

parison to placebo (7 Ss) or allobarbitol (6 Ss), the differences however did not reach the statistical significance. Neither verbal nor visual retention was significantly changed after both drugs compared to placebo. The only finding supporting slightly our previous hypothesis was some improvement in visual recall ability after placebo ( $P < 0,01$ ), which was not evident after both tested drugs. On the other hand in differentiation part of this test a significant decrease of correct responses was evident after allobarbitol ( $P < 0,05$ ) and diazepam ( $P < 0,01$ ), but not after placebo. No similar differences were found in verbal

retention. We can conclude, that under our experimental conditions both tested hypnotic drugs interfered negatively, but very slightly with consolidation of visual retention having no significant influence on verbal retention. Similar experiments in healthy volunteers without previous drug treatment and sleep disorder would be necessary for reexamination of our findings.

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## Effect of threshold doses of LSD on social interaction in healthy students

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The validity of Leuner's hypothesis (1970) that hallucinogenic drugs (psilocybine) in threshold doses induce some basic traits of schizophrenic behaviour (according to the Conrad definition of early symptoms), was tested in healthy volunteers in a complex of social interaction. Twentytwo experiments were performed with LSD or placebo on 12 healthy undergraduate volunteers (6 males, 6 females) in their sixth year of medical study. None of the subjects had had any previous LSD experience. The students were paired and each pair underwent two experiments in a fortnight's interval under the double blind technique. Each pair in each experiment was assigned to one of the following combinations LSD - placebo, LSD-LSD, placebo-placebo. Each subject of the tested pair ingested at 9 a.m. a glass of water with the drugs in a soluble form (0.2 ml of saline as placebo or 20 micrograms of LSD tartarate) and received instructions for a program lasting 3 hours including four tasks for each S which demanded highly complex social contacts in town (business matters, shopping, ordering of books, travel arrangements abroad, a.o.). A similar program was prepared for the second period between the 3rd and 6th hour after drug administration. The Ss were controlled twice, i.e. after the third and sixth hour in the laboratory by the senior investigator. In these periods self-reports and reports about the partner's behaviour were recorded.

The senior investigator identified correctly the drug-altered behaviour of 9 out of 11 LSD subjects (2 Ss were LSD non-reactors). The subjective assessment of the students was similar. On the other hand, the objective evaluation of behaviour by the partner in each pair gave only five correct answers. Placebo was identified better: all 11 Ss correctly by the investigator, 10 Ss by self-assessment and 9 Ss by the partner in the pair.

The most frequent symptoms induced by LSD were euphoria and unmotivated smiling, these were absent only in 2 Ss (both non-reactors). The clinical effect of LSD was, however, more evident in the resting period during examination in the laboratory, while during the trip to town all symptoms were significantly diminished or could be better controlled than in the laboratory. No unusual behaviour emerged under the stress of social tasks. The only similarity between LSD effects and schizophrenia according to the Bleuler description were altered feelings (unmotivated smiling and euphoria). Some other symptoms appeared, too, though infrequently, i.e. withdrawal (1 S), feeling of persecution (2 Ss) and some thought disorder (abnormal associations) in 2 Ss. All these changes were more exaggerated in the laboratory.

We can conclude that combination of threshold doses of LSD with highly complex social interaction in conditions of everyday life did not induce specific changes of behavior

resembling the basic symptoms of schizophrenia. Contrary to the findings of Leuner, resting condition in laboratory increased significantly the psychopathology. The discrepancy between our and Leuner's results could be explained either by different drugs used (psilocybine by Leuner) or by different personality patterns of volunteers as well as by other experimental and cultural variables.

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## Catamnestic study on volatile solvent addiction

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The authors found an abuse of trichloroethylene and toluene in the form of inhalation. The motive of the abuse is euphoria (occurring usually after 3–5 inhalations), an illusory perception of reality, optical visions and hallucinations, particularly colourful optical hallucinations (with a predominance of pink, red and violet), auditory hallucinations (the sound of heavenly music, or sounds like murmur, cracks or drones), somesthetic disturbances (the pleasant feeling of being on wings). There occur also illusions of the already seen and experienced.

The consumption of the drug is often done in bands. The intoxicated band can be very dangerous because in such state they don't recoil from crime. In some sexuality increases resulting in common sexual playing and orgies.

Two groups of addicts were observed:

1) In the school year 1970/71 22 youngsters, aged 14 to 18 years, and suspected of inhaling volatile solvents were examined. They were: 13 students of a secondary school, 7 apprentices and 2 regularly employed, 9 girls and 13 boys. Fifteen of the youngsters came from families with a higher education. Conditions in 7 families were discordant. Of the 22 investigated subjects 5 were hospitalised in the psychiatric ward for attempted suicide. In 3 hospitalised patients a schizoid development was problematical, the others were diagnosed as psychopathic development of the personality, or psychopathic traits of personality. In the latter traits of instability, weakness of will, emotional shallowness, especially in heterotelic

emotions, predominated. Prevalent in thinking was a diminished ability of criticalness and of abstraction. In most of the investigated subjects it was an abuse of volatile solvents, however, in six cases it developed into a toxicomaniac stage of drug addiction.

2) During the same period 10 men, aged 18–22 years, were examined. Six patients came from a working class family and 4 from a family with higher education. In the anemnesis they all showed a disturbed home life. In this group the abuse had lasted on average for one year, the patients inhaled daily about 3 dcl trichloroethylene. In the state of intoxication four of them committed sexual excesses, two were detained in the psychiatric clinic for attempted suicide and four patients tried to mitigate abstinence symptoms with sedatives, tranquillisers or analgetics. Four patients were, before the abuse, of a psychopathic personality, the others showed a psychopathic development (dissocial).

Both groups revealed in addition to abuse of volatile solvents an inclination to alcohol, nicotine and caffeine abuse and increased addiction to pharmacological drugs (namely to so-called small drugs). In three patients delinquency was proved (stealing, assault and rape).

Therapy consisted of detoxication, treatment of abstinence symptoms and of depressive decompensation. Aversive psychotherapy was also applied. Therapy was successful in 50%, sofar these patients did not return to the drug. The others relapsed.

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