Psychopharmacologia (Berl.) 8, 251-262 (1965). PSI 172/LSD 1349

The Effects of Psychotomimetic Drugs on Primary Suggestibility*

By
B. M. SJOBERG jr. and L. E. HOLLISTER

(Received March 5, 1965)

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), scopolamine (BAERNSTEIN 1929), alcohol (HULL 1933), hyperventilation (COHEN and COBB 1939), phenothiazine derivatives (ALEXANDER 1957; WEST 1956; SIMKO 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,

* Grateful appreciation is due Drs. ANDRE M. WEITZENHOFFER and ERNEST R. HILGARD for their valuable assistance in the planning of this research, which in expanded form has been submitted to Stanford University as the senior author's Ph. D. dissertation and will be available from University Microfilms, Ann Arbor, Michigan. This study was supported in part by grant MH 03030 and was performed at Veterans Administration Hospital, Palo Alto, Calif.

intense reverie, sensory and sleep deprivation, and similar interventions. Indeed, nearly every one of over 30 descriptive characteristics which WEITZENHOFFER (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 hypersuggestibility has usually been cited as the single most important defining feature of hypnosis (WEITZENHOFFER 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 $^1/_3$ of the total effect, based on the equivalent doses.

Thus, each subject completed four trials, three with the single drugs and one with the combination. Trials were conducted at 7-day intervals, which were thought to be long enough to obviate any residual drug carry-over from trial to trial. Sequence of drug trials for the 24 subjects was arranged in 6 different 4×4 latin square designs, representing all possible permutations of drug order. Each of the three drugs and the combination therefore appeared 6 times in each trial position.

Test Procedure

About 1 week prior to the first drug trial, a preliminary interview and psychological testing session was scheduled. Certain personality and developmental history data were obtained which will not be reported here.

The drug trials took place in a windowless hospital examining room that was air conditioned and contained a hospital bed, a large table, and several chairs, including a comfortable lounge chair in which the subject sat during testing. As long as the subject remained in the room, he was permitted to do what he wished during intervals when no testing was being conducted. Smoking was kept at a minimum during the first 4 hrs of each drug trial, because of the biochemical laboratory tests being conducted.

The major variable in this study was primary suggestibility, as measured by the *17-item Stanford Suggestibility Scale*. Originally constructed to detect changes in suggestibility resulting from an induction of hypnosis (WEITZENHOFFER and SJOBERG 1961), the scale consists of 17 ideo-motor or ideo-sensory suggestions of increasing level of difficulty. At each testing, the suggestions were presented to the subject until he failed successively to respond positively to three. Testing was then terminated, a score being based on the number of positive responses elicited. Two versions of the scale were constructed (Forms A and B) consisting of minor alterations in the instructions on nine of the least difficult items. Half the subjects received an ABAB sequence of forms, half the BABA sequence over their four weekly drug trials. No mention was made of suggestion or hypnosis at any time during the drug series, the scale items simply being introduced as "ideo-tests". This scale was administered immediately before and at a period between 2 and 3 hrs after a particular drug was ingested. Before-after change scores could thereby be derived.

The second variable in this study was trance behavior, as measured by the *Trance Indicator Score* (WEITZENHOFFER 1963). The latter provided a composite score based on direct questioning of the subject about introspective experiences of a trance-like character during a particular testing period, as well as behavioral signs of a trance-like nature as detected by

the tester. Such a score was obtained with each administration of the 17-item Scale, permitting change scores to be derived from both measures.

Approximately 1 month after the last drug trial, each subject returned for another test period, to determine the effect of hypnosis on the two criterion measures. The period began with some additional personality tests, followed by administration of the 17-item Scale and the Trance Indicator Score in the normal waking state, without any mention made of suggestion or hypnosis. After this, additional interviewing was done for about 15 min, an interval consistent with that used by WEITZENHOFFER and SJOBERG (1961) between their waking and hypnotic test series. The subject was then invited to cooperate in an induction of hypnosis, which each subject agreed to do. Hypnotic trance was induced by the eye closure method formulated by WEITZENHOFFER and HILGARD (1959). Retesting with the 17-item scale proceeded immediately, exactly as detailed above, followed by the Trance Indicator Score. Consequently, final change scores for primary suggestibility and trance phenomena were obtained after using induction of hypnosis, rather than administration of drugs, as the experimental intervention.

