

PATIENT/STAFF BEHAVIORAL RESPONSES  
TO FLOWER ARRANGEMENTS WITHIN A  
PRIVATE PSYCHIATRIC HOSPITAL DINING ROOM

by

CYNTHIA SHANNON FARMER

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A MASTER'S REPORT

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Approved by:

Richard A. Mattson

Major Professor

Patient/staff behavioral responses to flower arrangements within a private psychiatric hospital dining room.<sup>1</sup>

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C. S. Farmer<sup>2</sup>

Kansas State University, Manhattan

Abstract: A three-week study investigated the effects of fresh cut flower arrangements upon the behavior of patients and staff at a private psychiatric hospital. The introduction of cut flower arrangements into the dining room was followed by an 83% increase in the number of patients sitting at highly preferred tables. Combined patient/staff data show that flower tables in the low preference area were occupied longer than control tables and that the number of occupancies also increased.

<sup>1</sup>Received for publication on \_\_\_\_\_ Contribution No. \_\_\_\_\_,  
Department of Horticulture, Kansas Agricultural Experiment  
Station, Kansas State University, Manhattan.

<sup>2</sup>Graduate Teaching Assistant, Horticultural Therapy.

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## INTRODUCTION

Industrialization has increased at a tremendous rate over the last one-hundred years. The environment has shifted largely from rural to city life. By living in the city, people have lost their contact with the plant life associated with a rural existence. No one knows how this change affects the quality of our lives. There is more speculation on the quality of our environment as we become aware that disturbances in ecological balances affect man in a very significant way.

Accompanied with the growing interest in the environment, horticulture has been conceptualized as a therapeutic tool. Horticulture has been made an essential part of the rehabilitation program in institutions for the physically handicapped, mentally retarded, and prison inmates. Horticultural therapy has also been incorporated into the treatment milieu of many psychiatric institutions. With greater understanding of the relationship between man and plants, horticulture could be used more effectively as a therapeutic aide.

## LITERATURE REVIEW

Since the late 1700's horticulture has been known to be of therapeutic value. Benjamin Rush, (10) maintained that digging in the soil had a curative affect on the mentally ill.

Gardening especially has been mentioned as a therapeutic tool throughout the literature. William Menninger and James Pratt (7) wrote, "Gardening therapy offers social opportunities for the individual. It serves to relieve symptoms by quieting

anxiety and releasing tension."

Howard Brooks (1) contends that horticultural therapy gives a patient "renewed confidence, a warm feeling of achievement, and a greater interest in tomorrow than yesterday."

Dunton (3) stated, "I cannot recall any analysis of the benefits of gardening itself; . . . there are many, such as . . . the satisfaction of producing something worthwhile . . . which gives pleasure to one's self and to others and possible increases in self-esteem."

Train (9) found that the life satisfaction level of geriatrics can be maintained by engaging them in gardening activities.

Mehrabian (5) advocates the utilization of plants to increase pleasantness and enhance social interactions.

Research in Germany and in the United States has shown that employees in plant landscaped offices are happier and more content than employees in the traditional cubicle offices. Individual and group morale has been improved and absenteeism has decreased. Everett Conklin(2) believes this is evidence that a primal association exists between man and plants.

Talbott, et. al. (8) found that the introduction of flowering plants into the dining room on a ward in a state mental hospital was followed by a significant increase in vocalization, time spent in the dining room, and amount of food consumed.

Three hypotheses to explain the effects of plants on man have been implied (1,2,4,7,8,9). "One possible hypothesis is that plants have a positive effect as stimulus objects for which the human perceptual apparatus is specifically primed.

The second hypothesis involves the more aesthetically pleasing and perceptually stimulating aspects of the environment. It has also been suggested that plants influence people by virtue of their dependence on human nurturing which engenders a relationship involving responsibility for another living thing." (8).

These hypotheses fit into the theoretical framework outlined for studying the problems of environmental psychology by Mehrabian and Russell (6). This theory states that physical or social stimuli in the environment directly affect the emotional state of a person, thereby influencing his behaviors in it. Three emotional response variables (pleasure, arousal, and dominance) summarize the emotion-eliciting qualities of environments and also serve as mediating variables in determining a variety of approach-avoidance behaviors such as physical approach, work performance, exploration, and social interaction.

