

MICROGRAM

Laboratory Operations Division
Office Of Science And Drug Abuse Prevention

BUREAU OF NARCOTICS & DANGEROUS DRUGS / U.S. DEPARTMENT OF JUSTICE / WASHINGTON, D.C. 20537

Vol. IV, No. 2

February, 1971

Forensic Chemist Seminar was held at the BNDD National Training Institute, February 8 - 12, 1971. Participants from federal, state, local and foreign crime laboratories discussed: "Laboratory Operations," "Courtroom Testimony," "Narcotic Drugs," "Spectroscopy and Its Applications," "Thin Layer Chromatography," "Gas Chromatography," "Micro-Techniques," "LSD - History, Chemistry and Analysis," "Other Hallucinogenic Drugs," "Marihuana," "X-ray Diffraction and X-ray Fluorescence Analysis" and "Ballistics and Identification."

One day was spent in the laboratory. Topics discussed and demonstrated included: "Color and Crystal Tests," "Thin-Layer Chromatography," "Instrumental Analysis," "Optical Crystallography," "Gas Chromatography," "Fluorescence" and "X-ray Diffraction."

Guest lecturer, Dr. Leo Goldbaum, Chief Toxicologist, Armed Forces Institute of Pathology, Washington, D. C., discussed "Toxicology--Analysis For Narcotics and Dangerous Drugs" on the last day of the seminar. After certificates were presented by Mr. Frederick M. Garfield, Assistant Director for Scientific Support, the group toured the FBI laboratory.

Forensic Chemist Seminars are planned for:

April 12-16, 1971
June 14-18, 1971

MDA (3,4 methylenedioxyamphetamine) phosphate was encountered by BNDD New York Regional Laboratory, for the first time, in the seizure of a clandestine laboratory.

Heroin - Ephedrine combination was identified by the BNDD New York Regional Laboratory. The exhibit was a glassine bag containing 2.9 grams of powder. Analysis revealed 54% heroin hydrochloride with ephedrine hydrochloride, starch and sugar.

Analytical methods in **Microgram** do not have official status. Use of funds for printing this publication approved by the Bureau of the Budget, April 8, 1969. **CAUTION:** Use of this publication is restricted to forensic scientists serving law enforcement agencies.

Procaine containing dried, coarsely ground opium was examined by the BNDD Special Testing and Research Laboratory. The fine white powder was being sold as cocaine in Alaska.

PCP (phencyclidine hydrochloride) multicolored capsules were submitted to BNDD Chicago Regional Laboratory by a midwestern law enforcement agency. The No. 3 clear, hard gelatin capsules contained blue, white, and brown layered powder. The brown layer was apparently intended to be a red color. Each layer was examined separately and, each was found to contain phencyclidine hydrochloride.

PCPA (p-chlorophenylalanine) was promoted as an aphrodisiac in a full page ad in the underground press. The cost--\$26.00 per gram. One chemical supply firm lists PCPA in its catalogue as \$7.00 for five grams. (See also Microgram, Vol. III, No. 3, [May, 1970], page 81.)

Methadone tablets which appear to have been manufactured in a clandestine laboratory have been examined in the BNDD Special Testing and Research Laboratory. Analysis revealed 5.7 milligrams methadone per tablet plus large amounts of amorphous proteinaceous material (probably powdered skim milk), sucrose, and a small amount of starch. The proteinaceous material is a common excipient in LSD tablets.

Overseas

Japan - Army CID and Japanese Narcotics Agents became aware that a U.S. serviceman was receiving cookies impregnated with "acid."

While searching his rented quarters, the agents found a large, red, wax, Christmas candle about 7 inches high and 3 inches thick. A demarcation line in the wax was noticed; and when it was cracked, a plastic bag of marihuana was found inside. Also, several package of LSD sugar cubes, carefully wrapped, were found in the frost that had formed in the refrigerator.

Thailand - A seizure of 200 kilograms of amphetamine was reported in the Narcotics Bulletin, May - August, 1969, of the Central Bureau of Narcotics, Thailand. The report stated that there appears to be constant abuse of the drug by truck drivers and taxi drivers to keep themselves awake. It has been observed that these drivers have been involved in an increasing number of road accidents.