Results

Changes in Primary Suggestibility after Drugs and Hypnosis

With respect to the reliability of the 17-item scale both equivalent forms A and B demonstrated a high degree of pre-drug reliability from trial to trial, regardless of whether an ABAB or BABA sequence of administration was used. Pre-drug cross reliability ranged between .90 and .97, consistent with the fairly high reliability found previously for the 17-item scale (i.e., rho = .63) between waking and hypnosis administrations (WEITZENHOFFER and SJOBERG 1961).

Table 1. *Mean and standard deviation of 17-item Stanford suggestibility scale for four drug treatments and hypnosis*

	Mesc.	LSD-25	Psil.	Comb.	Hypn.
Pre-Test $\bar{X}$	3.333	3.625	3.458	3.333	2.792
Pre-Test SD	3.33	4.08	4.11	4.01	2.94
Post-Drug $\bar{X}$	5.500	5.167	3.541	4.750	4.667
Post-Drug SD	4.84	4.90	4.21	4.70	4.49
Change Score $\bar{X}$	+2.167	+1.542	+0.083	+1.417	+1.875
Change Score SD	2.70	2.93	1.71	2.18	2.65
Probability Level [1]	$P<.005$	$P<.025$	NS	$P<.005$	$P<.005$

[1] Wilcoxon Matched-Pairs Signed-Ranks Test.

There were negligible pre-drug differences in 17-item Scale scores when these scores were arranged according to drugs (see Table 1). This was reasonable as each drug appeared in each trial position an equal

number of times. Thus, mean change scores were not confounded by any noticeable variation in the pre-drug level of response to the 17-item Scale.

Means and standard deviations of pre-test, post-test and change scores for the 17-item scale for the five trials are shown in Table 1. The magnitude of change produced by hypnosis was comparable to that produced by mescaline, and to a lesser extent, by LSD-25 and the combination of drugs. All mean changes for these agents were statistically significant as tested by the Wilcoxon Matched-pairs Signed-Ranks method (SIEGEL 1956)[1]. The magnitude of shift was close to that noted by WEITZENHOFFER and SJOBERG, who used the same 17-item Scale pre- and post-hypnosis (1961). The one striking exception was the drug psilocybin, which apparently has little effect on suggestibility.

A 2-factor analysis of variance performed on the six 4×4 latin squares (EDWARDS 1960) yielded a significant drug effect at the .05 level, whereas there was no apparent effect resulting from trial order. The Duncan *New Multiple Range Test* (DUNCAN 1955) was performed to determine which of the differences among the four drug means were significant and which were not. Using a .05 probability level, it was determined that mescaline, LSD-25, and the combination drug each significantly differed from psilocybin in the degree to which they enhanced primary suggestibility, but not from each other nor from hypnosis.

Summarizing thus far, our first hypothesis, namely that the psychotomimetics would produce enhancement in primary suggestibility comparable to that from hypnosis was substantially supported for mescaline, LSD-25, and the combination drug, but not for psilocybin.

We may well ask to what extent a particular subject who shows a high degree of increased suggestibility on, say, the mescaline trial will also show heightened suggestibility on the LSD-25 trial, In a sense, we are asking whether "drug-specific" factors outweigh "person-specific" factors for all of the drugs, or are there commonalities in the effects of at least some of the drugs?

Rank order correlations between the 17-item Scale changes produced by each drug and by hypnosis were calculated to determine the consistency of response of individual subjects to different trials. These correlations are presented in Table 2. It can immediately be seen that any correlation into which the psilocybin trial entered was notably smaller than for the other trials. This fact suggests that psilocybin was different

[1] The moderate positively skewed distributions of change scores for suggestibility data dictated the use of nonparametric tests when such tests were applicable. Those parametric tests employed here permit a fairly wide variation in the degree to which underlying assumptions of normality may be safely violated.

in its effects on suggestibility than the other three drugs, whose effects were rather uniform.

