

## Chapter VII

### GENERAL DISCUSSION AND CONCLUSIONS

#### Discussion of Design

Alternate ways of designing the experiment were considered. Subjects could have been told nothing other than that they were going to participate in a psychological experiment with drugs in a non-religious setting. The pre-supposition, however, that set and setting are very important led to the use of techniques which would encourage a serious and expectant attitude, group support, a trustful atmosphere, and security for the subjects who, it was hoped, would have meaningful experiences. Everything possible was done to discourage the development of fear, suspicion and mistrust. The chapel as setting; theological students as subjects; and the religious focus in preparation, expectation, and implementation were deliberate for maximum encouragement of "religious or mystical" phenomena, because these were what we wanted to study. To control for so much positive suggestion double-blind procedure was employed for an experimental and control group.

The psychedelic drug experience is so unique and powerful that the double-blind control design would have been completely meaningless if the subjects had known what

to expect from previous experience for they would have certainly known whether or not they received the drug.<sup>1</sup> In our study double-blind technique was initially effective because none of the twenty subjects had ever had an experience before with LSD, psilocybin, or mescaline. In spite of this fact by the time the chapel service was over all of the experimentals were certain that they had received psilocybin because of the profound changes from their usual state of consciousness. One purpose of the control group was to measure the effect of suggestion. Data from the tape recordings, written accounts, and interviews indicated that in the early part of the experiment positive suggestibility was greatly enhanced by the somatic effects of the nicotinic acid which the controls had all assumed was psilocybin. They had waited with eager anticipation for more effects. By the end of the chapel service, however, most of the control subjects were doubtful that they had received psilocybin, but were still uncertain because of the impact of the service combined with the initial somatic effects. The following excerpt from a tape recording which was made immediately after the service illustrates this fact:

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<sup>1</sup>Sherwood, Stolaroff, and Harman, op. cit., p. 72.

Control Subject MC:

Soon after swallowing the pill I noticed sensations of heat. Then I found myself in a very relaxed state ...very free. After going into the chapel, time went very quickly. The service was very meaningful.... Rev. "X's" voice seemed to have an effect on me. At times I felt like cheering and at other times like crying. His Bible readings moved me. I felt as if I were there for the first time and really experiencing these things, but at this time I honestly can't say whether I had the drug or not.

During the group discussions the qualitative difference in experiences became strikingly obvious to the participants. This created a bias in the controls, but their written accounts were remarkably similar to their tape recordings which were made after the service before the group discussions. Also the fact that the subjects had been told that some would not receive psilocybin made them curious as to their status and eager for any distinguishing sign. The nicotinic acid acted within ten to twenty minutes, but within an hour and one-half most of the physical effects had worn off. The psilocybin took from thirty minutes to one-and-one half hours to become noticeable. Two of the ten experimentals did not feel any effects until after the chapel service started. The possibility of giving the experimentals a combination of psilocybin and nicotinic acid to produce a similarity of initial somatic effects (e.g., flushing and

itching of the skin) in both the experimental and control groups was considered but rejected because the possible antagonism between nicotinic acid and psilocybin was not known. Also, such initial physical effects might have focussed the psilocybin experience on physical symptoms.

Deception might have been used by telling the subjects that they all would receive psilocybin, but it was felt that such a design might have disturbed the atmosphere of trust and friendliness by arousing confusion and suspicion. Actually some deception was used because although the subjects had been told that some would not receive psilocybin, they had not been told that a control substance would be given. The controls had assumed that they would get a true placebo. Afterwards three control subjects expressed some resentment because of this assumption, but were still willing to cooperate in collection of data. Disappointment was a much stronger sentiment. During the interviews (including the one after six months) discussion of who might have been an experimental or control was discouraged. The experimenter emphasized the fact that he did not know who had received psilocybin and that there was a possibility of non-reaction to the drug. Most of the subjects, however, did not become less certain that they either received or did not receive

psilocybin.

