**Editorial Brief**

**LSD AND CHROMOSOMES**

In an earlier Editorial Brief (Aust. N.Z.J. Psychiat., 1: 60, 1967), aspects of LSD usage were commented upon and in a final remark, reference was made to the work of Cohen, Manuelle and Back (Science, 155: 1417, 1967) in regard to the side-effect of chromosomal damage, especially Chromosome No. 1. The question was posed as to where this latter observation might fit into the use of LSD, as a therapeutic agent, fifty years hence. In view of subsequent findings, it is apparent that the editor should have limited his prospective review to fifty weeks hence.

Cohen et al. had originally estimated that the effect of LSD was greater on those who had had larger doses and had been subjected to longer periods of administration of the drug. A paranoid schizophrenic man who had had 15 treatments over 6 years, the last dose eight months before testing, showed definite chromosome breakage with a "quadriradial" between two of the No.1 chromosomes. This phenomenon is seen in Bloom's Syndrome and Fanconi's Anaemia, autosomal recessive conditions which are especially prone to chromosomal damage by virus, and which demonstrate increased carcinogenesis; the quadriradial is also found in mammalian tumors induced by the virus SV40. On this basis, Cohen et al. considered LSD could be both oncogenic and teratogenic.

The former has been confirmed by Irwin and Egozcue (Science, 157: 313, 1967); for, of eight taking this substance, the two heaviest users showed increased chromosomal breakage; and the Philadelphia chromosome, characteristic of chronic myeloid leukaemia, was present. The teratogenic forecast has likewise been confirmed by Alexander et al (Science, 157: 459, 1967) since rats, given a single subcutaneous injection early in pregnancy, developed a high proportion of abnormal offspring. A Lancet annotation (Lancet, 2: 505, 1967) quotes a report from the Saturday Evening Post (August 12, 1967) that a girl who took a single dose of LSD in the first month of pregnancy had a seriously deformed child with megacolon. The annotation concludes: "In view of these findings, LSD must now be considered as a possible cause when a deformed child is born". Those using the drug should be looking for possible leukaemia too.

**DRUG ABUSE AND DRUG DEPENDENCE**

A Visitor from Mars, launched unprepared upon the Western World, might justifiably conclude, from a perusal of the daily press, that most of the young — and a fair number of their elders — had forsaken the normal pleasures and duties of life for a drug-induced freedom from care and responsibility; and that, to parody Karl Marx, opium had become the religion of the people. Recently a London newspaper carried a full-page appeal calling for a change in the law regulating the use of marijuana. Amongst its signatories were a number of distinguished medical men. The subsequent correspondence showed that the medical profession was by no means united over this issue and the British Medical Journal rather acutely concluded that calls for the widespread availability of this drug were "irresponsible".

Hard facts seem to be more inaccessible than hard drugs; and the emotional heat engendered by the debate varies inversely with the amount of reliable information. Much of the writing on this topic reminds one forcibly of the embittered disputes of the early Christian sectaries but unfortunately, to date, no Gibbon has come forward to record our modern protagonists' vicissitudes or to challenge the assumptions on which their attitudes to drug use are based. The term 'addict' conjures up images of degeneracy, immorality and crime which, however erroneous, tend to colour many statements on the topic. In refreshing contrast to this tone of outraged morality is a paper by Scher in which the patterns of drug use are patiently dissected in a manner both instructive and entertaining. Unfortunately, this article deals almost entirely with narcotic, psychedelic and amphetamine drug use in the U.S.A. What we badly need to know is how extensively these drugs are used, whether their use constitutes the main problem of drug dependence, and how serious are the effects upon health of a moderate use of marijuana.

As far as drugs of the opium, heroin and cocaine series are concerned, it is indisputable that these are dangerous and habit-forming with serious consequences for the health of the user. These are the drugs which make the headlines, creating an impression of an extensive underworld traffic with criminal consequences. Yet according to one authority, in 1964 in Australia there were approximately 150 and in Great Britain 753 known narcotic addicts, figures giving approximate rates of 1.36 and 1.45 per 100,000 of the respective populations. In the U.S.A. with 55,899 known addicts the rate is nearly 29 per 100,000. This is a serious enough figure but hardly evidence to support a picture of a nation wholly pre-occupied with the ingestion of harmful drugs.