In summary, these correlations suggest that within limits, the subjects had a reasonable degree of individual consistency of response in terms of effects on primary suggestibility, except for the psilocybin trial.

Table 2. *Individual consistency in reaction to four drug conditions as measured by correlations (rho's) among the 17-item Stanford suggestibility scale changes produced by each drug and hypnosis*

	Mesc.	LSD-25	Psil.	Comb.	Hypn.
Mesc.		.49 [3]	.05	.38 [1]	.53 [4]
LSD-25			.34	.47 [2]	.55 [4]
Psil.				.20	.36 [1]
Comb.					.53 [4]
Hypn.					

[1] $P < .10$. — [2] $P < .05$. — [3] $P < .02$. — [4] $P < .01$.

Changes in Trance Phenomena after Drugs and Hypnosis

With respect to the reliability of Trance Indicator Scores, an analysis of pre-drug scores yielded a trend in the direction of a progressive reduction over the four drug trials. Most likely this decrement reflected a growing conservatism in reporting symptoms over the successive trials, possibly as a function of the repeated dramatic experiences produced by the drugs. The subject's standard of judgment probably came to be based more and more upon his previous drug experiences rather than upon his normal waking condition. Nevertheless, the drugs themselves produced a sufficiently profound enhancement in reported and observed effects to compensate almost entirely for this pre-drug trend.

As with the 17-item Scale, there were negligible pre-drug differences in Trance Indicator Scores when these scores were arranged according to drugs. Means and standard deviations of post-test and change scores for the Trance Indicator Score for the five trials are presented in Table 3.

It should be noted that the hypnosis trial yielded a lower pre-test level of response, both in terms of means and standard deviations, than any drug trial. This observation undoubtedly reflects the fact that the hypnosis trial had an invariable position as the last trial in the sequence of the experiment, the possible consequences of which were discussed above.

This trial effect may also partly account for the elevated change score for hypnosis relative to the drug trials (see Table 3). However, the Trance Indicator Score was deliberately based on the phenomenology and characteristic behavior of the hypnotized person. Thus, the hypnosis trial should have yielded the highest mean change score, as indeed it did. This

was the case even when we adjusted the hypnosis change score for the pre-hypnosis level of response (by subtracting the pre-hypnosis mean score from the average of the pre-drug trials).

Taking the adjusted hypnosis change score calculated above as our criterion level, mescaline and LSD-25 increased trance-like phenomena

Table 3. *Mean and standard deviation for trance indicator scores following four drug treatments and hypnosis*

	Mesc.	LSD-25	Psil.	Comb.	Hypn.
Pre-Test $\bar{X}$	7.250	7.417	7.375	7.917	5.500
Pre-Test SD	3.26	3.18	4.21	4.25	2.43
Post-Drug $\bar{X}$	12.792	13.917	9.167	11.459	14.333
Post-Drug SD	4.57	5.49	4.62	4.40	5.80
Change Score $\bar{X}$	+5.542	+6.500	+1.792	+3.542	+8.833
Change Score SD	4.49	4.80	3.40	3.99	4.38
Probability Level [1]	$P<.005$	$P<.005$	$P<.025$	$P<.005$	$P<.005$

[1] Wilcoxon Matched-Pairs Signed-Ranks Test.

to a degree comparable to hypnosis, thus supporting in part our second hypothesis. The combination of drugs produced somewhat less change. All mean change scores were statistically significant, even the one for psilocybin. This was not surprising as each drug produces potent psychic effects, some of which would contribute to this score.

As the analysis of variance of Trance Indicator Change Scores indicated a significant drug effect, a multiple comparison of mean change scores was undertaken, using the Duncan *New Multiple Range Test* (Duncan 1955). Employing a .05 probability level, it was found that mescaline, LSD-25, and by extrapolation, hypnosis, each significantly differed from psilocybin in the degree to which they evoked trance phenomena, but they did not vary substantially among themselves. Psilocybin and the combination of drugs did not differ significantly. Finally, LSD-25, the most potent of the drugs from the stand-point of trance phenomena, significantly differed, although barely, from the combination of drugs.