Obviously, a disadvantage of having the experimentals and controls mixed in the same session was that the behavior and experience of the experimentals had an effect upon the way that the controls evaluated their own experiences by giving them a clue as to their status. The mixed discussion period after the service would be subject to the same criticism only more so because the controls listened to others describe their experiences. The discussion period was designed to give group support and security to those recovering from the effects of the drug. The controls could not help comparing their experiences to those of their friends. Such a comparison would have been inevitable, however, because of the close-knit relationship of all the participants who attended classes together at the same school.

As an alternative procedure, the control group of matched subjects could have attended the same service (which could have been reproduced because it was taped) at a different time from the experimentals. Such a design, however, would have destroyed the double-blind feature, and the set and setting would not have been the same for both groups. The separate, although matched, experimental and control

groups would have had to have been kept from communicating or even knowing about each other (perhaps by using students from different seminaries). The preparation and expectation would not have been quite the same. The natural effect of a Good Friday service would have been lost by having the reproduced service on two separate occasions other than Good Friday. With such a design the experimenter and leaders would have known which group was experimental and which was control after the first group had participated. The way the experiment was actually run, uniformity of set, setting, and suggestion was maximized. The experiment demonstrates the difficulties of double-blind technique in group sessions with such dramatic and powerful drug-induced effects in the experimental group.

Subjects might have been screened to find only those who had a particular mystical inclination or who had previously had experiences which closely resembled the mystical typology. Such persons might have felt more at ease in the drug situation, and perhaps their drug experiences might have been even closer to the mystical state of consciousness. Only four of the twenty subjects would have definitely qualified under such a criterion. These four were matched into

pairs, and these two experimentals had some of the more strongly "mystical" experiences. As might be expected, their controls were the two who found the religious service most meaningful. To find twenty such subjects might not have been possible at the same seminary and would have required hundreds of hours of interviews. It was thought more instructive to see what would happen with a more representative sample within an already specialized group, all of whom were especially interested in religion.

Observations of the Experimenter

during the Experiment

Although the main purpose of this research was to study the internal experience of the subjects, their external behavior during the experiment was also observed and recorded. In general the experiment ran smoothly, according to plan. Before the capsules were distributed, there was a general tone of excitement, and eager yet serious expectation. During the first one-and-one-half hours, quiet was observed relatively unbroken in the groups. A few subjects felt the need to visit the men's room for natural purposes or for a smoke. Several subjects asked the experimenter for reassurance because of various somatic symptoms (such as heat or "feeling

very strange"). Some were noticeably flushed. The majority sat quietly with their groups. When the time came to move into the chapel, only one subject who felt a little nauseated remained behind with his leader for a time.

The experimentals as a group stayed in the chapel for about 85% of the service compared to the controls who stayed for about 95%. During the first half of the service there was not much activity in or outside the chapel. For the last half more overt behavior occurred in the experimentals. A few went up to the altar. One entered the pulpit and sat at the organ in a symbolic way to express what he felt was a need for someone to lead the service. There were some spontaneous vocal exclamations and some weeping. A few lay down on the pews or the floor; most sat quietly throughout.

Most of the movement outside the chapel was to the men's room. One experimental subject wanted to sit quietly in one of the large rooms for about an hour. Only one subject was taken out of the service by his leader because he became too restless. The leader stayed with him for reassurance.

The leaders were especially helpful in making the experiment run smoothly. The ones who received psilocybin seemed to be entering into the experience much more fully.



As leaders, there was no observable difference in effectiveness between the psilocybin and non-psilocybin group. Most of the experimental subjects did not need individual attention, but several later expressed appreciation for the reassurance afforded by the presence of experienced leaders. During the relaxed group discussions, there was more rapport between leaders and subjects who had received psilocybin than between those who had not. Not until after the service had begun did the leaders definitely determine which of their group members received psilocybin. In fact, there were a few initial wrong guesses.

