The Effects of Psychotomimetic Drugs on Primary Suggestibility*

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Many attempts have been made in the past to alter suggestibility by drugs. Among the agents which have been employed have been ether (STARKEY 1917), nitrous oxide (EYSENCK 1945), barbiturates (SCHILDER and KAUDER 1927; HORSLEY 1943), scopaline (BAERNSTEIN 1929), alcohol (HULL 1933), hyperventilation (COHEN and COBB 1939), phenothiazine derivatives (ALEXANDER 1957; WEST 1956; SMKO 1963), meprobamate and imipramine (HALPERN 1961) and carbon dioxide inhalation (SARGANT and SLATER 1963). Much of the confusion surrounding earlier reports has been due either to a failure to distinguish particular types of suggestibility or to failure to determine whether drugs changed suggestibility or suggestion influenced the expected action of drugs.

In the present study, we have attempted to determine the effects on primary suggestibility of three psychotomimetic drugs [lysergic acid diethylamide (LSD-25), mescaline and psilocybin] given alone and in combination. Primary suggestibility is defined as the execution of motor movements or the experience of certain cognitive or perceptual changes following the repeated suggestion by another person that these will occur. These tests are similar to techniques used to measure the extent of hypnotic state. This type of suggestibility can be distinguished from secondary suggestibility, which is related to set or to need to conform to expectation on the part of the subject (STUKAT 1958). In particular, we were interested in the effects of drugs upon primary suggestibility rather than on the effects of suggestibility upon drug action.

Psychotomimetic drugs often produce striking changes in body awareness and body image; in modes of cognitive functioning and thinking; in psychomotor facility and coordination; and in the expression of affect. The altered states created by these drugs appear similar to the altered states of awareness and psychomotor functioning commonly called "trance" states produced by hypnotic induction, light narcosis,

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intense reverie, sensory and sleep deprivation, and similar interventions. Indeed, nearly every one of over 30 descriptive characteristics which WITZENHOFER (1963) lists as applying to various trance states, including hypnosis, can be found in the literature on psychotomimetic drug effects.

If psychotomimetic drugs produce a trance state similar to hypnosis, then an increase in primary suggestibility would be expected, as hyper-suggestibility has usually been cited as the single most important defining feature of hypnosis (WITZENHOFER 1953). Accordingly, our two major hypotheses were these:

1. Psychotomimetic drugs will enhance primary suggestibility to a degree comparable to that produced by induction of hypnosis.

2. Psychotomimetic drugs will produce trance characteristics analogous to hypnosis, and that the degree to which these are produced will correlate positively with the enhancement of suggestibility.

Part of the present study was directed at exploring certain clinical and biochemical aspects of the actions of these drugs, which are reported elsewhere (HOLLISTER and SJOBERG 1964). The experimental methods were such that we felt secure that obtaining one type of data did not affect the other.

Methods
Subjects

24 men between the ages of 21 and 40 years volunteered for the study, for which they were paid. All were considered to be in good physical health, and assessed to be in good emotional health. They were not supposed to have had prior experience with psychotomimetic or addictive drugs. With only three exceptions, who were replaced in the experimental design, these criteria held.

Although ethical considerations demanded that the drugs to be used be named, subjects were given only the most general information about the putative effects. Neither they nor the experimenters conducting the study were aware of which of the several possible drugs was being used on any specific occasion.

Subjects were not encouraged to seek to use the drug trials for a psychotherapeutic relationship, and so far as possible, contact with research personnel was limited to the actual performance of the experimental tests.

Drugs and Dosage

Each of three psychotomimetic drugs was administered, both alone and combined. The following doses were considered roughly equivalent: LSD-25, 1.5 mcg/K; mescaline, 5 mg/K; psilocybin, 225 mcg/K. The combination of drugs was assembled so that each drug contributed \( \frac{1}{3} \) of the total effect, based on the equivalent doses.