While the relative ordering and magnitude of results are slightly different from those observed in the analysis of the 17-item Scale, the similarities suggest that LSD-25, mescaline, and to a lesser extent, the combination of drugs were largely equivalent in their action, both in enhancing primary suggestibility and evoking trance phenomena. Psilocybin, on the other hand, was different from the other drugs in both of these areas of psychic influence. The fact that results with psilocybin were different from those obtained from the other drugs rules out the possibility that all of the suggestibility effects were based on the expectation of the subjects or experimental bias.

We had hypothesized that the appearance of trance characteristics would be positively correlated with the degree of suggestibility elicited. Such correlations were calculated for each drug in terms of initial pre-drug scores, final post-drug scores, and change scores (Table 4).

All correlations in Table 4 are positive, as predicted, and are uniformly significant for the post-drug scores. For the pre-drug scores and change scores, the correlations varied considerably. In the case of pre-drug scores, there may well be little connection, as is implied here,

Table 4. *Correlations (rho's) between 17-item Stanford suggestibility scale scores and trance indicator scores in terms of initial pre-test scores, final post-test scores, and change scores (N = 24)*

	Mesc.	LSD-25	Psil.	Comb.	Hypn.
Initial	.16	.21	.56[3]	.42[1]	.59[3]
Final	.70[4]	.66[4]	.35[1]	.50[2]	.81[4]
Change	.32	.54[3]	.40[1]	.19	.84[4]

[1] $P < .05$. — [2] $P < .01$. — [3] $P < .005$. — [4] $P < .0005$ (One-tailed test).

between normal waking suggestibility and the appearance of classical trance-like features. Almost by definition, waking primary suggestibility precludes many of the phenomena tapped by the Trance Indicator measures, and, in the case of change scores, reliability is decreased when two sets of change scores are correlated.

On the other hand, after a trance-inducing intervention was made in a subject (either by drugs or hypnosis, and reflected in the post-trial scores), the degree of suggestibility was positively correlated with the trance-like state induced. The trial which served in the present study as our criterion level—the hypnosis trial—showed an especially high correlation of .81 between post-drug scores on suggestibility and scores on associated trance phenomena. This correlation, in comparison with the drug correlations, strengthens the view that for many subjects a fundamental similarity may obtain between the states produced by psychotomimetics and by induction of hypnosis. The psilocybin trial again stands out as the conspicuous exception, Although the post-drug correlation for this drug was significant, albeit barely, it was substantially lower than for any of the other drugs.

Discussion

Both hypotheses were supported for mescaline, LSD-25, and the combination of drugs. Heightened primary suggestibility and associated subjective and behavioral phenomena commonly found in trance states occurred in most subjects after the ingestion of these drugs. These enhanced phenomena included: a) intense feelings of detachment or dis-

sociation from the immediate environment and from the self; b) deep absorption in the ideo-test items; c) feelings that actions and movements were being carried out as though asleep or as though compelled by a mysterious force; and d) a greater inability to recall suggestibility scale items (established by suggested amnesia) at the conclusion of testing. Above all, there were numerous reports of frequent shifts in consciousness or awareness during the suggestibility testing intervals. To be sure, these shifts were described as similar to those which occurred spontaneously at other times during the drug trial, but those shifts which occurred during the actual suggestibility testing were typically described as much more marked and noticeable. This observation implies an interaction of drug effects with the procedures used to administer the suggestibility test items, an interaction which may in part account for the fact that the appearance of a trance-like or hypnotic-like state in the psychotomimetic drug subject has gone largely unnoticed previously.

