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fines and there were significant differences in rates of use
between South Australia and other Australian states which had not
changed cannabis legislation. (Christie 1991)

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Medical Cannabis in the United States

In the United States many issues converge in framing the debate about medical cannabis. An ongoing legal challenge to the DEA listing of cannabis as a dangerous drug with no medical utility in Schedule 1 of the Controlled Substance Act has had some success but has not achieved its goal. The availability of a legal delta-9-THC capsule for the treatment of nausea and vomiting has recently expanded to other uses and a peculiar American program supplying standardized smokeable cannabis, grown on a Federally funded farm in Mississippi, has recently been curtailed.

Dronabinol (Marinol®)

An American drug company received approval in 1986 to market 2.5, 5.0 and 10 mgm capsules of synthetic delta-9-THC dissolved in sesame oil. This decision emerged from evidence that cannabis and delta-9-THC were effective in the treatment of nausea and vomiting, particularly that secondary to use of cancer chemotherapeutic agents. (Sallan, Zinberg and Frei, 1975) The product has the generic name dronabinol, and is marketed under the trade name Marinol®. Until recently, gross sales were probably inadequate for continued marketing (less than \$8 million per annum). Dronabinol is

stringently controlled and listed as a schedule II product highly subject to abuse. Since it entered the market, there has been no evidence of any substantial diversion to illicit sale. The American prescription drug control system does not prevent use of any FDA-approved drug for "non-labeled" indications. When the FDA approves a medicinal for marketing it approves specific labeling of indications for which the manufacturer has submitted acceptable proof of efficacy and may so advertise. Despite such restrictive labeling, physicians often begin to prescribe new medications for other indications. Propranolol was marketed to treat arrhythmias but physicians used it for angina and hypertension. The manufacturer of propranolol ultimately made a new drug application for these indications. Prescribing for non-labeled indications is common and proper because an appropriate clinical use may emerge long before the manufacturer generates proof and makes an application.

Marinol® is labeled only for use in chemotherapy-induced nausea and vomiting. Might physicians use it for other possible indications? Might they prescribe it for glaucoma, migraine headache, spasticity, appetite enhancement, menstrual cramps, and nausea and vomiting secondary to other causes? In an unusual fashion, The U.S. Drug Enforcement Agency (DEA) specifically attempted to restrict any use of oral delta-9-THC outside the single label indication. In a U.S. Federal Register notice, they warned physicians that unlabeled prescribing might be interpreted as a reason to investigate the prescriber. (Federal Register 1986)

This threat is very likely without legal foundation but may achieve the DEA's purpose. ⁶ *the footnote*

Dronabinol the legally available delta-9-THC has become part of a longer argument regarding cannabis and medication in the United States. Robert Randall effectively sued the United States government in 1976 over its refusal to permit him access to a needed medication. Randall, with the support of his ophthalmologist, documented that smoking cannabis lowered his intraocular pressure and was therapeutic for his glaucoma. This victory led to the establishment of a compassionate drug program through which by 1992 approximately a dozen patients received standardized cannabis cigarettes legally from a Federal cannabis farm established at the University of Mississippi. These individuals with help from their physicians applied for medical cannabis for glaucoma, neurologic illness with spasticity and just before the termination of the program, HIV-related wasting.

HIV-related wasting and cannabis

The use of smokeable cannabis to treat nausea and vomiting related to AIDS and AZT treatment has become widely discussed in the United States. In addition to the anti-nauseant effect, the use of cannabis may independently provoke appetite. The rate of application to the compassionate program was recently increased by AIDS patients. However, in March of 1992, a deputy secretary and physician in the DHHS, James Mason announced the termination of the IND program, although promising that those previously approved would continue to receive their cannabis. Mason initially cited the

END NOTES

¹Nahas' style is indicated by the Chinese Communist material. The claim regarding the Chinese plan is actually referenced to a conversation. Someone named M. Heykal was supposedly privy to a talk between Chou En Lai and Nassar about these drug plans. We are told nothing more about the eavesdropping Heykal, his credibility nor his conveyance of these plots to Dr. Nahas.

²Hollister was very well funded by the Federal government to perform cannabis studies in the 1960s and 70s. Whether his failure to condemn the drug during the 1980's influenced his support I do not know. I do know from one of the writers of a companion article in the cannabis issue of *Pharmacological Reviews*, that the Journal was under severe pressure not to publish Hollister's article which was viewed by anti-cannabis forces, particularly Nahas, as a whitewash of the drug.

³The third airplane simulator study employed a one-tailed T-test which identified statistically significant effects at 24 hours. We believe that most investigators would not assume that the direction of test changes could only move in a single direction and that this is an inappropriate use of the statistic. A conventional two-tailed test indicates no statically significant effect 24 hours after use of cannabis.

⁴Despite this vote, cannabis has not been recriminalized in Alaska because of the state constitutional issues outlined. The attitudes and possible actions of the current members of the Alaskan Supreme Court are not clear; the outcome of possible recriminalization also remains unclear.

⁵An American country-rock band called "Barefoot Jerry" once recorded a song about an expiation notice. It was called "Token Ticket".

⁶In response to inquiries, the US Department of Health and Human Services (DHHS) has emphasized that dronabinol may, like other marketed medicinals, be prescribed for unlabeled indications which the prescriber believes clinically appropriate. (Chow 1992).

⁷Because delta-9-THC is a bronchodilator, some have feared that it may augment the effects of tobacco related irritants. The bronchodilator effect on larger airways may abet the deposition of tobacco particles deeper in the respiratory tree and hasten the deleterious impact of tobacco smoking on small airway and alveolar function.

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