To test the first hypotheses, that plants have a positive effect as stimulus objects, it is predicted that patients and staff will perceive flowers and prefer to sit at tables with flower arrangement centerpieces. To test the second hypothesis, that plants are aesthetically pleasing aspects of the environment, it is predicted that social interactions, measured by number of people at a table, the length of time spent at a table, and the number of occupancies at each table, by patients and staff will increase at tables with flower arrangement centerpieces.

## METHODS

The study was conducted in the dining room of a private psychiatric institution that is used by both patients and staff members. The staff members consist of psychiatrists, psychologists, social workers, nursing staff, activity therapists, other clinical staff, and administrative personnel. The patients do not represent any specific age range or diagnostic category. They are able to dine either alone or with other patients unattended by staff members. Because of the large number of people that use the dining room daily, it was impossible to establish a core experimental group of specific persons. All patients and staff sitting at sixteen tables in the center of the room were subjects in the experiment.

Observations were made by two observers over 3 consecutive one week phases consisting of 5 days each. The observers were visible to the subjects. The nature of the study was not revealed to either patients or staff. Sixteen tables in the center of the dining room, 1-16 (See Fig. I), were observed from 11:30 a.m. to 1:15 p.m. daily.

The first one week period (Phase I) was a control, observations being made under the normal dining room setting. During this phase it was found that 8 tables on one side of the dining room were, on the average, chosen first. This area was designated as the High Preference Area. The remaining 8 tables with the exception of one on the opposite side of the room were, on the average, chosen second. This area was designated as the Low Preference Area (See Fig. II). This phase was used to determine where the flowers should be placed on





Fig. I. Diagram of the dining room indicating the relationship of the experimental tables to other tables and to the traffic flow.

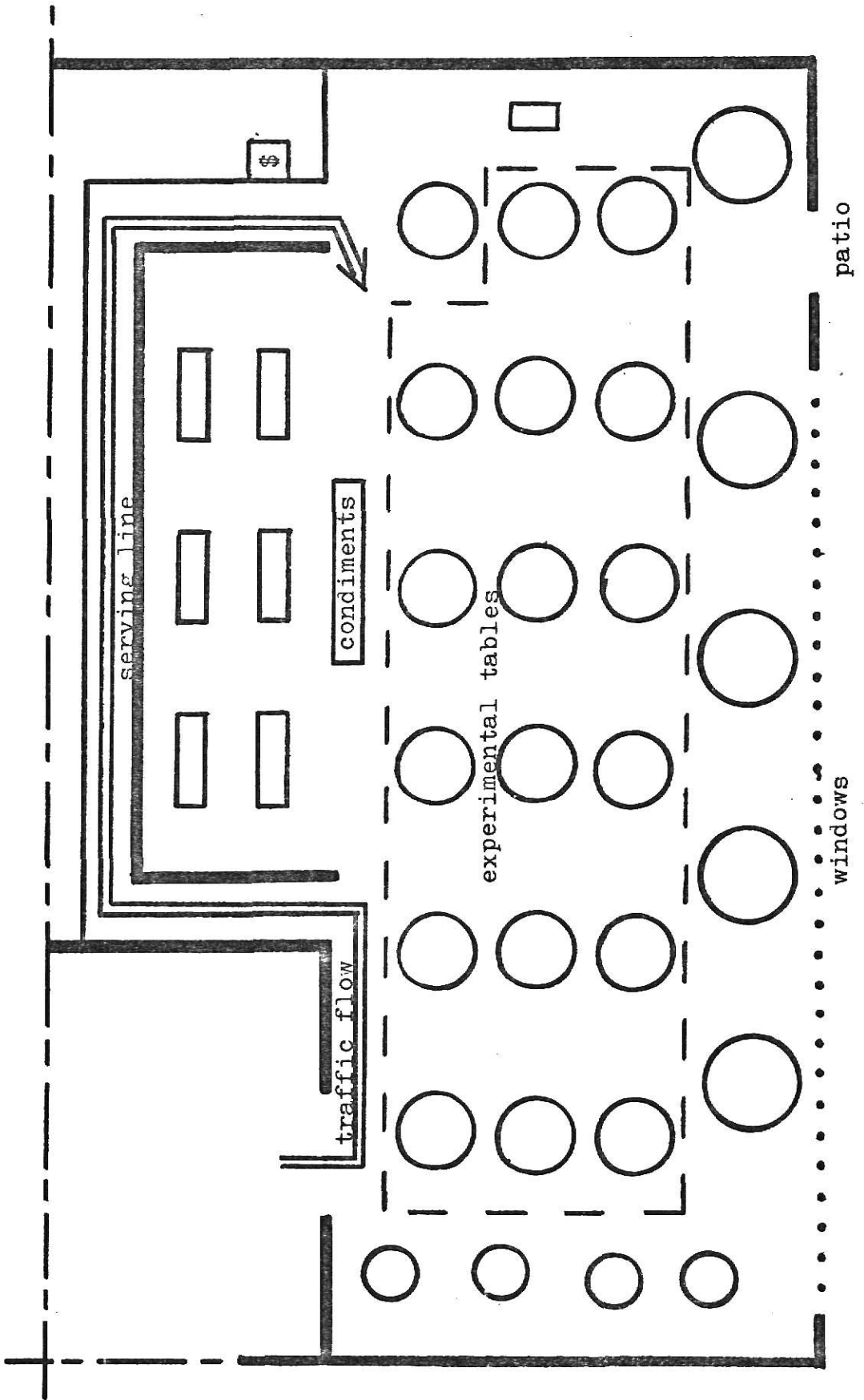
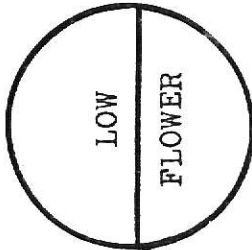
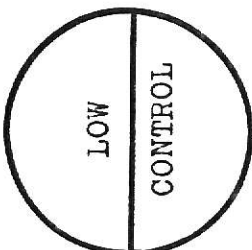