Anecdotal evidence of suggestibility and trance-like behavior in drug subjects has been presented. Based on a few brief and partial reports given by several panelists at the 1959 Josiah Macy Foundation conference on *The Use of LSD in Psychotherapy* (ABRAMSON 1960), a consensus was established that LSD-25 produces a state of "heightened suggestibility". It was far from clear whether the term "suggestibility" was being used in the primary or secondary sense; quite possibly interchangeably with resultant confusion. Less ambiguously, the panelists concluded that it was impossible to induce or maintain hypnosis under LSD-25. Aligned against this conclusion are recent studies by FOGEL and HOFFER (1962) and LEVINE et al. (1962). These latter studies, although designed for entirely different purposes, pointed the way toward the detection of many potential interactions and similarities between the LSD-25 state and the hypnotic state. Further, these studies illustrated that both can exist together and may affect each other in certain important respects.

The present study did not investigate the induction of hypnosis under psychotomimetic drugs, although this would be a logical next step. Instead, we have shown similarities between primary suggestibility under these drugs and during hypnosis. Such points of convergence imply a similar mode of action operating within both types of experimental interventions.

At present, we can only speculate about the nature of this apparent common mechanism of action. It may involve the fact of deep, total immersion in a dramatically novel mental and emotional state, common to both the hypnotic and drug states. Withdrawal from active reality testing has been associated with alterations of awareness both from psychotomimetics and hypnosis. A concomitant of this would be an interruption of an individual's normal control of voluntary activity and, as

MILLER et al. (1960) have pointed out, a lack of desire to take the initiative in controlling one's own "planning" functions. Presumably, such a loss of initiative would increase amenability to the "plans" or suggestions delivered by an outside source, such as the experimenter.

A word remains to be said concerning the absence of hypersuggestibility following the drug psilocybin. Although the effective dosages of LSD-25, mescaline, and psilocybin belong to entirely different orders of magnitude, there is a fairly prevalent belief among drug researchers that the subjective and clinical effects of the three drugs are relatively equivalent at these dose levels. Nonetheless, differences have previously been found to exist. In a 1961 study, HOLLISTER noted several. One is the relatively shorter span of action of psilocybin (about 5 hrs, compared to 7 or 8 hrs or more for LSD and mescaline). Another is the relatively more pleasant or agreeable somatic reaction evoked by psilocybin. And finally, it is claimed that psilocybin may, compared to the other two drugs, create a more dreamy, ruminative, and introspective state of mind with dose levels that do not unduly disturb subjects somatically. If the latter assertion is indeed correct, it may at least in part explain the absence of a suggestibility effect for psilocybin. There would be less need for a subject treated with psilocybin to reach out to the outer environment for relief from the inner turmoil, loss of control and lack of ability to make plans, more characteristic of the mescaline and LSD-25 subject.

Summary

Mescaline, LSD-25, psilocybin, and a combination of these three drugs were each administered in moderate doses at 7-day intervals to 24 volunteer subjects according to a latin square design. Primary suggestibility, that type closely related to hypnosis, was measured both before and 2 hrs following each administration of drugs, using the 17-item Stanford Suggestibility Scale. A Trance Indicator Score was also obtained, representing both behavioral observations and subjective reports concerning the degree of trance-like or hypnotic-like experiences which may have accompanied each suggestibility testing session.

Major findings were that mescaline, LSD-25, and the combination of drugs each produced an average enhancement in primary suggestibility closely comparable to that produced by an induction of hypnosis, the latter being tested for each subject after the completion of the drug series. Psilocybin did not enhance primary suggestibility. Associated trance phenomena were also substantially increased during all of the drug trials, but significantly less so for psilocybin. Significant correlations were obtained between suggestibility and Trance Indicator Scores following each drug and after induction of hypnosis, although psilocybin produced substantially less correlation.

Although these results confirm speculations previously made in the literature that LSD-25 may increase suggestibility, it must be emphasized that they cannot be generalized beyond the specific type of suggestibility measured. Second, the differences between psilocybin and the other drugs on primary suggestibility restrict generalizations regarding the action of otherwise similar psychotomimetic drugs.

References

ABRAMSON, H. A. (Ed.): The Use of LSD in Psychotherapy. New Jersey: Josiah Macy jr. Foundation 1960.

