA Schedule: II



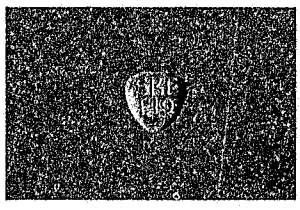
Controlled Ingredients: **amphetamine 6.25 mg**
dextroamphetamine 6.25 mg
Trade Name: Biphetamine '12½'
CSA Schedule: II



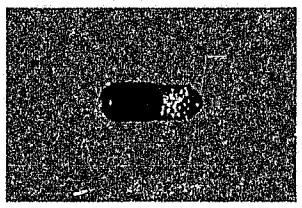
Controlled Ingredients: **amphetamine 10 mg**
dextroamphetamine 10 mg
Trade Name: Biphetamine '20'
CSA Schedule: II



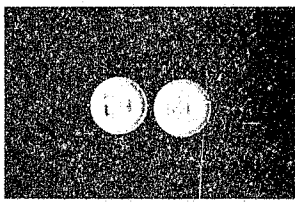
Controlled Ingredient: **dextroamphetamine sulfate 5 mg**
Trade Name: Dexedrine
CSA Schedule: II



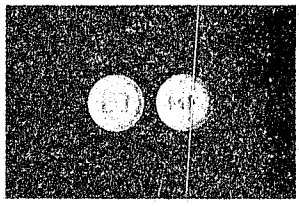
Controlled Ingredient: **dextroamphetamine sulfate 15 mg**
Trade Name: Dexedrine
CSA Schedule: II



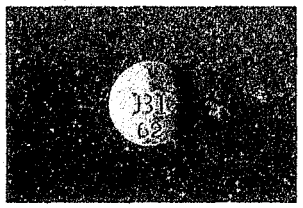
Controlled Ingredient: **methamphetamine hydrochloride 10 mg**
Trade Name: Desoxyn
CSA Schedule: II



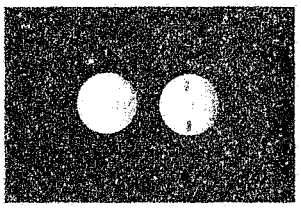
Controlled Ingredient: **methamphetamine hydrochloride 15 mg**
Trade Name: Desoxyn
CSA Schedule: II



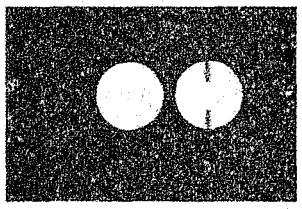
Controlled Ingredient: **phenmetrazine hydrochloride 75 mg**
Trade Name: Preludin
CSA Schedule: II



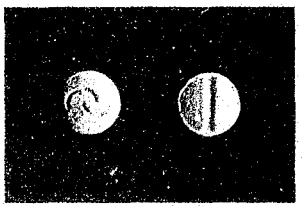
Controlled Ingredient: **methylphenidate hydrochloride 10 mg**
Trade Name: Ritalin
CSA Schedule: II



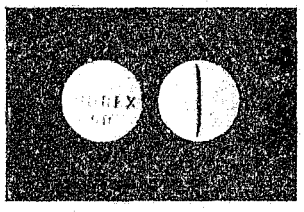
Controlled Ingredient: **methylphenidate hydrochloride 20 mg**
Trade Name: Ritalin
CSA Schedule: II



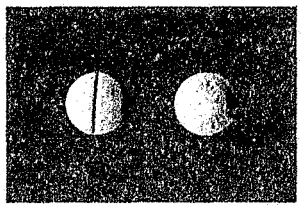
Controlled Ingredient: **fenethylline hydrochloride 50 mg**
Trade Name: Captagon (not marketed in U.S.)
CSA Schedule: I



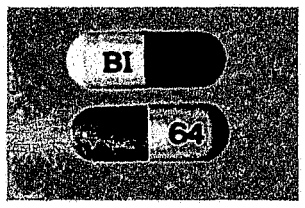
Controlled Ingredient: **benzphetamine 50 mg**
Trade Name: Didrex
CSA Schedule: III



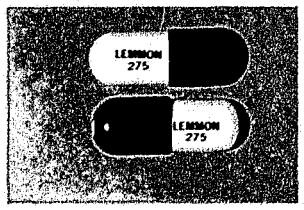
Controlled Ingredient: **phendimetrazine tartrate 35 mg**
Trade Name: Plegine
CSA Schedule: III



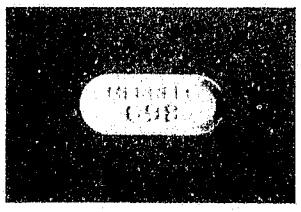
Controlled Ingredient: **phendimetrazine tartrate 105 mg**
Trade Name: Prelu-2
CSA Schedule: III



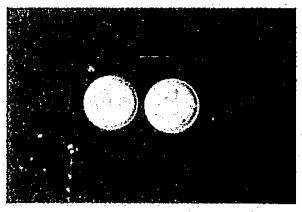
Controlled Ingredient: **phendimetrazine tartrate 70 mg**
Trade Name: Statobex-D
CSA Schedule: III



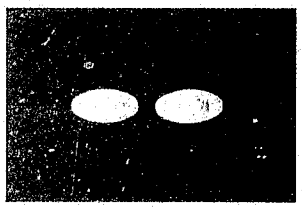
Controlled Ingredient: **diethylpropion hydrochloride 75 mg**
Trade Name: Tenuate Dospan
CSA Schedule: IV



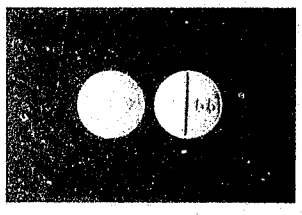
Controlled Ingredient: **mazindol 1 mg**
Trade Name: Mazanor
CSA Schedule: IV



Controlled Ingredient: **mazindol 1 mg**
Trade Name: Sanorex
CSA Schedule: IV

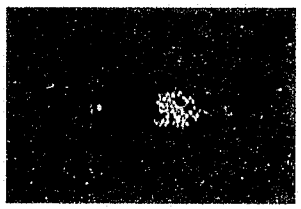


Controlled Ingredient: **mazindol 2 mg**
Trade Name: Sanorex
CSA Schedule: IV

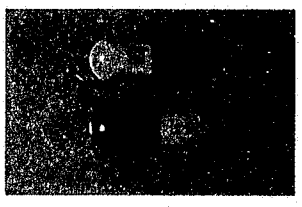


Controlled Ingredient: **phentermine hydrochloride 37.5 mg**
Trade Name: Adipex-P
CSA Schedule: IV

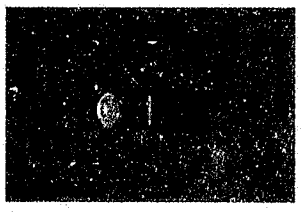
Controlled Ingredient: **phentermine hydrochloride 30 mg**
Trade Name: Fastin
CSA Schedule: IV



Controlled Ingredient: **phentermine 15 mg**
Trade Name: Ionamin
CSA Schedule: IV



Controlled Ingredient: **phentermine 30 mg**
Trade Name: Ionamin
CSA Schedule: IV



Cannabis

Cannabis sativa L., the hemp plant, grows wild throughout most of the tropic and temperate regions of the world. It is a single species. This plant has long been cultivated for the tough fiber of the stem, the seed used in feed mixtures, and the oil as an ingredient of paint, as well as for its biologically active substances, most highly concentrated in the leaves and resinous flowering tops.