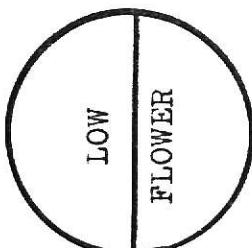
Fig. II. Diagram of the experimental tables indicating the high and low preference areas and the flower and control tables.



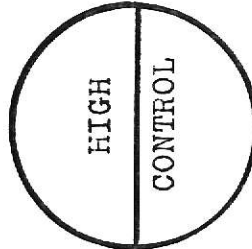
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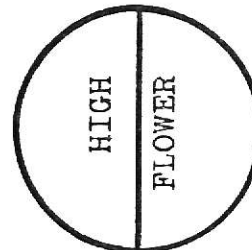
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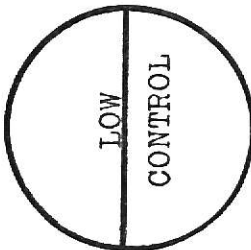
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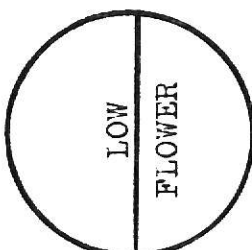


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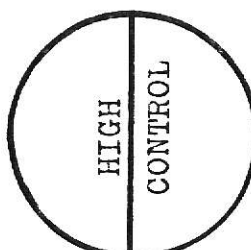