Iran - The Annual Report of the Government of Iran, 1969, notes an increase in the use of opium. Also, the combination of heroin and a barbiturate has been seen occasionally.

Interpol figures show a 347% increase in cannabis seizures from 1967 to 1969. Arrests related to the seizures jumped from 636 in 1967 to 2,205 in 1969.

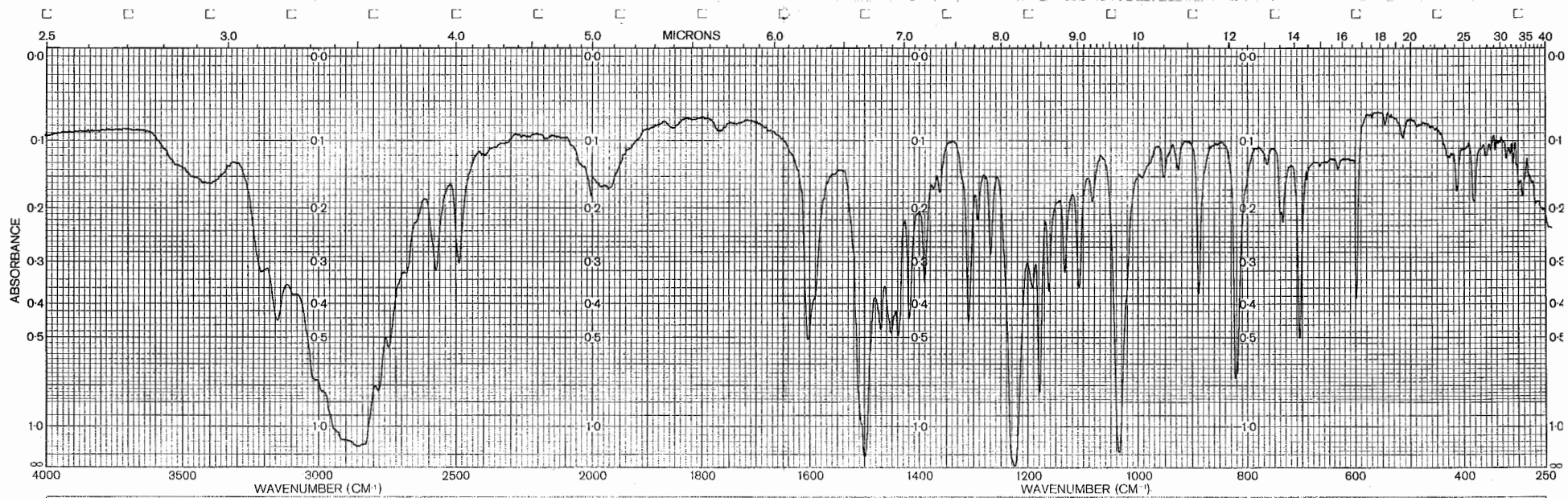
Index for Microgram, 1970, Volume III, Nos. 1-8, is included with this issue.

Selected Reference:

Clarke, E.G.C. and Ann E. Robinson, When Is Cannabis Resin?, Medicine, Science, and Law, (The Official Journal of the British Academy of Forensic Sciences), Vol. 10, No. 3, (July, 1970), pages 139-148.

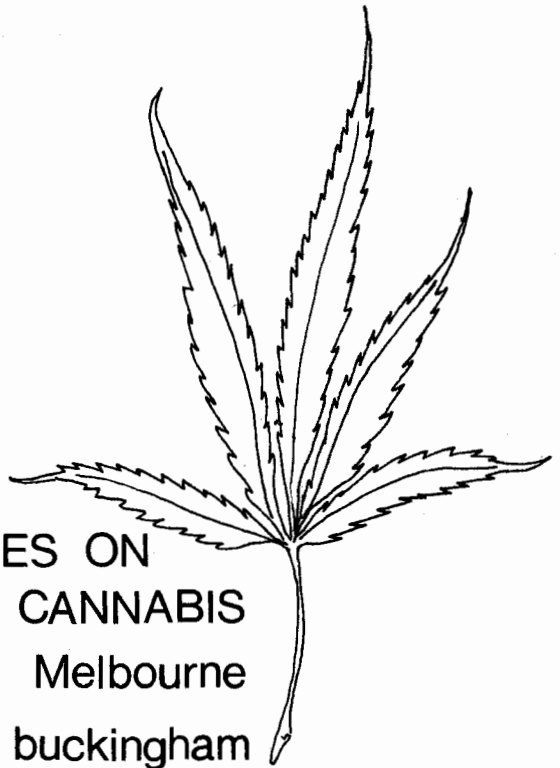
ADDITION & CORRECTION:

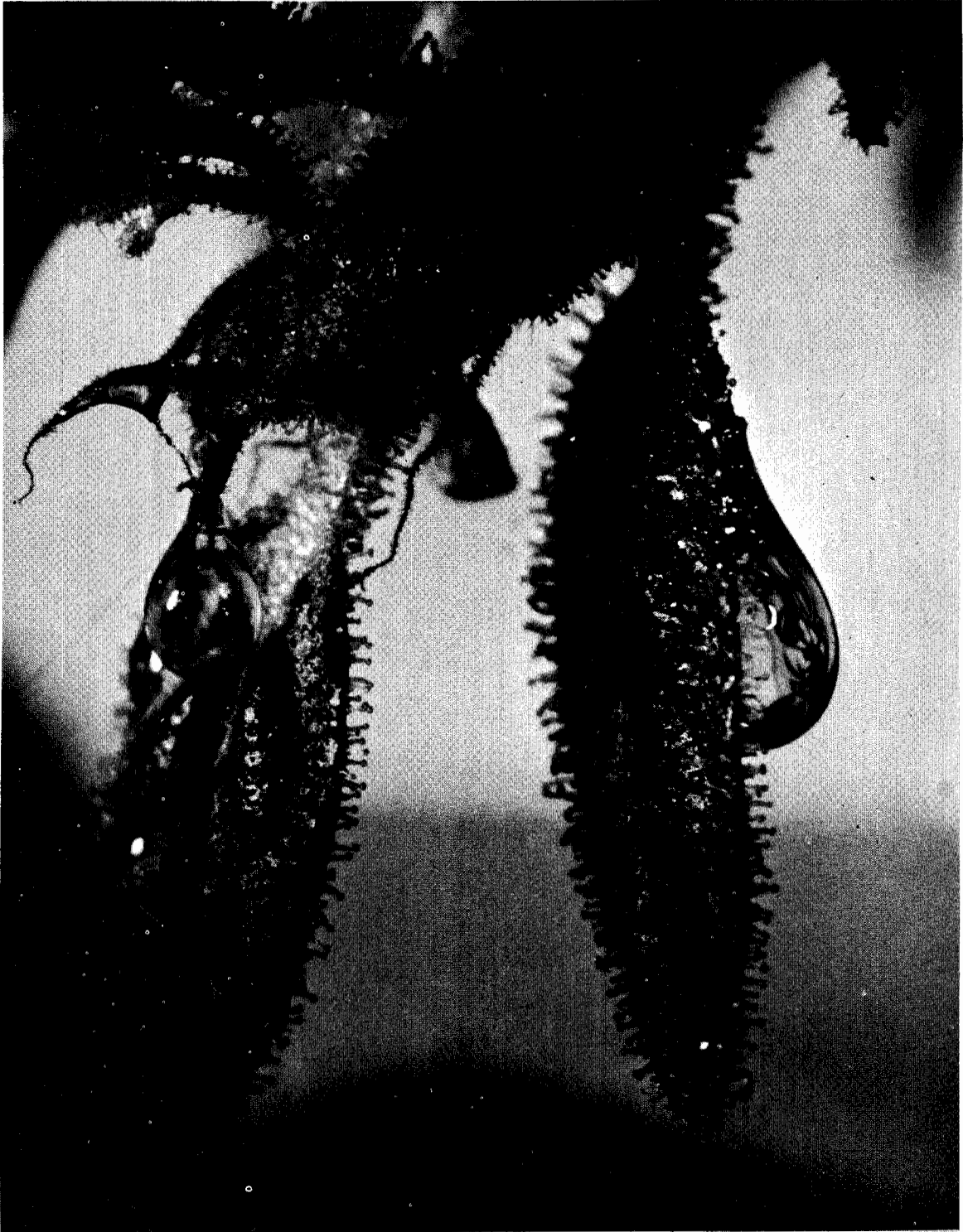
In the last issue of Microgram (Vol. IV, No. 1 [January, 1971]) we failed to include the infrared spectrum of 2,5-dimethoxyamphetamine HBr which was part of Mr. Paul De Zan's work on the Analysis and Identification of 2,5-Dimethoxyamphetamine. It is reproduced on the following page. Also, note that the correct number for this Laboratory Note is "No. 12", not "No. 11."