In some cases, there was, after the service, a difference in appearance and behavior between experimentals and controls. Pupil dilation was an obvious physical sign. Experimentals were also more informally attired; ties had been loosened or removed, and hair was not combed. Their dominant mood was quiet detachment or joyful exuberance. They wanted to share the impact of their experience with their friends. Two had a little difficulty in readjusting to the "ordinary" world and needed special reassurance by their leaders until the drug effects subsided.

Summary and Discussion of Data

The data in general have indicated that the experimental subjects, who received psilocybin in the same setting and with the same preparation as the controls, had a statistically significant, different experience, as indicated by the higher scores on particular items and groups of items from the three methods of measurement.

These differences in terms of the phenomena of the categories defined in our typology of mysticism were presented in detail in Chapter VI. With the exception of sense of sacredness the combined scores of all items in every category were significantly higher for the experimentals than for the controls, by all three methods. As summarized in Table 34, the significance levels of these score differences were less than .02. The difference in sacredness was not significant only in the content-analysis data ( $p$  greater than .37). The conclusion from these data is that the persons who received psilocybin experienced to a greater extent than did the controls the phenomena described by our typology of mysticism. But a more rigorous analysis was needed to determine the degree to which these persons experienced such phenomena. As presented in Chapter VI and summarized in Table 35, when only the scores of the items most

TABLE 34

SUMMARY OF SIGNIFICANCE LEVELS  
REACHED BY EXPERIMENTAL GROUP  
FOR CATEGORIES MEASURING THE TYPOLOGY OF MYSTICISM

Category	Method of Measurement		
	Post-drug Questionnaire	Follow-up Questionnaire	Content Analysis
I. Unity	.001	.001	.002
II. Transcendence of Time & Space	.001	.001	.001
III. Deeply Felt Positive Mood	.020	.020	.002
IV. Sacredness	.020	.055	(.37).
V. Objectivity & Reality	.011	.001	.020
VI. Paradoxicality	.002	.004	.001
VII. Alleged Ineffability	.004	.001	.008
VIII. Transiency	.001	.001	.004
IX. Persisting Positive Changes in Attitude & Behavior	a	.001	.002

<sup>a</sup>This method of measurement did not measure this category.

SUMMARY OF DATA MEASURING DEGREE OF COMPLETENESS OR INTENSITY OF CATEGORIES OF THE TYPOLOGY OF MYSTICISM

Significance levels reached by Essential items which remained experimental group when only significant at .05 level when the most essential items were only "strong" scores were used: combined:

Category	Post-drug Quest'n're	Follow-up Quest'n're	Content Analysis	Post-drug Quest'n're	Follow-up Quest'n're	Content Analysis
I. Unity						
A. Internal	.001	.002	.002	P9, P72a P73, P74	F18, F19, F33, F42, F47	C7
B. External	.008	.016	.016	P68	F25	NONE
II. Transcendence of Time and Space						
A. Time	.001	.001	.001	P75, P80	F1, F26, F35	C1
B. Space	.004	.002	.001	P72, P76, P81	F2, F34	C2
III. Deeply Felt Positive Mood						

A. Most Universal	.020	.020	.020	P39	F11, F29, F39	NONE
B. Love	(.15)	.055	.035	NONE	F24	NONE
IV. Sacredness						
A. Implicit	.020	.011	(.37)	P56	F22	NONE
B. Explicit	.09	.09	(.37)	NONE	F30, F48	NONE
V. Objectivity & Reality	.004	.020	.020	P33	F10, F17 F27, F70	NONE
VI. Paradoxicality	.002	.004	.001	P68, P72, P73	F25, F33	C13
VII. Alleged Ineffability	.004	.001	.008	P66	F16, F57a, F92	NONE
VIII. Transiency	.002	.002	.004	P30, P31	F86a	C10
IX. Persisting Positive Changes:						
A. Toward Self	a	.001	.004	a	F63a	C15
B. Toward Others	a	.001	(.50)	a	F54a, F60b, F91a	NONE
C. Toward Life	a	.011	.016	a	F53a, F82, F90b	C19
D. Toward the Experience	a	.055	(.19)	a	F56a, F94a	NONE

a) Not used for measuring this category.

essential to the definition of each category were combined into more precise subcategories, the differences between experimentals and controls persisted, for the most part, in their significance ( $p$  less than .02). This finding adds weight to our initial impression from Table 34, but still does not answer the question of completeness.