ALEXANDER, L.: Differential effects of the new "psychotropic" drugs. Ann. N.Y. Acad. Sci. **67**, 758—765 (1957).

BAERNSTEIN, L. N.: An experimental study of the effect on waking suggestibility of small doses of scopolamine hydrobromide. Unpublished Master's Thesis, University of Wisconsin 1929.

COHEN, M. E., and S. COBB: The use of hypnosis in the study of acid-base balance of the blood in a patient with hysterical hyperventilation. Res. Publ. Ass. nerv. ment. Dis. **19**, 318—332 (1939).

DUNCAN, D. B.: Multiple range and multiple F tests. Biometrics **11**, 1—42 (1955).

EDWARDS, A. L.: Experimental Design in Psychological Research. New York: Holt, Rinehart and Winston 1960.

EYSENCK, H. J., and W. L. REES: States of heightened suggestibility: Narcosis. J. ment. Sci. **91**, 301—310 (1945).

FOGEL, S., and A. HOFFER: The use of hypnosis to interrupt and to reproduce an LSD-25 experience. J. clin. exp. Psychopath. **23**, 11—16 (1962).

HALPERN, S., and S. MERLIS: Hypnosis and psychotropic agents: Their interaction in mental patients. In Neuro-Psychopharmacology, Vol. 2, ROTHLIN, E. (Ed.). Amsterdam: Elsevier Publishing Co. 1961.

HOLLISTER, L. E.: Clinical, biochemical and psychologic effects of psilocybin. Arch. int. Pharmacodyn. **130**, 42—52 (1961).

—, and B. M. SJOBERG: Clinical syndromes and biochemical alterations following mescaline, lysergic acid diethylamide, psilocybin and a combination of the three psychomimetic drugs. Comprehens. Psychiat. **5**, 170—178 (1964).

HORSLEY, J. S.: Narco-analysis. New York: Oxford Univ. Press 1943.

HULL, C. L.: Hypnosis and Suggestibility: An Experimental Approach. New York: Appleton-Century-Crofts 1933.

LEVINE, J., A. M. LUDWIG, and W. H. LYLE jr.: The controlled psychedelic state. Amer. J. clin. Hypn. **6**, 163—164 (1963).

MILLER, G. A., E. GALANTER, and K. H. PRIBRAM: Plans and the Structure of Behavior. New York: Henry Holt and Co. 1960.

SARGENT, W., and E. SLATER: An Introduction to Physical Methods of Treatment in Psychiatry. Baltimore: Williams and Williams Co. 1963.

SCHILDER, P., and O. KAUDER: Hypnosis. Nerv. and ment. Dis. Monogr. Ser. **46** (1927).

SIEGEL, S.: Nonparametric Statistics. New York: McGraw-Hill 1956.

SIMKO, A.: Suggestion and hypnosis therapy potentiated with Itridal. Med. Welt **32**, 1606—1609 (1963).

STARKEY, F. R.: Ether hypnosis in psychotherapy. Med. J. Rec. **91**, 631 (1917).

STUKAT, K. G.: Suggestibility: A Factorial and Experimental Analysis. Acta Psychologica Gothoburgensia, II. Stockholm: Almquist and Wiksell 1958.

WEST, L. J.: Round Table Meeting on Current Practices in Hypnosis. 112th. Ann. Meeting Am. Psychiat. Assoc. Chicago 1956.

WEITZENHOFFER, A. M.: Hypnotism: An Objective Study in Suggestibility. New York: Wiley 1953.

— Trance and trance-like states. A commentary on trance states in general and on the Balinese trance in particular. Unpublished Manuscript (1963).

—, and E. R. HILGARD: Stanford Hypnotic Susceptibility Scale. Palo Alto: Consulting Psychologists Press 1959.

—, and B. M. SJOBERG: Suggestibility with and without "induction of hypnosis". J. nerv. ment. Dis. 132, 204—220 (1961).

Dr. LEO E. HOLLISTER,
Assoc. Chief of Staff, Veterans Administration Hospital,
3801 Junipero Serra Boulevard, Palo Alto, Calif. 94304 (U.S.A.)