The plant material has been used as a drug for centuries. In 1839, it entered the annals of western medicine with the publication of an article surveying its therapeutic potential, including possible uses as an analgesic and anticonvulsant agent. It was alleged to be effective in treating a wide range of physical and mental ailments during the remainder of the 19th century. With the introduction of many new synthetic drugs in the 20th century, interest in it as a medication waned.

The controls imposed with the passage of the Marihuana Tax Act of 1937 further curtailed its use in treatment, and by 1941 it had been deleted from the *U.S. Pharmacopoeia* and the *National Formulary*, the official compendia of drugs. But advances continued to be made in the chemistry of cannabis. Among the many cannabinoids synthesized by the plant are cannabinol, cannabidiol, cannabinolidic acids, cannabigerol, cannabichromene, and several isomers of tetrahydrocannabinol, one of which is believed responsible for most of its characteristic psychoactive effects. This is delta-9-tetrahydrocannabinol (THC), one of 61 cannabinoids which are unique chemicals found only in cannabis.

Cannabis products are usually smoked in the form of loosely rolled cigarettes ("joints"). They may be used alone or in combination with other substances. They may also be administered orally, but are reported to be about three times more potent when smoked. The effects are felt within minutes, reach their peak in 10 to 30 minutes, and may linger for 2 or 3 hours.

A condensed description of these effects is apt to be inadequate or even misleading. So much depends upon the experience and expectations of the individual as well as the activity of the drug itself. Low doses tend to induce restlessness and an increasing sense of well-being, followed by a dreamy state of relaxation, and frequently hunger, especially a craving for sweets. Changes of sensory perception—a more vivid sense of sight, smell, touch, taste, and hearing—may be accompanied by subtle alterations in thought formation and expression. Stronger doses intensify reactions. The individual may experience shifting sensory imagery, rapidly fluctuating emotions, a flight of fragmentary thoughts with disturbed associations, an altered sense of self-identity, impaired memory, and a dulling of attention despite an illusion of heightened insight. This state of intoxication may not be noticeable to an observer. High doses may result in image distortion, a loss of personal identity, and fantasies and hallucination. Very high doses may result in a toxic psychosis.

During the past 20-25 years, there has been a resurgence in the scientific study of cannabis, one goal of which has been to develop therapeutic agents which, if used as directed in medical treatment, will not produce harmful side effects. THC can be synthesized in the laboratory. Because it is a liquid insoluble in water and it decomposes on exposure to air and light, it is administered in soft gelatin capsules. Research has resulted in development and marketing of a product containing THC for the control of nausea and vomiting caused by chemotherapeutic agents used in the treatment of cancer. None of the synthetic cannabinoids have so far been detected in the drug traffic.

Three drugs that come from cannabis are currently distributed on the U.S. illicit market. Having no currently accepted medical use in treatment in the United States, they remain under Schedule I of the CSA.

Marijuana

The term marijuana is used in this country to refer to the cannabis plant and to any part or extract of it that produces somatic or psychic changes in humans. A tobacco-like substance produced by drying the leaves and flowering tops of the plant, marijuana varies significantly in its potency, depending on the source and selectivity of plant materials used. Most wild U.S. cannabis is considered inferior because of a low concentration of THC, usually less than 0.5 percent. Jamaican, Colombian, and Mexican varieties range between 0.5 and 7 percent. The most selective produce is reputed to be sinsemilla (Spanish, *sin semilla*: without seed), prepared from the unpollinated female cannabis plant, samples of which have been found to contain up to 20 percent THC. Southeast Asian "Thai sticks," consisting of marijuana buds bound on short sections of bamboo, are encountered infrequently on the U.S. illicit market.

Hashish

The Middle East is the main source of hashish. It consists of the drug-rich resinous secretions of the cannabis plant, which are collected, dried, and then compressed into a variety of forms, such as balls, cakes, or cookie-like sheets. The THC content of hashish in the United States averages 3 percent.

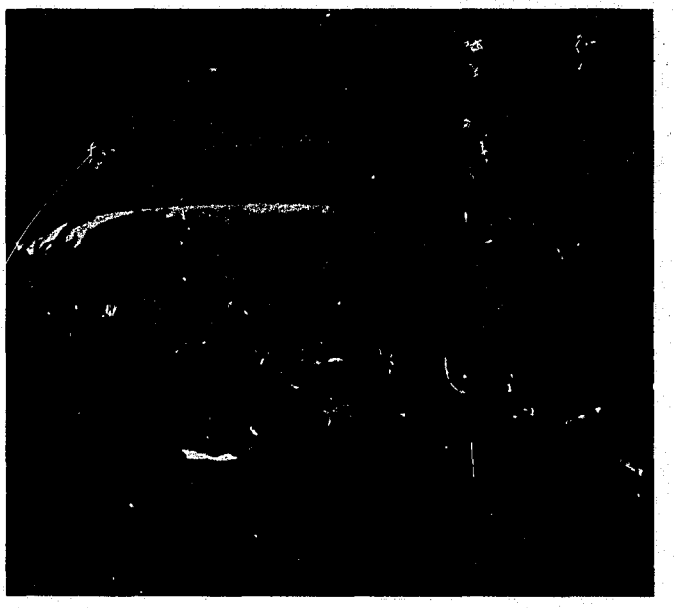
Hashish Oil

The name is used by illicit drug users and dealers but is a misnomer in suggesting any resemblance to hashish other than its objective of further concentration. Hashish oil is produced by a process of repeated

extraction of cannabis plant materials to yield a dark viscous liquid, current samples of which average about 20 percent THC. In terms of its psychoactive effect, a drop or two of this liquid on a cigarette is equal to a single "joint" of marijuana.