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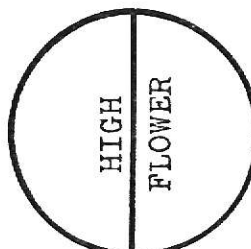
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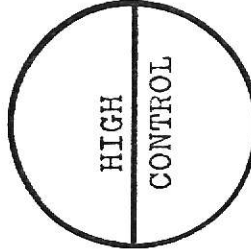
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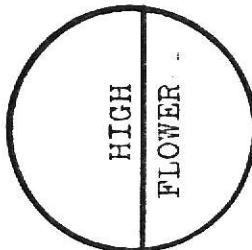
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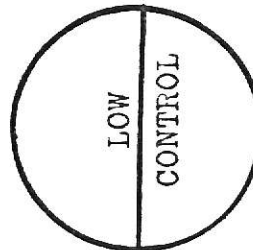
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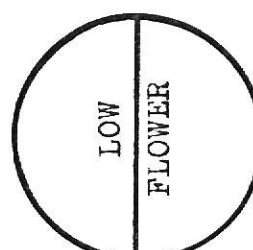
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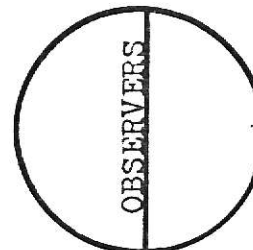
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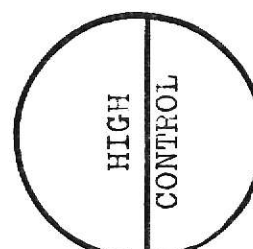
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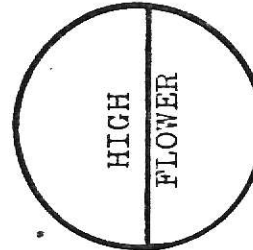
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the tables for Phase II. During the second one week period (Phase II) centerpieces of cut yellow and white chrysanthemums, multicolored carnations, and red roses were placed on 8 of the 16 tables. Four flower arrangements were placed in each of the preference areas. The remaining 4 tables in each preference area were control tables. Phase III, the final week, was also a control.

The following observations were recorded: table location, preference rank, time spent at table, and total number of patients and staff at each table, and the number of times a table was occupied.

The preference rank for each table was determined by giving it a number in the order in which it was taken. The total amount of time a table was occupied throughout the dining period was also recorded. The number of persons at a table was scored by recording the number of patients and staff at each table at five minute intervals. The number of times a table was occupied was recorded by counting the number of times the table was occupied or joined by one person or a group of persons. Individual data was collected daily on work sheets and later transferred to computer cards.

Data was analyzed on an IBM 370/158 computer with an AARDVARK program comparing means with Duncans Multiple Range and Least Significant Difference Tests.

## RESULTS AND DISCUSSION

The seating pattern of patients and staff at dining room tables remained consistent throughout the phases.

### Preference Ranking

As shown in Table I, the preference ranking of dining room tables was not statistically significant. Some tables with flowers had lower rankings (higher preference) than control tables. The immediate perception of flowers, or arousal (Hypothesis I), did not seem to influence initial table preference by patients or staff as did factors such as table availability or the location of friends.

### Occupancy Time

Data for patients and staff was combined because of missing data for some tables. As shown in Table I, flower tables were occupied longer than control tables in the low preference area. Flowers did not seem to increase time spent at tables in the high preference area ( $P < .32$ ). However, when people had to sit in a less preferred area, flowers did influence the length of time spent at the table.

### Patient/Staff Numbers

Means for the number of patients decreased per table for each of the Phases I, II, and III from 3.0, 2.6, to 2.3, respectively. Means for the number of staff increased during the same phases from 4.3, 4.0, to 5.0, respectively. These values are significantly different at the .14 level of probability for patients and .08 for staff. As the weather became warmer more patients were eating outside on the patio. Also, during this time many new nursing staff were being hired which may have accounted for the increase in the number of staff.

As shown in Table II, more patients than staff sat at flower tables in the high preference area than at control tables



Table I. Response of combined patients and staff at a private psychiatric hospital to the introduction of flower arrangements as a table decoration in a 3 week study.

Phase <sup>z</sup>	Preference area	Treatment	Preference <sup>y</sup> ranking	Occupancy Time (minutes)
I	low	control	10.6	55.5 c <sup>x</sup>
		pre-flower	11.4	56.3 c
	high	control	7.1	71.8 a
		pre-flower	4.8	70.8 a
II	low	control	11.4	47.3 e
		flower	9.2	56.0 c
	high	control	7.9	65.5 b
		flower	5.5	64.5 b
III	low	control	10.0	49.5 d
		post-flower	10.1	46.0 e
	high	control	7.1	66.0 b
		post-flower	6.7	65.5 b

n.s. P<.32

<sup>z</sup> Phase I = initial baseline week, II = flowers introduced, III = final baseline week.