SAMPLE 2,5-DIMETHOXYAMPHETAMINE HBR	SOLVENT	KBR	REMARKS USED MINIPRESS	SCAN SPEED	F	OPERATOR	P. DEZAN
	CONCENTRATION	1%		SLIT	N	DATE	DECEMBER 23, 1970
ORIGIN	CELL PATH	REFERENCE	AIR	<small>RECORDING CHARTS QUANTAL CONTROL CORPORATION BUFFALO, NEW YORK NO. 457-5133</small>		NEW YORK REGIONAL LABORATORY, BMD	

NOTES ON
THE BOTANY OF CANNABIS
Commonwealth Laboratory, Melbourne
g. buckingham
i. martin
August 1970





FLOWERING TOPS OF CANNABIS PLANT SHOWING GLANDULOSE HAIR AND TWO LARGE GLOBULES OF SECRETED RESIN.

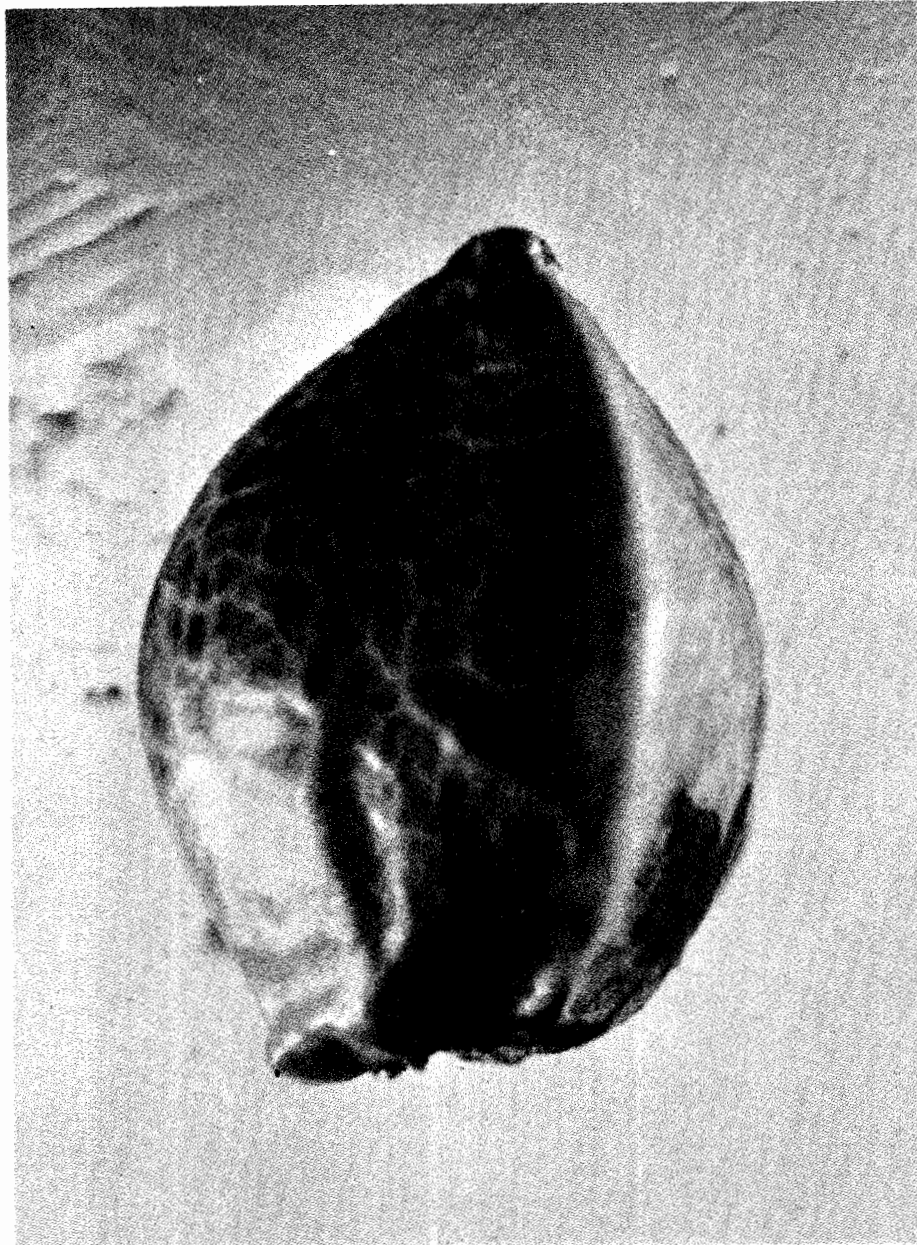


A SINGLE LEAF OF CANNABIS SATIVA SHOWING PALMATE FORM AND SERRATION OF EDGES.

ON THE BOTANY OF CANNABIS

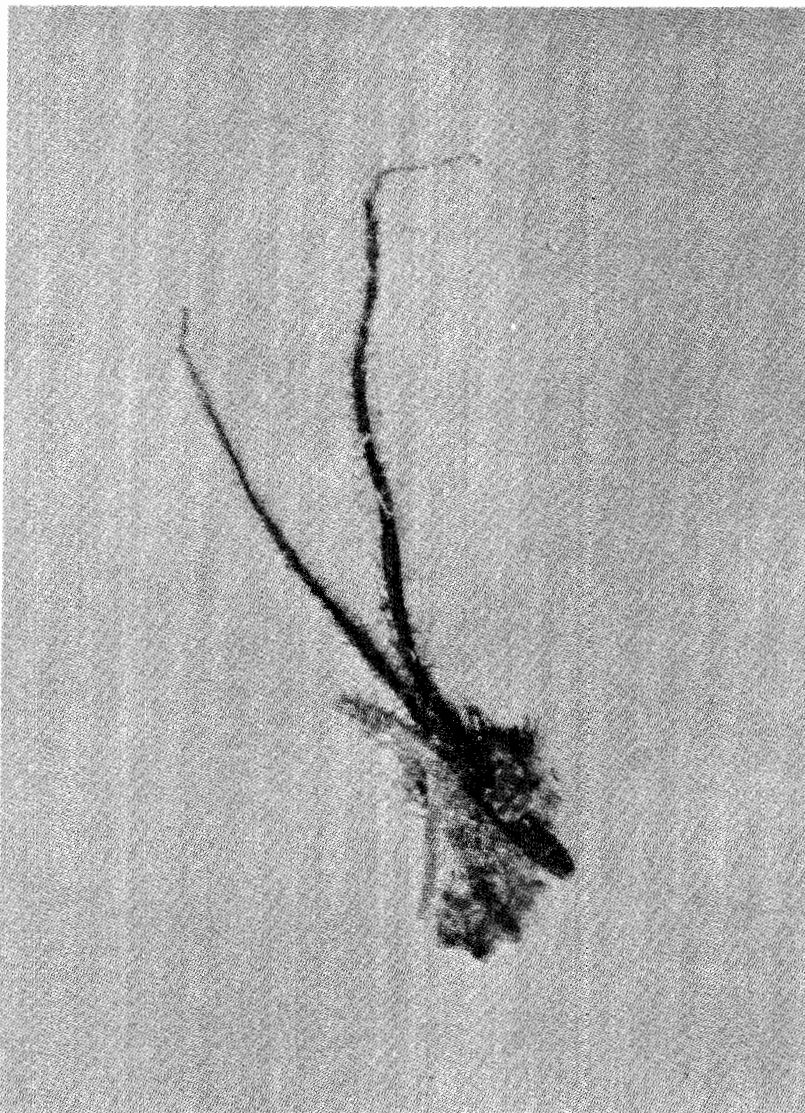
1. The correct name of the plant is Cannabis Sativa L. Although many varieties exist, such as Cannabis Sativa Indica and Cannabis Sativa Americana, these do not have enough specific characteristics to make proof of their identity as a separate species possible.
2. The plant belongs to the order of URTICALES (nettles). It has previously been classified either in the families URTICACEAE or MORACEAE to which it is related. However, it is accepted by most modern authorities as belonging to the separate family CANNABACEAE. The latter spelling is that adopted by the International Botanical Union and given in the International Code of Botanical Nomenclature (1964).