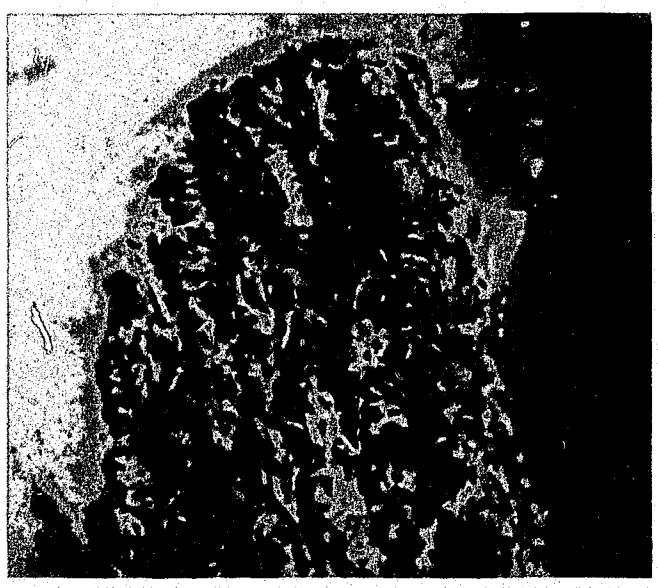
Field of marijuana

Female marijuana flower



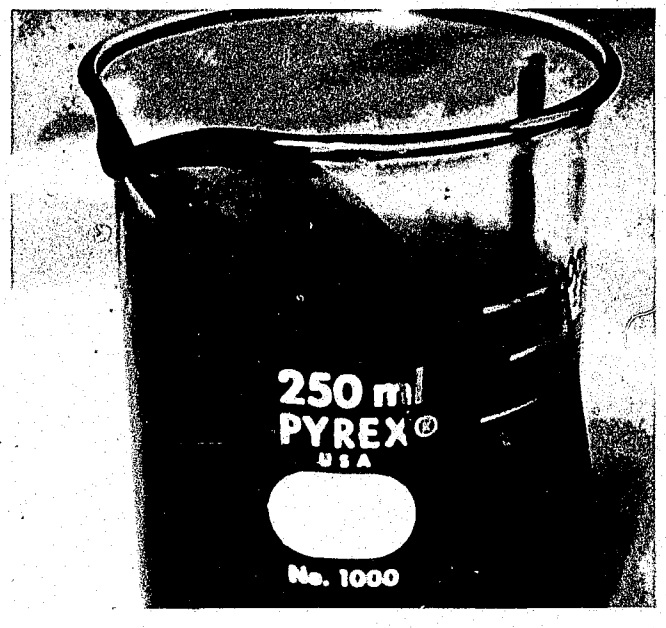
Manicured marijuana

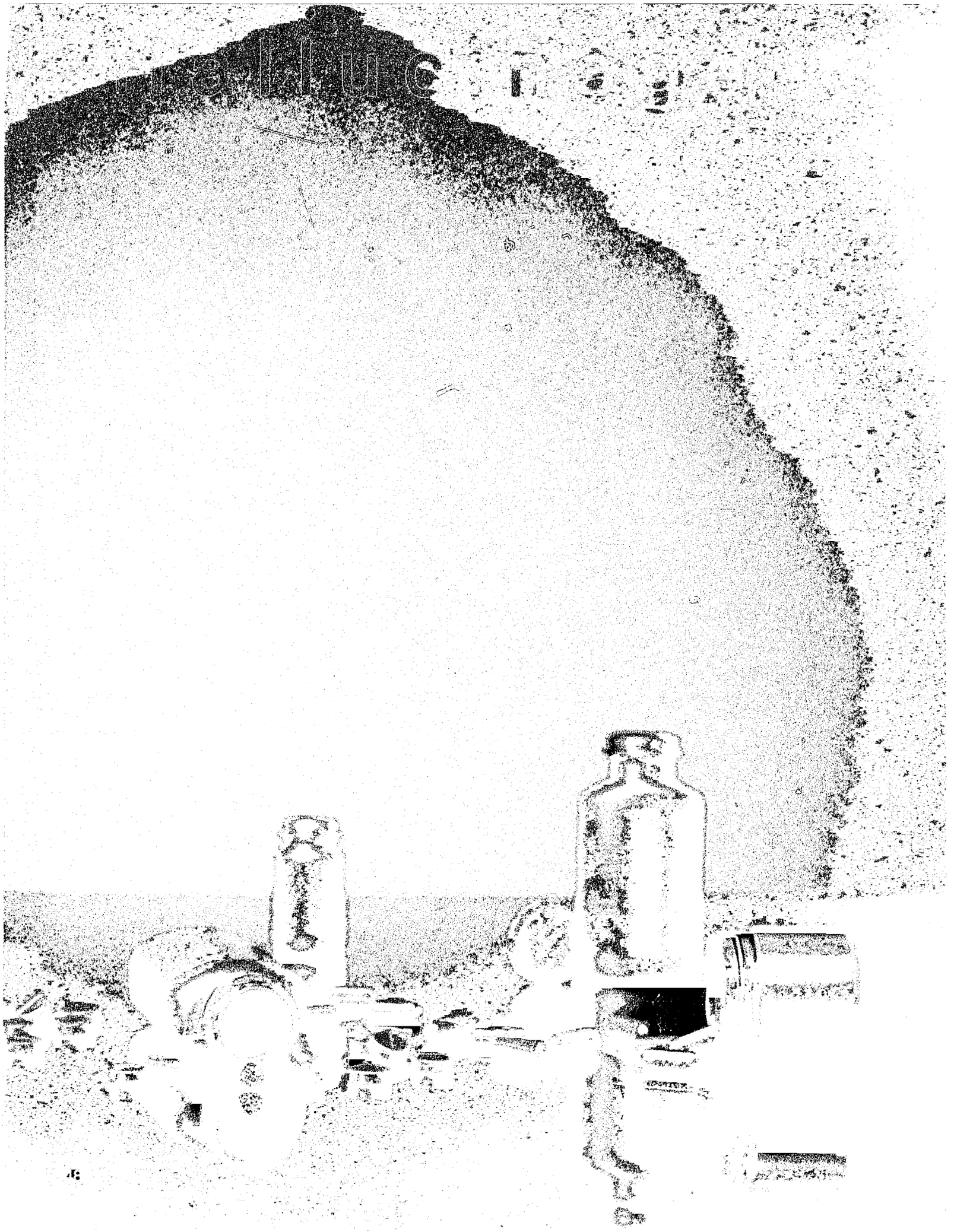
Thai sticks



Hashish (sole)

Hashish oil





Hallucinogenic drugs, both natural and synthetic, are substances that distort the perception of objective reality. They induce a state of excitation of the central nervous system, manifested by alterations of mood, usually euphoric, but sometimes severely depressive. Under the influence of hallucinogens, the senses of direction, distance, and time become disoriented. A user may speak of "seeing" sounds and "hearing" colors. If taken in a large enough dose, the drug produces delusions and visual hallucinations. Occasionally, depersonalization and depression are so severe that suicide is possible, but the most common danger is impaired judgment, leading to rash decisions and accidents. Persons in hallucinogenic states should, therefore, be closely supervised and upset as little as possible to keep them from harming themselves and others. Acute anxiety, restlessness, and sleeplessness are common until the drug wears off.