The essential items which remained significant at less than below the .05 level when only "strong" scores were used, were the best indication of the degree of completeness or intensity to which the phenomena of the mystical typology had been experienced. In each subcategory the number and occurrence of such essential items from each method of measurement have been discussed above in Chapter VI. The results from the most important subcategories are presented in summary form in Table 35. The subcategories fell into three groups representing three levels of completeness or intensity on the basis of the empirical data.

The first group very closely approximated the most complete phenomenological expression of the mystical typology. From all methods of measurement, they had both statistically significant higher scores for the experimentals than for the controls ( $p$  less than .016), and essential items which remained significant after "strong" score analysis. These subcategories were: internal unity, transcendence of both

time and space, transiency, paradoxicality, and persisting positive changes in attitude and behavior toward self and life.

We conclude that these phenomena of the mystical typology were experienced in a rather complete way by the subjects who took psilocybin.

The second group of subcategories was considered almost but not quite equivalent to the maximum degree of intensity or completeness defined by our typology. They had statistically significant, higher scores for the experimentals than for the controls, from all three methods of measurement ( $p$  less than .020), and had some items which survived by the most rigorous application of the Sign Test from both questionnaire studies, but not from the content-analysis data. These essential subcategories were: external unity, objectivity and reality, alleged ineffability, and the most universal phenomena of deeply felt positive mood (joy, blessedness, and peace). It will be remembered from our analysis in Chapter VI that joy was the significant element in this last-mentioned subcategory and that peace and blessedness were experienced but not to a significantly higher degree by experimentals. Objectivity and reality had strong supporting evidence from supplementary phenomena such as intensity and totality of the experience. We conclude that the evidence for

completeness in this group (from experimentals who took psilocybin) was strong, but not maximal.

The third group showed evidence that the phenomena of the mystical typology had been experienced, but not to the most complete degree possible. They did not have confirmation on the significance of the subcategory as a whole, nor on items which remained significant after "strong" score analysis from all methods of measurement. The content-analysis data usually were not significant. These subcategories were the less universal phenomenon of deeply felt positive mood (love), persisting positive changes toward others and the experience, and sense of sacredness.

Persisting positive changes in attitude and behavior toward others and toward the experience after six months, while not confirmed by the content-analysis, nevertheless have strong evidence from the follow-up questionnaire. Judged from the content analysis, these changes were apparently not so important to the subjects as changes toward self and life, but the subjects still indicated, when specifically asked on the follow-up questionnaire, that in ways such as more sensitivity and more authenticity toward others, and evaluation of the experience in terms of learning something considered personally very valuable, the experimentals scored significantly higher than the controls with "strong" scores. In addition,



when all scores were used, other individual items from all the subcategories under persisting positive changes were significant, as has been discussed above. The weakest evidence for difference between experimentals and controls was for the category, sense of sacredness. Even here the weight of evidence indicated that sacredness definitely was experienced more by the experimentals, as indicated from the post-drug and follow-up data in both the category as a whole and when only "strong" scores were used. The implicit kind of phenomena predominated, and awe (P56 and F22) was especially strong (see Table 35).

We should here distinguish between experimentals and controls in these categories which did not show evidence that the phenomena of the mystical typology had been experienced to the highest degree. In every category, subcategory, or individual item which contributed to a category or subcategory, the experimentals always had a higher total score than the controls, and no individual item was significant for the controls when only "strong" scores were used.