<sup>y</sup> Ranking from 1 to 16 with 1 = first choice, 16 = last choice.

<sup>x</sup> Mean separation, in columns, made by LSD at the probability level shown.

Table II. Response of patients and staff at a private psychiatric hospital to the introduction of flower arrangements as a table decoration in a 3 week study.

Phase <sup>Y</sup>	Preference area	Treatment	Patients (no.)	Staff (no.)
I	low	control	2.1 e <sup>X</sup>	4.3 c
		pre-flower	1.8 f	4.4 bc
	high	control	5.0 a	3.7 d
		pre-flower	3.3 d	4.8 ab
II	low	control	1.2 h	3.6 de
		flower	1.4 gh	4.9 a
	high	control	3.7 c	4.3 c
		flower	4.0 b	3.2 e
III	low	control	1.6 fg	5.0 a
		post-flower	.8 i	5.1 a
	high	control	3.3 d	4.6 bc
		post-flower	3.4 d	5.0 a
			P<.3	P<.1

<sup>Y</sup> Phase I = initial baseline week, II = flowers introduced  
 III = final baseline week.

<sup>X</sup> Mean separation, in columns, made by LSD at the probability shown.

It was found that fewer staff sat at flower tables in the high preference area than at control tables because they entered the dining room approximately 30 minutes later than patients. When staff members discovered that tables in the high preference area were occupied, they sat at flower tables ( $P < .1$ ) within the low preference area.

#### Number of Occupancies

As shown in Fig. III, the number of times a table was occupied was higher at flower tables than at control tables ( $P < .22$ ). This may be another indication that flowers enhance pleasantness thus increasing social interaction.