Long after hallucinogens are eliminated from the body, users may experience flashbacks—fragmentary recurrences of psychedelic effects—such as the intensification of a perceived color, the apparent motion of a fixed object, or the mistaking of one object for another. Recurrent use produces tolerance, which tends to encourage resorting to greater amounts. Although no evidence of physical dependence is detectable when the drugs are withdrawn, recurrent use tends to produce psychic dependence, varying according to the drug, the dose, and the individual user. It should be stressed that the hallucinogens are unpredictable in their effects each time they are used.

The abuse of hallucinogens in the United States reached a peak of popularity in the late 1960s, and a subsequent decline was attributed to broader awareness of their hazardous effects. Their abuse, however, reemerged in the late 1970s and has continued in this decade.

Peyote and Mescaline

The primary active ingredient of the peyote cactus is the hallucinogen *mescaline*. It is derived from the fleshy parts or buttons of this plant, which has been employed by Indians in northern Mexico from the earliest recorded time as a part of traditional religious rites. The Native American Church, which uses peyote in religious ceremonies, has been exempted from certain provisions of the CSA. Peyote, or mescal buttons, and mescaline should not be confused with mescal, the colorless Mexican liquor distilled from the leaves of maguey plants. Usually ground into a powder, peyote is taken orally. Mescaline can also be produced synthetically. A dose of 350 to 500 mg of mescaline produces illusions and hallucinations lasting from 5 to 12 hours.

DOM, DOB, MDA, and MDMA

Many chemical variations of mescaline and amphetamine have been synthesized in the laboratory, certain of which at various times have won acceptance among illicit drug users and traffickers. DOM (4-methyl-2,5-dimethoxyamphetamine), synthesized in 1963, was introduced in 1967 into the Haight-Asbury drug scene in San Francisco. At first named STP after a motor oil additive, the acronym was quickly reinterpreted to stand for "Serenity, Tranquility, and Peace." A host of related chemicals are illicitly manufactured, including DOB (4-bromo-2,5-dimethoxyamphetamine), MDA (3, 4-methylenedioxyamphetamine), and MDMA (3, 4-methylenedioxymethamphetamine) (XTC). These drugs differ from one another in their speed of onset, duration of action, potency, and capacity to modify mood with or without producing hallucinations. They are usually taken orally, sometimes "snorted," and rarely injected intravenously. Because they are produced in clandestine laboratories, they are seldom pure, and the dose in a tablet, in a capsule, or on a square of impregnated paper may be expected to vary considerably. The names of these drugs are sometimes used to misrepresent other chemicals.

Psilocybin and Psilocyn

Like the peyote cactus, Psilocybe mushrooms have been used for centuries in traditional Indian rites. When they are eaten, these "sacred" or "magic" mushrooms affect mood and perception in a manner similar to mescaline and LSD. Their active ingredients, psilocybin and psilocyn, are chemically related to LSD. They can now be made synthetically, but much of what is sold under these names on the illicit market consists of other chemical compounds.

LSD (LSD-25, lysergide)

LSD is an abbreviation of the German expression for lysergic acid diethylamide. It is produced from lysergic acid, a substance derived from the ergot fungus which grows on rye or from lysergic acid amide, a chemical found in morning glory seeds. Both of these precursor chemicals are in Schedule III of the CSA.

LSD was first synthesized in 1938. Its psychotomimetic effects were discovered in 1943 when a chemist accidentally took some LSD. As he began to experience the effects now known as a "trip," he was aware of vertigo and an intensification of light. Closing his eyes, he saw a stream of fantastic images of extraordinary vividness accompanied by a kaleidoscopic play of colors. This condition lasted for about two hours.

Because of the extremely high potency of LSD, its structural relationship to a chemical which is present in the brain, and its similarity in effects to certain aspects of psychosis, LSD was used as a tool of research to study the mechanism of mental illness. Although there was a marked decline from its initial popularity in illicit channels during the 1960s, there are indications that its illicit use once again may be increasing to some extent.

LSD is usually sold in the form of tablets, thin squares of gelatin ("window panes"), or impregnated paper ("blotter acid"), The average effective oral dose is from 30 to 50 micrograms, but the amount per dosage unit varies greatly. The effects of higher doses persist for 10 to 12 hours. Tolerance develops rapidly.

Phencyclidine (PCP) and Related Drugs

Phencyclidine was investigated in the 1950s as a human anesthetic, but, because of side effects of confusion and delirium, its development for human use was discontinued. It became commercially available for use in veterinary medicine in the 1960s under the trade name Sernylan. In 1978, however, the manufacturer stopped production. That same year phencyclidine was transferred from Schedule III to Schedule II of the CSA, together with two previously unscheduled precursor chemicals.[1] Most, if not all, phencyclidine on the U.S. illicit market is produced in clandestine laboratories.

More commonly known as PCP, it is sold under at least 50 other names, including Angel Dust, Crystal, Supergrass, Killer Weed, Embalming Fluid, and Rocket Fuel, that reflect the range of its bizarre and volatile effects. It is also frequently misrepresented as mescaline, LSD, or THC. In its pure form, it is a white crystalline powder that readily dissolves in water. Most PCP now contains contaminants resulting from its makeshift manufacture, causing the color to range from tan to brown and the consistency from a powder to a gummy mass. Although sold in tablets and capsules, as well as in powder and liquid form, it is commonly applied to a leafy material, such as parsley, mint, oregano, or marijuana, and smoked.

The drug is as variable in its effects as it is in its appearance. A moderate amount often produces in the user a sense of detachment, distance, and estrangement from the surroundings. Numbness, slurred or blocked speech, and a loss of coordination may be accompanied by a sense of strength and invulnerability. A blank stare, rapid and involuntary eye movements, and an exaggerated gait are among the more common observable effects. Auditory hallucinations, image distortion as in a fun-house mirror, and severe mood disorders may also occur, producing in some acute anxiety and a feeling of impending doom, in others paranoia and violent hostility. PCP is unique among popular drugs of abuse in its power to produce psychoses indistinguishable from schizophrenia. Although such extreme psychic reactions are usually associated with repeated use of the drug, they have been known to occur in some cases after only one dose and to last, or recur intermittently, long after the drug has left the body. Phencyclidine now poses greater risks to the user than any other drug of abuse, with the possible exception of crack—the smokable form of cocaine—whose street distribution and use by inhalation parallels that of PCP.