The controls did not experience the phenomena of the mystical typology to any degree of completeness. The subcategories in which the total scores of the controls were closest to the experimentals, were: blessedness and peace; sense of sacredness;

love; and persisting changes toward others and toward the experience. These categories were the ones which were least significant (although  $p$  was still less than .055 in the majority of instances), and showed the most disagreement from the three methods of measurement. The design of the experiment suggests an explanation for the relatively high scores of the controls in these subcategories. In the case of sacredness, the meaningful religious setting of the experiment would naturally have encouraged such a response. The data from the questionnaires illustrated the difference in significance between explicit and implicit kinds of sacredness. Table 19 shows that the controls were closer to, although still below, the experimentals in total score for explicit phenomena than for implicit, in which the experimentals had significantly higher scores ( $p$  less than .02). In the case of love and changes toward others and toward the experience, observations by the controls of the profound experiences of the experimentals and interaction between the two groups on an interpersonal level were important parts of the experience for the controls. This fact was confirmed by the interviews after the experience.

The phenomena which the controls experienced most were among those which were experienced to the least degree of

completeness by the experimentals. It can reasonably be assumed that the lack of significance for the experimentals in these categories was due to the experience of the phenomena by the controls, although at a lesser level of intensity and completeness, as was seen from frequency distributions of scores in Chapter VI.

External unity, on the other hand, was not experienced to any marked degree by the controls (mostly scores of "0"). The lack of significance, in this case, in the content-analysis data, is assumed to be due to inadequate evidence from the accounts. The design of the experiment did not bring out this type of phenomenon. Individual meditation in a darkened chapel for the peak of the drug effect emphasized and nurtured internal rather than external experience.

From inspection of Table 35, it can be seen that for the subcategories which failed to be confirmed from all methods of measurement, the content analysis was usually the reason. This means that the judges felt that the personal accounts did not indicate "strong" or "most complete" experiences in these categories. Were they correct in their judgment? On the one hand, as judges who understood how each category was defined, they could give a more accurate score than subjects who were

rating themselves on individual phenomenological items, but did not know what category was being measured. On the other hand, the judges were scoring only on the basis of second-hand reports. We must not make the assumption that each subject wrote down his complete experience. He might not have mentioned some particular phenomena because he did not think of it when he was writing his report, although we can assume that he reported what he thought was most important or what impressed him the most. Stace has pointed out that even the mystics did not write as much as we would have liked about the actual phenomenology of their experiences.<sup>2</sup> The questionnaires and interviews provided a check on this type of omission, and such evidence should not be ignored. It might be argued that the experimentals may have used "strong" scores indiscriminately on the questionnaires merely because their experiences were so unusual or intense. There was, however, a selective preference for certain items as can be seen from appendices C and D where the significance levels for all items in both questionnaires are listed. The score distributions listed in the tables in Chapter VI also showed that not all phenomena scored by the experimentals were rated "strong".

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<sup>2</sup>Stace, op. cit., pp. 55-56.

Individual reactions to the experience as a whole came out strongly in the interviews. Nine out of ten of the experimentals considered that their experience was significant and worthwhile and would be very willing, in fact eager, to try the experience again. Judged from the interviewer's perspective, eight out of ten of these experiences were predominantly positive, and had a pronounced significant and worthwhile effect in the lives of the persons involved, according to their own testimonies. One experimental had what he considered a worthwhile and significant experience from which he learned a great deal, but in regard to mystical phenomena his experience was not on the same level with the other eight. In his account and interview it was obvious that he had spent much of his time trying to remain in control and to interpret and intellectualize his experience. At one point he attempted to memorize Greek vocabulary-cards. After one such experience he was eager to have another chance to let himself go into the experience more completely without trying to resist the effects of the drug.