3. Botanical examination and identification should be carried out on "large" portions of the plant, i.e. by "gross morphology". The examination of a small quantity of debris will yield much positive information to the chemist, but is of doubtful legal value because of the danger of admixtures. The examination should be carried out with a low power stereo microscope. Preparation of specimen for the determination of details of structure is the job of a botanist expert in plant anatomy.
4. If the sample is dry, it can be partly restored to its natural state by boiling for some time in water prior to the microscopical examination.
5. Examination should concentrate on leaves and vestiture, i.e. the type and nature of hairs on the leaves.
6. The compound, palmate nature of the leaves is very characteristic. It means that several leaflets arise from the same point. In cannabis, their number is usually five. Generally, where a plant leaf joins the stem, a bud will be observed at the axil: no such buds will be observed at the junction of the Cannabis leaflets. The serration of the leaf edges is also fairly characteristic.
7. The upper surface of the leaves carries short hairs, swollen at the base often containing calcium carbonate crystals: cystolithic hair. Their shape imitates a bear-claw. This surface also carries the glandulose hairs which appear when the plant is about to flower, especially on the tops of the female plant. These hairs have a shiny appearance and a sticky touch due to the exuding resin. On the underside of the leaves are long slender covering hairs which do not contain cystoliths.
8. For positive identification, it is important that all these features be present in the sample, since many other plants, such as hibiscus, geranium, ranunculus, etc. show one or the other feature.



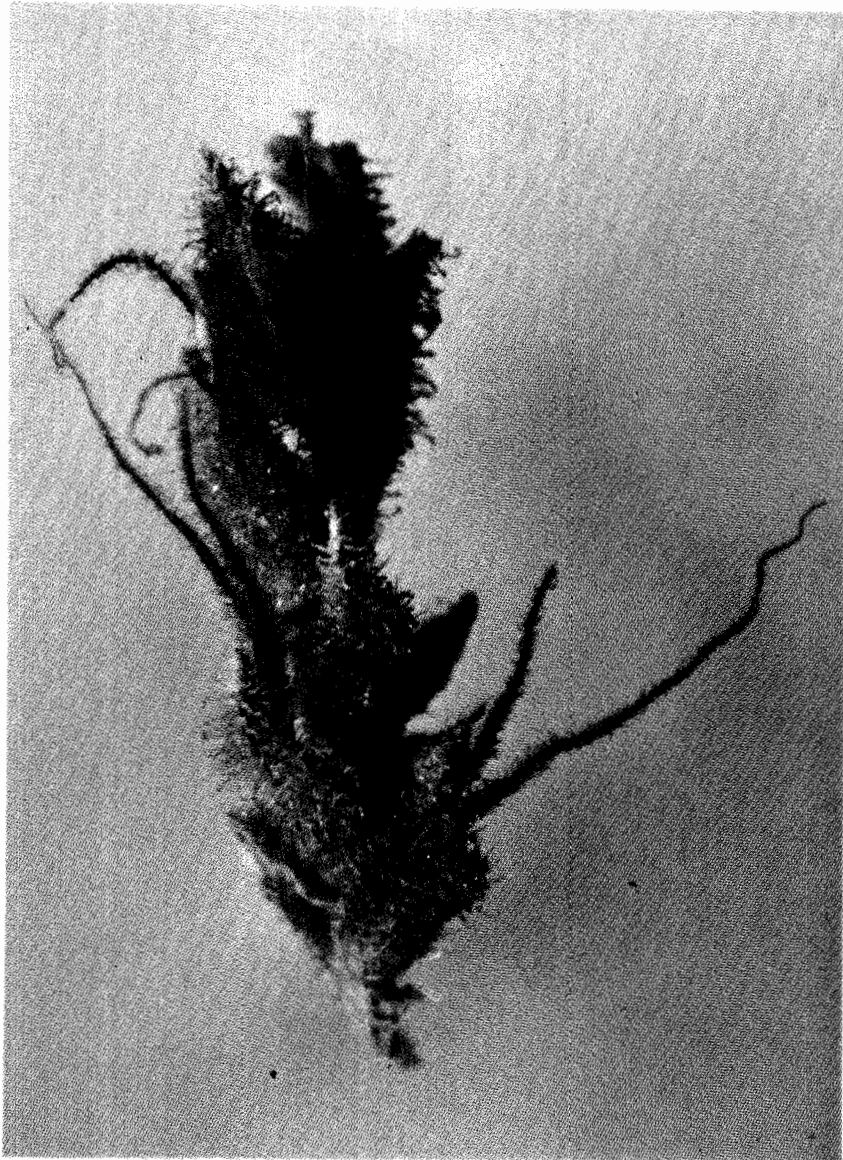
THE SEED OF CANNABIS SATIVA SHOWING CHARACTERISTIC SURFACE STRUCTURE.