Modification of the manufacturing process may further yield chemically related analogues capable of producing, so far as is known, similar psychic effects. Three of these analogues have so far been encountered on the U.S. illicit market, where they have been sold as PCP.[2] In view of the severe behavioral toxicity of phencyclidine and its analogues, in November 1978 the Congress passed legislation increasing the penalties for manufacture, distribution, and possession with intent to distribute these chemicals. The penalties for manufacture, distribution, and possession with intent to distribute PCP were further increased by the Controlled Substances Penalties Amendments Act of 1984 and the Narcotics Penalties and Enforcement Act of 1986. There are enhanced penalties for violations involving specified quantities of PCP or substances containing PCP.

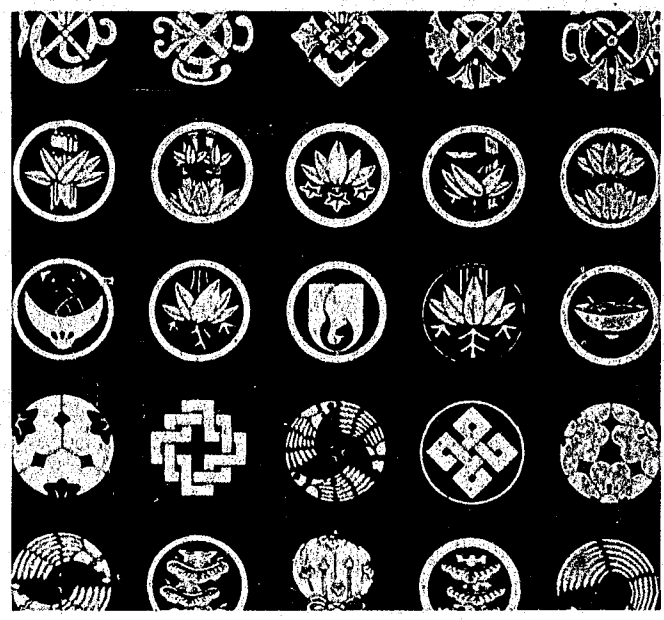
[1]The chemicals are 1-phenylcyclohexylamine and 1-piperidinocyclohexanecarbonitrile (PCC).

[2]The analogues are N-ethyl-1-phenylcyclohexylamine (PCE), 1-(1-phenylcyclohexyl)-pyrrolidine (PCP; PHP), and 1-[1-(2-thienyl-cyclohexyl)]-piperdine (TPCP; TCP).

Peyote cactus

Psilocybe mushroom

LSD blotter paper



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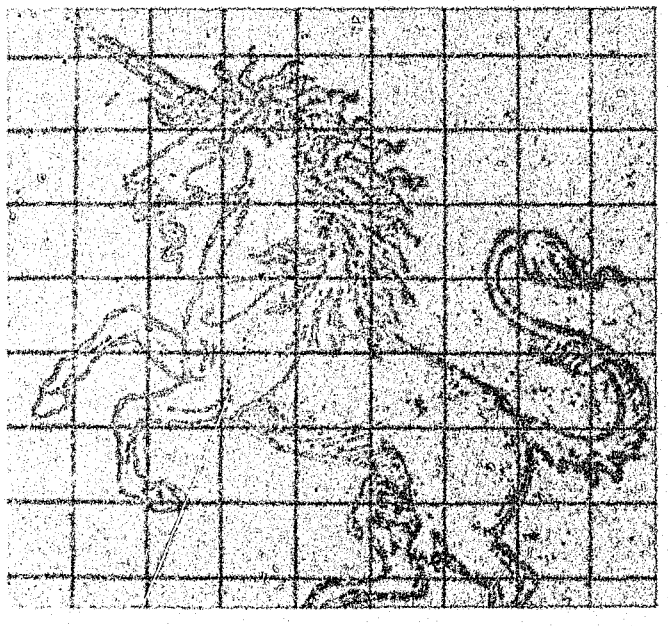

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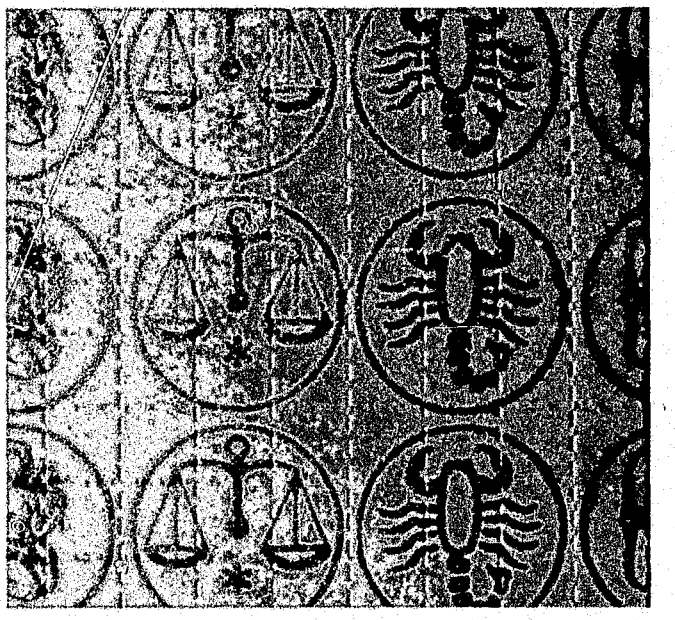
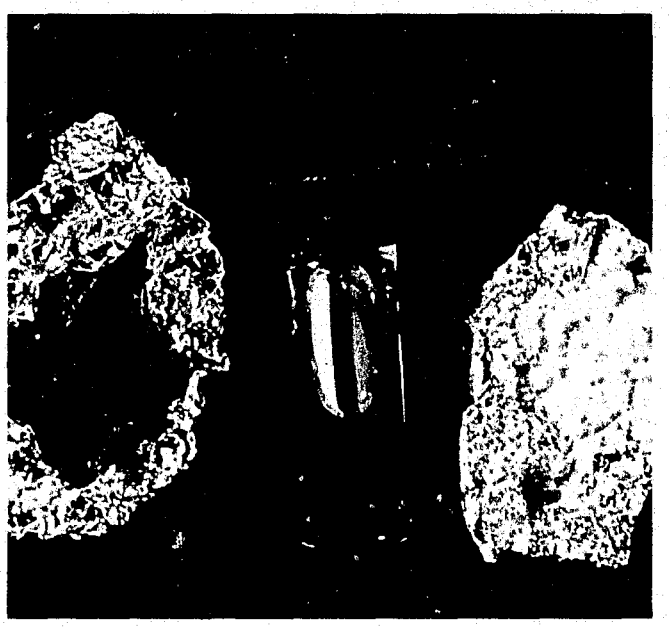


Phencyclidine (PCP)



Clandestine Laboratories

During the past 25 years, the demand for psychoactive drugs–stimulants, depressants, and hallucinogens–has spawned a rising incidence of illicit clandestine laboratories. They were first noticed in California, and now have been encountered in virtually every other part of the country.

Government actions to control the legitimate manufacture and distribution of dangerous drugs also contributed to the growth of these laboratories.