The tenth experimental subject had what he termed an interesting "psychological" and "aesthetic" experience for the first three-fourth of his experience, but then became

frightened by loss of control and spent the remaining time in a terrifying fight to overcome the drug effects. He would not be interested in repeating the experience because his most predominant memory of the experience was that of fear. Six months later, in Part I of the followup questionnaire, he considered this fear-experience slightly harmful because "in a mob panic-situation, I feel I would be less likely to maintain a calm objective position than I might have formerly." During the interview he admitted that he had gone into the experience "as a psychological experiment" and had done no serious devotional preparation. His "inspirational" reading while the drug was taking effect consisted of studying some Psalms for a course in the Old Testament. His interpretation of his experience was a "psychotic episode."

The best indication of the reaction of the controls was the fact that they all were very eager for the opportunity to try psilocybin for themselves in the future. As far as their own experiences during the experiment were concerned, nine out of ten remarked in their accounts, in varying degrees of enthusiasm, about the meaningfulness of the setting in regard to the religious service. Because of the length of the service and the distractions from the experiences of others, only two out of the ten were able to keep from

getting a little tired and/or bored. In the interviewer's opinion, only one of the controls had an experience which came anywhere near the level of mystical phenomena experienced by those who got psilocybin.

These subjective observations about the experimentals and controls are substantiated to some degree by certain items on the questionnaires. Within a few days after the experience (post-drug questionnaire data) the scores of experimentals were higher than those of controls for the degree to which the experience was considered both meaningful (P126) and religious or mystical (P127), but this difference only tended toward significance ( $p = .062$ ). After six months, the usefulness of the experience (F56a) was significant at the .004 level and the value for life at the .02 level for the experimentals.

There was no significant difference between the two groups in their desire for more psilocybin experiences as indicated by F98a and F99a ( $p$  greater than .23 for both). This evidence was consistent with the fact that nineteen out of the twenty subjects wanted to volunteer for more experiments when questioned after six months.

### Conclusions

Under the conditions of this experiment, those subjects who received psilocybin experienced phenomena which were indistinguishable from, if not identical with, certain categories defined by our typology of mysticism. The differences in completeness or intensity among the various categories have been discussed. Not all categories were experienced in the most complete way possible, although there was evidence that each category had been experienced to some degree.

In terms of our typology of mysticism, a "complete" mystical experience as a whole should have demonstrated the phenomena of all the categories in a complete way. The evidence from the content analysis (also supported by impressions from the interviews) showed that such perfect completeness of all categories was not experienced by the experimental subjects in contrast to the controls. The phenomena of internal unity, however, were experienced to a rather complete degree. Because unity is the heart of the mystical experience we might expect that phenomena of the other categories also should have been experienced to a complete degree as "by-products." In our data such a prediction was unquestionably



correct for transcendence of time and space, transiency, paradoxicality, and persisting positive changes toward self and life. The evidence indicated a lesser degree of completeness in objectivity and reality, joy, and alleged ineffability; and a relatively greater lack in sense of sacredness, love, and persisting positive changes toward others and toward the experience. The experience of each of these last six subcategories could be termed incomplete to a more or less degree, but definitely present to some extent when compared to the controls. The experience as a whole, therefore, must be termed incomplete, in the strictest sense. It was remarkable, however, that so many phenomena of the mystical typology were experienced by our group of ten experimental subjects, none of whom were especially chosen other than by their own volunteering or had previous experience with psilocybin. While it is true that they were already committed to an interest in religion by the fact that they were all in a graduate school of theology, their middle-class, protestant backgrounds were rather non-mystical. Pre-drug testing indicated that there was no special tendency toward mysticism in personal experience or inclination except in the case of one or two.

The experience of the experimentals was certainly more like mystical experience than that of the controls who had the same expectation and suggestion from the preparation and setting. The most striking difference between the experimentals and controls was the ingestion of 30 mg. of psilocybin, which it can be concluded was the facilitating agent responsible for the difference in phenomena experienced.

Although lacking in maximal completeness in some categories, the experimental evidence has strongly suggested that under the conditions described psilocybin can induce states of consciousness which are apparently indistinguishable from, if not identical with, those experienced by the mystics, according to their own descriptions. This conclusion gives support to the claims made by others who have used the same or similar drugs such as LSD or mescaline to aid in the induction of such experiences.