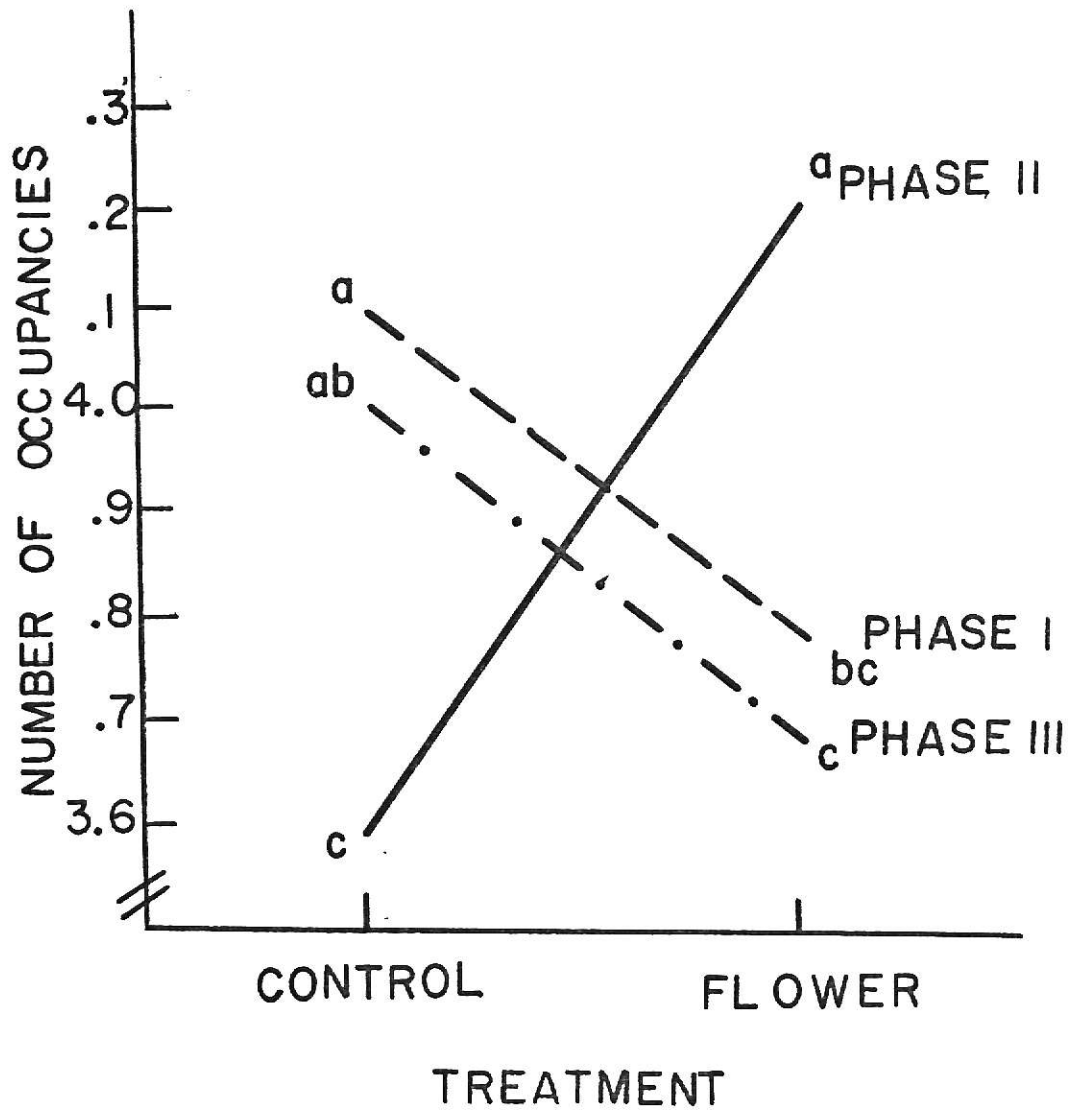
#### Qualitative Observations

Comments from the subjects concerning the flowers in the dining room were often heard. More comments were heard on the first day of the flower phase. "Pretty flowers" and "How do you rate flowers on your table?" were examples. In at least three instances subjects were seen to choose one table and then move to another one with flowers. Two days of data had to be excluded from analysis because subjects moved flowers off the experimental tables to control tables. It seems that the subjects wanted the presence of flowers but did not want to move to a less desirable table to enjoy them.

In comparison to the environment of most state psychiatric hospitals, the environment of this private institution is quite stimulating. Patient-staff contact is greater, and the opportunity for activities and sociotherapeutic groups is also more readily available. There is an effort to draw out the withdrawn patient that may be beyond the capabilities



Fig. III. Occupancy numbers of patients and staff by phase.



of a publicly funded institution. Because of this, changes in behaviors may not be quite as noticeable among patients of a private hospital that were found in the Talbott, et. al., (8) study at a state hospital.

The results that have been obtained from this experiment can be explained in terms of the environmental psychologists' pleasure theory (Hypothesis II). Mehrabian and Russell (6) have stated that social interaction can be increased by enhancing the pleasantness of the situation. It has been shown in this study that flowers may have increased the pleasantness of the dining room, and therefore increased social interactions in terms of the number of patients sitting at a table, and in terms of the number of times a table is occupied.

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A study was conducted at a private psychiatric institution to observe the responses of patients and staff members to the introduction of fresh flower arrangements into the dining room.

It was hypothesized that patients and staff would notice flower arrangements and sit at those tables. This was measured by preference ranking. It was also hypothesized that social interactions, measured by time spent at table, number of people sitting at a table, and the number of table occupancies, would increase at tables with flower arrangements.

Observations were made over three consecutive one week phases consisting of five days each. The first and third weeks were used to establish baseline data. Flowers were introduced during the second week.

It was found that two areas of preference, high and low, existed in the dining room. The perception of flowers did not seem to influence initial table preference by patients or staff as did factors such as table availability or the location of friends.

More patients sat at flower tables in the high preference area than control tables. More staff members sat at flower tables in the low preference area than at control tables. Combined patient/staff data show that flower tables in the low preference area were occupied longer than control tables and that the number of occupancies also increased.