Clandestine laboratories have proliferated because of the ease of production and the limited skill needed to operate them. Equipment, chemicals, and facilities are relatively easy and inexpensive to obtain. No great skills are needed to follow the manufacturing procedures. In fact, most laboratory operators employ or are themselves "cooks" rather than trained chemists. The overall risks are minimal despite sporadic fires and explosions and the threat of discovery and arrest. The potential profits from these enterprises can be enormous.

Most clandestine laboratories are set up to manufacture a single drug, although several laboratories have been able to manufacture many different ones. The majority of clandestine laboratories are established in rural areas and have relatively modest production capabilities. Occasionally, they are located in suburban or urban areas.

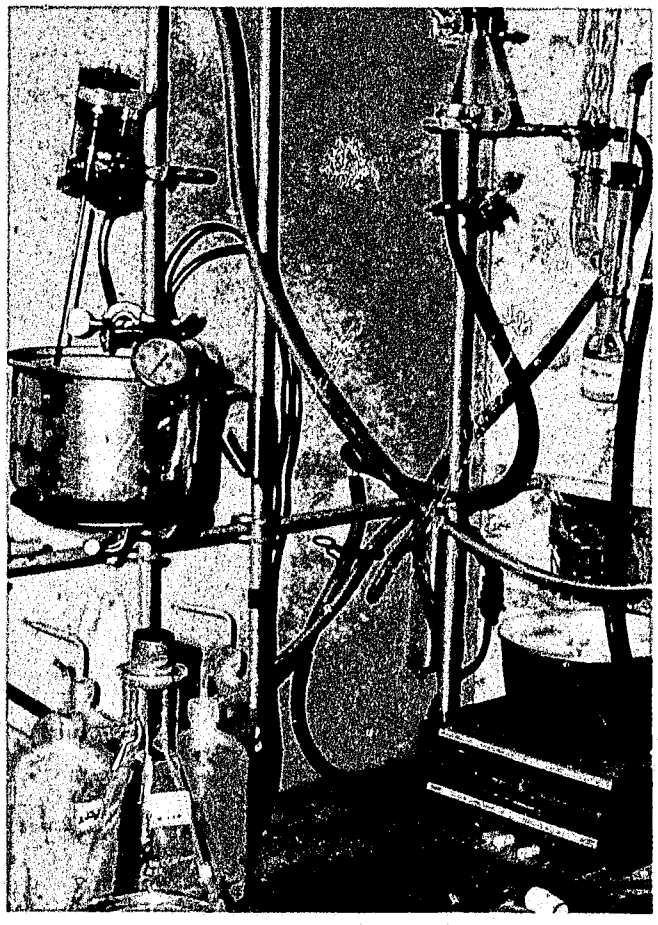
Large-scale laboratories are usually set up on rural tracts of land in large outbuildings. In some instances, these laboratories are set up in rented warehouses or other large buildings and are equipped with commercial production facilities capable of producing thousands and even millions of dosage units of controlled substances. Some laboratory operators have been students, teachers, or professional chemists or engineers who have utilized university or company laboratories for the illicit production of dangerous drugs.

Clandestine laboratory operators have produced almost two dozen kinds of controlled substances, including such stimulants as amphetamine, methamphetamine, and cocaine; such depressants as methaqualone and mecloqualone; such narcotic drugs as morphine, heroin, fentanyl/fentanyl analogues, alphaprodine/alphaprodine analogues, methadone, and hashish oil; and a wide variety of hallucinogenic drugs such as PCP, LSD, DET, DMT, MDA, MDMA, TMA, PHP, PCE, DMA, psilocybin, and mescaline. The two most prevalent types of laboratories in recent years have been engaged in the production of methamphetamine and amphetamine.

In an attempt to circumvent existing drug laws, some individuals have used clandestine laboratories to synthesize analogues of controlled substances. Known as "designer drugs" in the media, these controlled substance analogues usually retain the pharmacological properties of controlled substances, but, because of slight variations in chemical structure, are not specifically listed as controlled substances. Analogues of potent narcotics, stimulants, depressants, and hallucinogens have been produced in clandestine laboratories.

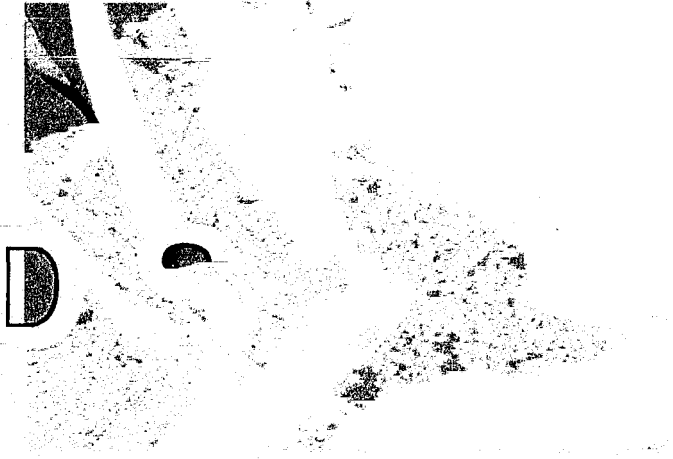
These analogues carry increased health risks due to their unknown purity, toxicity, and potency.

The emergency scheduling provisions of the Comprehensive Crime Control Act of 1984 and the Controlled Substance Analogue Enforcement Act of 1986 are aimed at closing the legal loopholes used by individuals who manufacture and distribute these analogues.



Illicit clandestine laboratory

Drug Abuse and AIDS



By the National AIDS Program Office
U.S. Public Health Service

An estimated 25 percent of all cases of acquired immunodeficiency syndrome, or AIDS, are intravenous (IV) drug abusers. This group is the second largest at risk for AIDS, exceeded only by homosexual and bisexual men. And the numbers may be growing. Data for the first half of 1988 show that IV drug abusers made up about 31 percent of the total reported cases.

". . . the number of IV drug users with AIDS is doubling every 14-16 months."

According to the National Institute on Drug Abuse (NIDA). There are 1.1 to 1.3 million IV drug users in the United States, and, so far, about 17,500 have developed AIDS. Thousands more are infected with the virus that causes this fatal illness, which kills by destroying the body's ability to fight disease.

Currently, the number of IV drug users with AIDS is doubling every 14-16 months. Although the numbers of IV drug users who carry the AIDS virus varies from region to region, in some places the majority may already be infected. In New York City, for example, 60 percent of IV drug users entering treatment programs have the AIDS virus.

Among IV drug abusers, the AIDS virus is spread primarily by needle sharing. As long as IV drug abusers are drug dependent, they are likely to engage in needle sharing. Thus, the key to eliminating needle sharing—and the associated spread of AIDS—is drug abuse treatment to curb drug dependence. NIDA is working to find ways to get more IV users into treatment and to develop new methods to fight drug addiction.