Such evidence can throw new light upon the psychological and biochemical mechanisms which are at work in so-called "non-artificial" mystical experience. The biochemical equilibrium of the body and consequently of the mind should not be ignored in any serious study of mysticism. Ascetic practices such as fasting, sustained meditation, diet

restriction, sleep deprivation, flagellation and subsequent infection, sensory deprivation in caves or monastic cells, and breathing and postural exercises have an effect on biochemistry which in turn can produce psychological effects. Psychological conditioning also may influence body biochemistry. Psychology of religion needs to consider biochemical factors as well as psychological, social, cultural, economic, and political forces in the history, practice, and influence of mysticism.

Mystics have generally reported life-enhancing and -enriching effects from their experiences. It is now possible to test these claims by producing the phenomena of the experience and by observing behavior over a period of years in the lives of individuals. The evidence presented above indicated that over a short follow-up of six months, such claims seemed to be true. In addition, after four hours of follow-up interview with each subject, the experimenter was left with the overwhelming impression that the experience had made a profound impact (especially in terms of religious feeling and thinking) on the lives of eight out of ten of the experimental subjects. The control subjects were also impressed with the depth of the experiences of their friends who received psilocybin. These subjective impressions of those who intimately witnessed

the experiment by participation and observation without the drug confirm the conclusion that profound and meaningful experiences occurred.

Let us consider more closely the pragmatic question of the lasting benefit or harm of the psilocybin experience and the kind of changes which were produced in individual lives. After six months the changes with the highest scores were all positive, and the experimental subjects attributed these changes to the drug experience. These data have indicated that although the psilocybin experience was quite unique and different from the "ordinary" reality of their everyday lives, the subjects felt that this experience enabled them to appreciate more deeply the meaning of their lives, to gain more depth and authenticity in ordinary living, and to rethink their philosophies of life and values. The data did not suggest that any "ultimate" reality experienced was so wonderful that "ordinary" reality was no longer important or meaningful. Each person who received psilocybin was motivated to integrate constructively what he had learned from his experience into his life-situation in his own way. The fact that the experience took place in the context of a worship service with the use of symbols which were familiar and meaningful to the participants was a help in this regard.

Some persons found the music most significant, others the readings and spoken meditations, and still others the theological implications which they discerned themselves.

The continuing significance of the whole experience is perhaps best illustrated by what took place one year later during the next Easter season. Several of the subjects who had received psilocybin requested permission to listen to the tape of the Good Friday service. It was decided that this would be done in a chapel setting for any of the twenty subjects who were interested. Six of the seven students from the experimental group who were in the area attended while none out of nine control subjects did so. Several of the controls commented that they could not afford the time for such a lengthy service which had seemed too long the first time, although they indicated that they would have been quite eager to come if the chance to take psilocybin in such a setting had been offered. This reaction would seem to indicate that the lasting impact of the service was more meaningful to the psilocybin group than to the controls, although unconscious resentment against the experimenter from disappointment at not receiving the drug the first time could also have played a part. During the replay, reverent silence was maintained for the entire two-and-one-half-hour service. After

the service, by their quiet demeanor, seriousness, and un-enthusiasm for conversation at first, all six persons indicated the meaningfulness of the service for them. This was confirmed in the written accounts and discussion which followed. They all reported that the experience was helpful for integration and appreciation of what had taken place the previous year with psilocybin. The drug experience was not relived in its original intensity or character, but many things which had been experienced previously on an unconscious level were now made conscious. The familiar and meaningful context was a great help in gaining benefit from both experiences. This follow-up study after one year has not been reported as a part of the data of the experiment because only part of the psilocybin group was involved, and there was no control group. What happened, however, gives some basis for the conclusion that the psilocybin experience in a religious context can provide the initial stimulus for an ongoing and lasting influence for the benefit of personal life, and that parts of the experience can be reactivated in the integration process without the further use of drugs.