9. The size and sculpture (surface structure) of seeds are highly characteristic: examination of seeds from a contemporary seizure and from an Indian Cannabis plant well over one hundred years old clearly showed their identity. The presence of seeds in a sample is, of course, strong presumptive evidence of the female plant.



FEMALE FLOWER, OPENED UP, SHOWING PISTILS. NOTE ABSENCE OF PETALS.

10. Cannabis is dioecious, i.e. the male and female flowers are borne on separate plants. The male plant is smaller and more sparse in the foliage, while the female has a bushy appearance. It is understood that a limited amount of resin is also produced by the male plant.
11. Cannabis is an apetalous plant. The female flower consists merely of the bract containing the ovules and two slender pistils which are of an indifferent reddish-pink colour. They are small and generally inconspicuous. The male flower has five sepals around the stamens. The resin is exuded in order to protect the seed against the heat, especially in hot, dry climates.



REFERENCES:

1. Cannabis
R.J. Bouquet. Bulletin on Narcotics, 2, 4; Oct. 1950; p. 14.
2. Marihuana
Lester Grinspoon, Scientific American, 221, 6; Dec. 1969, p. 17.
3. Textbook of Pharmacognosy. Fifth Edition, 1967.
T.E. Wallis. J.A. Clumholl Ltd. London.
4. ABC of Plant Terms.
J.G. Cook. Everyman, 1968.

5. Forensic Aspects of Cystolithic Hairs of Cannabis and Other Plants.
G.R. Nakamura. J.A.O.A.C. 52,1; 1969, 5.
6. The information concerning the classification of the plant was given by Mr. A.B. Court, Botanist, National Herbarium, Melbourne, who quoted the following works in support:

Families of Flowering Plants, 2nd Edition, 1959,
Volume 1, p. 201 by John Hutchinson.

Genera of Flowering Plants, 1967, Volume II,
p. 150 by John Hutchinson.

Flora Europaeae, 1964, Volume I, p. 67, P.G. Tutin
et-al, Editors.

MINNESOTA BUREAU OF CRIMINAL APPREHENSION

BOMB DISPOSAL UNIT

"Incendiary Device"

USE: Used by a group called the "American Dream" for two purposes.

- a.) A device to be used against police officers, primarily narcotics officers.
- b.) A narcotic carrier that can be used to destroy drugs.

OPERATION: To ignite the device, the small glass vial containing sulfuric acid is broken by applying thumb pressure on a plunger located near one end of the device. The chemical reaction between sulfuric acid and potassium chlorate causes ignition of the potassium chlorate which in turn ignites the fiberglass with potassium chlorate main charge burning at 3,500 degrees fahrenheit.

GENERAL DESCRIPTION: Oval in shape and orange in color, measures app. 5-3/4" in length, 3" wide, 1-3/4" overall thickness.

The device is cast into a mold in two half sections having a "clam-shell" configuration with a steel hinge on one side and a brass latch on the other. A hollow space is present inside.

COMPONENTS: The body material is half of the incendiary mixture. The material consists of potassium chlorate and sugar with fiberglass resin. The other half of the incendiary mixture consists of a small glass vial of sulfuric acid. All components burn upon ignition.