Most non-drug users characteristically associate heroin with IV drug use. However, thousands of others inject cocaine or amphetamines. Recent evidence suggests that IV cocaine use is increasing and that the AIDS virus is spreading in those users. One reason for this may be because cocaine's effects last only a short time. When the drug, which is a stimulant, wears off, users may inject again and again, sharing a needle many times in a few hours. In contrast, heroin users usually inject once and fall asleep.

". . . IV cocaine use is increasing and the AIDS virus is spreading in those users."

The apparent increase in IV cocaine is especially worrisome, drug abuse experts say, because there are no standard therapies for treating cocaine addiction. Until scientists find effective treatments for this problem, the ability to control the spread of AIDS will be hampered.

Transmission

Needle Sharing—Among IV drug users, transmission of the AIDS virus most often occurs by sharing needles, syringes, or other "works." Small amounts of contaminated blood left in the equipment can carry the virus from user to user. IV drug abusers who frequent "shooting galleries"—where paraphernalia is passed among several people—are at especially high risk for AIDS. But, needle sharing of any sort (at parties, for example) can transmit the virus, and NIDA experts note that almost all IV drug users share needles at one time or another.

Because not every IV drug abuser will enter treatment and because some must wait to be treated, IV users in many cities are being taught to flush their "works" with bleach before they inject. Used correctly, bleach can destroy virus left in the equipment.

Sexual Transmission—IV drug abusers also get AIDS through unprotected sex with someone who is infected. In addition, the AIDS virus can be sexually transmitted from infected IV drug abusers to individuals who do not use drugs. Data from the Centers for Disease Control show that IV drug use is associated with the increased spread of AIDS in the heterosexual population. For example, of all women reported to have AIDS, 49 percent were IV drug users, while another 30 percent—non-IV drug users themselves—were sexual partners of IV drug users. Infected women who become pregnant can pass the AIDS virus to their babies. About 70 percent of all children born with AIDS have had a mother or father who shot drugs.

Non-IV Drug Use and AIDS—Sexual activity has also been reported as the means of AIDS transmission among those who use non-IV drugs (like crack or marijuana). Many people, especially women, addicted to crack (or other substances) go broke supporting their habit and turn to trading sex for drugs. Another link between substance abuse and AIDS is when individuals using alcohol and drugs relax their restraints and caution regarding sexual behavior. People who normally practice "safe" sex may neglect to do so while "under the influence."

State Drug Abuse Prevention and Treatment Coordinators

Alabama
Commissioner
Department of Mental Health and Mental Retardation
200 Interstate Park Drive
P.O. Box 3710
Montgomery, Alabama 36193
(205) 271-9209

Alaska
Coordinator
Office of Alcoholism and Drug Abuse
Department of Health and Social Services
Pouch H-05F
Juneau, Alaska 99811-0607
(907) 586-6201

Arizona
Manager
Drug Abuse Section
Department of Health Services
Division of Behavioral Health Services
411 North 24th St.
Phoenix, Arizona 85008
(602) 220-6478

Arkansas
Director
Office on Alcohol and Drug Abuse Prevention
400 Donaghey Plaza, N.
P.O. Box 1437
Little Rock, AR 72203-1437
(501) 371-2603

California
Director
Department of Alcohol and Drug Programs
111 Capitol Mall
Sacramento, CA 95814
(916) 322-6690

Colorado
Director
Alcohol and Drug Abuse Division
Department of Health
4210 East 11th Ave.
Denver, CO 80220
(303) 320-8333

Connecticut
Executive Director
Connecticut Alcohol and Drug Abuse Commission
999 Asylum Avenue
Third Floor
Hartford, CT 06105
(203) 566-4145

Delaware
Chief
Bureau of Alcoholism and Drug Abuse
1901 North DuPont Highway
Newcastle, DE 19720
(302) 421-6101

District of Columbia
Chief
Health Planning and Development
1875 Connecticut Ave., N.W.
Suite 823
Washington, DC 20009
(202) 673-7481

Florida
Director
Drug Abuse Program
1317 Winewood Blvd.
Building 6, Room 156
Tallahassee, FL 32301
(904) 488-0900

Georgia
Director
Alcohol and Drug Section
Division of Mental Health, Mental Retardation and Substance Abuse
Department of Human Resources
Suite 319
878 Peach Tree St. N.E.
Atlanta, GA 30309
(404) 894-4785

Hawaii
Branch Chief
Alcohol and Drug Abuse Branch
Department of Health
P.O. Box 3378
Honolulu, HI 96801
(808) 548-4280

Idaho

Director
Bureau of Substance Abuse
Department of Health
and Welfare
450 West State Street
Boise, ID 83720
(208) 334-5935

Illinois

Director
Department of Alcoholism
and Substance Abuse
Suite 5-600
100 W. Randolph St.
Chicago, IL 60610
(312) 917-3840

Indiana

Director
Division of Addiction Services
Department of Mental Health
117 East Washington St.
Indianapolis, IN 46204
(317) 232-7816

Iowa

Director
Iowa Division of Substance
Abuse and Health
Promotion
320 E. 12th Street
Des Moines, IO
(515) 281-3641

Kansas

Commissioner
Alcohol and Drug Abuse
Services
2700 West Sixth Street
Biddle Building
Topeka, KS 66606
(913) 296-3925

Kentucky

Manager
Substance Abuse Division
Health Building-1E
275 East Main Street
Frankfort, KY 40621
(502) 564-2880

Louisiana

Director
Department of Health and
Hospitals
Office of Prevention and
Recovery from
Alcohol and Drug Abuse
Baton Rouge Area Substance
Abuse Clinic
Baton Rouge, LA 70806
(504) 342-6685

Maine

Director
Office of Alcoholism and Drug
Abuse Prevention
State House Station 11
Augusta, ME 04333
(207) 289-2781

Maryland

Director
Alcohol and Drug Abuse
Administration
201 W. Preston St.
Baltimore, MD 21201
(301) 225-6910

Massachusetts

Director
Division of Alcoholism and
Drug Rehabilitation
150 Tremont St.
6th Floor
Boston, MA 02111
(617) 727-8617

Michigan

Director
Office of Substance Abuse
Services
Department of Public Health
P.O. Box 30195
Lansing, MI 48909
(517) 335-8810

Minnesota

Director
Chemical Dependency Program
Division
Department of Human Services
444 Layfayette Rd.
St. Paul, MN 51555
(612) 296-4610

Mississippi

Director
Division of Alcohol and Drug
Abuse
Department of Mental Health
1500 Woolfolk Building
Jackson, MS 39201
(601) 359-1297

Missouri

Director
Division of Alcohol and
Drug Abuse
Department of Mental Health
1915 Southridge Dr.
P.O. Box 687
Jefferson City, MO 65102
(314) 751-4942