Figures for marijuana and amphetamine taking are not available. It is likely that the experimental use of both drugs by young persons is fairly widespread.
in a number of large cities.\(^{(2)}\) Amphetamine excess can lead to transient psychosis and for a small number of unstable individuals both drugs can be stepping-stones to more dangerous habits. Yet the consensus of informed opinion is that moderate use of marihuana has no ill-effects upon health, does not lead to permanent addiction, is not associated with criminality, and only for a minority of users is it the forerunner of addiction to dangerous narcotics. Of 1245 senior students in New York who replied to a questionnaire on drug-taking while undergraduates, only 6.3\% admitted to drug use, 75\% of these had used marihuana, very few changed to other drugs, and 70\% had given up the habit before reaching senior student status. Once again, evidence of widespread use of harmful drugs by young persons is conspicuously absent.

The current concentration upon narcotics, amphetamine and marihuana overlooks the vastly greater and, in terms of ill-health, more serious problems of dependence upon barbiturates and non-narcotic analgesics in Australia. Whitlock, Lowrey, et al.\(^{(4)}\) found that 22\% of psychiatric patients admitted to a general hospital unit in Brisbane were dependent on drugs, mainly of the barbiturate and A.P.C. variety. Only 1.3\% of the patients admitted to taking amphetamine and 3 out of 116 patients had tried marihuana. There was one pethidine addict. The majority of the patients were middle-aged women and only 3.4\% of the drug-dependent patients were less than 20 years old.

A somewhat similar study by Sainsbury\(^{(5)}\) showed that 9\% of all patients admitted to a psychiatric clinic in Sydney were dependent on a variety of drugs. The majority of patients were taking barbiturates or bromides and bromureides. It is interesting to note that abuse of bromureides in Queensland was minimal, possibly because of their comparative unavailability due to more stringent control over their supply. In Victoria where bromureides are easily obtained, evidence of widespread misuse has been given by Martin\(^{(6)}\). Lavan et al.\(^{(7)}\) showed that 19\% of all medical and surgical outpatients had been taking regular doses of A.P.C. preparations for more than one year, a finding which was exactly paralleled by an unpublished survey by medical students in Brisbane.

These findings indicate quite clearly where the major problems of drug dependence lie. By comparison with his middle-aged elder, the adolescent "hippie" experimenting with marihuana, amphetamine and lysergic acid is an insignificant figure; a fact which does not deter his drug-taking senior from condemning him without a qualm. Medical opinion seems to be equally oblivious of the true facts. In the opinion of one authority\(^{(8)}\) barbiturate dependent persons are to be found in only small numbers, a statement refuted emphatically by Glatt\(^{(9)}\) who wrote, "Barbiturate abuse and addiction must not be overlooked when at present it is mainly the young amphetamine, cannabis or heroin-cocaine abusers who make the headlines."

Epileptic fits and delirium consequent upon withdrawal of barbiturates, ataxia and multiple accidents in the home, and importunate demands for 'sleepers' are among the well-known consequences of barbiturate dependence. The majority of these patients obtain their drugs on legitimate prescription, a clear indication of the part played by the medical profession in fostering this class of dependence. We can not be absolved from responsibility by glossing over the major types of drug dependence while pointing accusatory fingers at a small minority of glue-sniffers, experimenters with psychedelic drugs and a comparative handful of serious narcotic abusers.

Our Visitor, if percipient, should return to his planet with a picture of drug-taking in our society very different from that created by popular and medical journalism. And, of course, he will have observed that the one drug of addiction heavily indulged in by middle-aged members of our society is barely mentioned by those seeking for adolescent 'dope-fiends'. Alcohol continues to produce more addiction, destruction and sheer human misery than any of the drugs mentioned in this article. Yet remedial and legislative action to control this dangerous epidemic has, so far, achieved remarkably little success.

REFERENCES


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