Mysticism and inner experience have been stressed much more by Eastern religions than by Western. Perhaps Western culture is as far off balance in the opposite

direction with its manipulation of the external world as exemplified by the emphasis on material wealth, control of nature, and admiration of science. Mysticism has been accused of fostering escapism from the problems of society, indifference to social conditions, and disinterest in social change. While the possibility of such excesses must always be remembered, our study has suggested the beneficial potential of mystical experience in stimulating the ability to feel and experience deeply and genuinely with the full harmony of both emotion and intellect. Such wholeness may have been neglected in modern Western society.

The relationship and relative importance of set, setting, and drug is a crucial question raised by our results. The fact that the controls had the same set and setting as the experimentals, but not the same experience, shows the utility of the drug as an important facilitating agent for the experimental induction of mystical phenomena. Other investigators, however, report the predominance of unpleasant and "psychotomimetic" experiences rather than the majority of predominantly positive and mystical experiences which we witnessed.<sup>3</sup> The drugs in this case were comparable; the set

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<sup>3</sup>P. H. Hoch, "Remarks on LSD and mescaline," Amer. J. Psychiatry, Vol. 111 (1955), pp. 787-790. See also remarks in Abramson (ed.), op. cit., pp. 56-60, and review of the history of this view in Unger, op. cit., pp. 115-119.

and setting were not. Thus it would seem that the "drug effect" is a delicate combination of drug plus set and setting. The drug alone is not sufficient, and positive experiences are by no means automatic. A meaningful religious atmosphere has been shown to be one setting in which positive drug experiences can occur. The religious context in our experiment appeared to give the psilocybin subjects a useful framework within which to derive meaning and integration from their experience both at the time and later. Our experience in this experiment has suggested that much forethought and preparation are needed to insure adequate set and setting although the precise qualitative and quantitative role of each factor has not been shown. For example, it must be pointed out that everything possible was done to maximize suggestion, but suggestion alone cannot account for the results because of the different experience of the control group. The hypothesis that suggestibility was heightened by psilocybin cannot be ruled out on the basis of our experiment. Although persuasive and similar to the explanation of mysticism by auto-suggestion,<sup>4</sup> this hypothesis still needs proof. An

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<sup>4</sup>George A. Coe, The Psychology of Religion (Chicago: The University of Chicago Press) 1916.



effort was made in our experiment to avoid suggesting the phenomena of the typology of mysticism, and the service itself made no such direct suggestion. Psychologists of religion by their interest in psychology and presumed religious sensitivity should be well-qualified to study the variables at work here.

Such research on the effect of the religious context on the psilocybin experience might illuminate the dynamics and significance of worship. Increased understanding of the psychological mechanisms involved might lead to more meaningful worship experiences for those who have not had the drug experience. Of course, there are various approaches to the theological significance of worship. This study was an empirical investigation, but we are aware that there are theological implications. The analogy to the efficacy of the sacraments would have to be considered. Furthermore, theologians must evaluate the light that such research could shed on the doctrine of Incarnation, the Holy Spirit, the presence of Christ, and of gratia activa. It must be kept in mind that we are only talking about the analogy or the elucidating suggestiveness of such drug research for a better psychological understanding of these theological concepts. Such considerations raise the question of the

place of the emotional factor compared to the cognitive in religious worship. An even more basic question is the validity of religious experience of the mystical type in terms of religious truth. Reactions to these religious implications will vary with theological position and pre-suppositions, but one value of our study is to stimulate thoughtful examination of the problems.

Many unknown conscious and unconscious factors operate in mystical experience. Much investigation is needed in this area, and drugs like psilocybin can be a powerful tool. Experimental facilitation of mystical experience under controlled conditions can be an important method of approach to a better understanding of mysticism. Better understanding can lead to appreciation of the role and place of such experiences in the history and practice of religion.