Montana
Administrator
Alcohol and Drug Abuse Division
Department of Institutions
1539 11th Ave.
Helena, MT 59620
(406) 444-3904

Nebraska
Director
Division of Alcoholism and Drug Abuse
Department of Public Institutions
P.O. Box 94728
Lincoln, NB 68509
(402) 471-2851

Nevada
Chief
Bureau of Alcohol and Drug Abuse
Department of Human Resources
Room 500
505 East King St.
Carson City, NV 89710
(702) 885-4790

New Hampshire
Director
Office of Alcohol and Drug Abuse Prevention
Health and Welfare Building
6 Hazen Dr.
Concord, NH 03301-6525
(603) 271-4627

New Jersey
Director
Division of Narcotic and Drug Abuse Control
Department of Health
CN 362
Trenton, NJ 08625
(609) 292-5760

New Mexico
Chief
Substance Abuse Bureau
Behavioral Health Services Division
P.O. Box 968
Santa Fe, NM 87504-0968
(505) 827-2587

New York
Assistant Director
Division of Substance Abuse Services
Executive Park South
Box 8200
Albany, NY 12203
(518) 457-7629

North Carolina
Deputy Director
Alcohol and Drug Abuse Services
Division of Mental Health, Mental Retardation, and Substance Abuse Services
325 North Salisbury St.
Raleigh, NC 27611
(919) 733-4670

North Dakota
Director
Division of Alcoholism and Drug Abuse
Department of Human Services
State Capitol, Judicial Wing
Bismarck, ND 58505
(701) 224-2769

Ohio
Chief
Bureau of Drug Abuse
170 North High St.
3rd Floor
Columbus, OH 43215
(614) 466-7893

Oklahoma
Director
Alcohol and Drug Programs
Department of Mental Health
P.O. Box 53277, Capitol Station
1200 N. East 13th
Oklahoma City, OK 73152
(405) 271-7474

Oregon
Associate Administrator
State Alcohol and Drug Programs Office
1178 Chemeketa, NE Salem
Salem, OR 97310
(503) 378-2163

Pennsylvania
Deputy Secretary
Drug and Alcohol Programs
Department of Health
P.O. Box 90
Harrisburg, PA 17108
(717) 787-9857

Rhode Island

Assistant Director
Department of Mental Health, Mental Retardation and Hospitals
Division of Substance Abuse
Substance Abuse Administration Building
Cranston, RI 02920
(401) 464-2091

South Carolina

Director
South Carolina Commission on Alcohol and Drug Abuse
Suite 300
3700 Forest Dr.
Columbia, SC 29204
(803) 734-9520

South Dakota

Director
Division of Alcohol and Drug Abuse
Joe Foss Building
Room 125
523 East Capitol St.
Pierre, SD 57501-3182
(605) 773-3123

Tennessee

Assistant Commissioner
Alcohol and Drug Abuse Services
Department of Mental Health and Mental Retardation
Doctor's Building
4th Floor
706 Church St.
Nashville, TN 37219-5393
(615) 741-1921

Texas

Director
Texas Commission on Alcohol and Drug Abuse
Prevention Department
1705 Guadalupe St.
Austin, TX 78701
(512) 463-5510

Utah

Director
Division of Alcoholism and Drugs
120 North 200 West, 4th Floor
P.O. Box 45500
Salt Lake City, Utah 84145-0500
(801) 538-3939

Vermont

Director
Office of Alcohol and Drug Abuse Programs
103 South Main St.
Waterbury, VT 05676
(802) 241-2170

Virginia

Assistant Commissioner
Department of Mental Health, Mental Retardation and Substance Abuse
109 Governor St. (ZIP 23214)
P.O. Box 1797 (ZIP 23219)
Richmond, VA
(804) 786-3906

Washington

Director
Bureau of Alcoholism and Substance Abuse
Department of Social and Health Services
Mail Stop OB44W
Olympia, WA 98504
(206) 753-5866

West Virginia

Director
Division of Alcohol and Drug Abuse
State Capitol
1800 Washington St., East
Charleston, WV 25305
(304) 348-2276

Wisconsin

Director
Bureau of Alcohol and Other Drug Abuse
1 West Wilson St.
P.O. Box 7851
Madison, WI 53707
(608) 266-2717

Wyoming

Director
Alcohol and Drug Abuse Programs
350 Hathaway Building
Cheyenne, WY 82002-0710
(307) 777-7115

Drug Enforcement Administration Division Offices

Atlanta Field Division
Richard B. Russell Federal Building
75 Spring St. S.W., Room 740
Atlanta, GA 30303
(404) 331-4401

Boston Field Division
Rm. G-64 JFK Federal Building
Boston, MA 02203
(617) 565-2800

Chicago Field Division
500 Dirksen Federal Building
219 S. Dearborn St.
Chicago, IL 60604
(312) 353-7875

Dallas Field Division
1880 Regal Row
Dallas, TX 75235
(214) 767-7151

Denver Field Division
721 19th St., Room 316 (ZIP 80201)
P.O. Box 1860 (ZIP 80202)
Denver, CO
(303) 844-3951

Detroit Field Division
357 Federal Building
231 West Lafayette
Detroit, MI 48226
(313) 226-7290

Houston Field Division
333 West Loop North
Suite 300
Houston, TX 77024
(713) 681-1771

Los Angeles Field Division
Suite 800
350 South Figueroa St.
Los Angeles, CA 90071
(213) 894-2650

Miami Field Division
8400 N.W. 53rd St.
Miami, FL 33166
(305) 591-4870

Newark Field Division
970 Broad St.
806 Federal Office Building
Newark, NJ 07102
(201) 645-6060

New Orleans Division
1661 Canal St.
Suite 2200
New Orleans, LA 70112
(504) 589-3894

New York Field Division
555 W. 57th St.
Suite 1900
New York, NY 10019
(212) 399-5151

Philadelphia Field Division
10224 William J. Green Federal Building
600 Arch St.
Philadelphia, PA 19106
(215) 597-9530

Phoenix Field Division
One North First St.
Suite 201
Phoenix, AZ 85004
(602) 261-4866

San Diego Field Division
402 W. 35th St.
National City, CA 92050
(619) 585-4200

San Francisco Field Division
Room 12215
450 Golden Gate Ave.
P.O. Box 36035
San Francisco, CA 94102
(415) 556-6771

Seattle Field Division
Suite 301
220 West Mercer
Seattle, WA 98119
(206) 442-5443

St. Louis Field Division
7911 Forsythe Blvd.
Suite 500
United Missouri Bank Bldg.
St. Louis, MO 63105
(314) 425-3241

Washington Field Division
Room 2558
400 Sixth St., S.W.
Washington, DC 20024
(202) 724-7834

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