

AN INVESTIGATION OF THE EFFECTS OF HOSTILITY
ON THE INTEGRITY OF BODY BOUNDARIES

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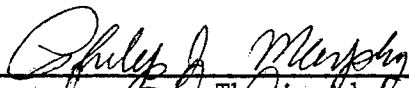
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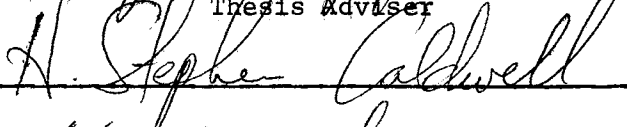
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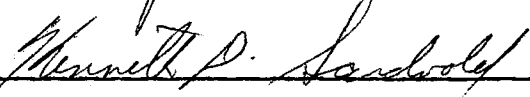
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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.	1
II. METHOD.	8
III. HYPOTHESES.	13
IV. RESULTS	16
V. DISCUSSION.	20
REFERENCES.	30
APPENDIX A. LITERATURE REVIEW.	36
APPENDIX B. INCOMPLETE SENTENCE STEMS.	52
APPENDIX C. INSTRUCTIONS	53
APPENDIX D. TABLES	54
APPENDIX E. HOLTZMAN SCORING SYSTEM.	56

LIST OF TABLES

Table	Page
I. Analysis of Variance of Barrier Scores	54
II. Analysis of Variance of Hostile Content in Inkblot Responses	55

LIST OF FIGURE

Figure	Page
1. Message X Treatment Interactions in the ANOVA on Both the Barrier Scores and Hostile Content of Inkblot Responses.	17

CHAPTER I

INTRODUCTION

The concept of body boundary has been the subject of much research interest for many years. In particular, the work of Fisher and Cleveland has taken a prominent role in body boundary research. It is the basic premise of these theorists that individuals differ in how they perceive their bodies as differentiated from the environment. In order to measure these differences, Fisher and Cleveland have developed a method for measuring body boundary definitiveness (Fisher and Cleveland, 1958; Fisher, 1970). The measurement used by these theorists is based on the number of "Barrier" responses that are given to either the Holtzman or Rorschach inkblots. A response that emphasizes the protective, decorative, or containing attributes of the periphery of the percept is scored "Barrier". Examples of responses scored Barrier would include: "person in a fancy costume", "man in armor", "man covered with a sheet", "turtle in a shell", and "flower in a vase". The total number of such responses given to a series of inkblots (the most frequent number of blots presented being 25) is called the Barrier score. Throughout the numerous studies, it has been shown that the Barrier index can be scored quite objectively with highly adequate reliability, i.e., test-retest, inter-scorer, split-half, and odd-even indices.

A wide range of experiments have shown that the Barrier index is a function of the clarity with which the individual experiences the bound-

ary regions of his body (his skin and musculature). The fact that the Barrier score is anchored in body experience is affirmed by several lines of investigation. It is 1) positively correlated with reports of the relative frequency of sensations at exterior body sites (Fisher, 1970); 2) positively related to selected memory for words referring to exterior sensations (Fisher, 1970; Andrews, 1968); 3) apparently influential in determining the occurrence of placebo-induced exterior vs. interior symptoms (Fisher and Cleveland, 1960; Williams, 1962; Cleveland, Snyder, and Williams, 1965); 4) correlated with differential ability to distinguish pictures of exterior and interior body regions presented tachistoscopically (Cassell, 1966); 5) systematically alterable by changing the individual's usual patterns of attention to his body (Fisher, and Renik, 1966). More indirectly, the pertinence of body phenomena to Barrier has been pointed up by its correlation with body anxiety, body awareness, and exterior vs. interior differences in physiological reactivity and psychosomatic symptom formation. It is also a matter of interest that while the Barrier predicts tolerance for various types of stress it has been particularly successful in predicting reactions to stress associated with the disablement of one's own body, such as loss of limbs, etc. Barrier is probably the only index so intimately linked with body response at many different levels (Fisher, 1971).

In addition, evidence has emerged that the Barrier score is positively correlated with a "self-steering" orientation which embraces interest in achievement, need for task completion, and adaptability to stress, pain, and body incapacitation (Appleby, 1956; Winder, 1952; Sieracki, 1963; Nichols and Tursky, 1967). The Barrier score has been shown to be negatively correlated with measures of yielding, suggesti-

bility, and hypnotic susceptibility (Fisher and Cleveland, 1958; Dorsey, 1965). In investigations studying the relationship between Barrier and interpersonal variables, it is found that the Barrier score is positively correlated with being communicative and sensitive to the needs of others in small group situations (Cleveland and Morton, 1962; Ramer, 1963). Along the same lines of research, the Barrier has been found to be positively related to frequency of initiating messages to others in a group, communicativeness in an interview setting, and acceptance by other group members (Rosenbluh, 1967; Frede, Gautney, and Baxter, 1968). The person with clear boundaries seems to take the initiative in group situations and to seek an integrative role.

Theorists who have dealt with the boundary concept consider that one of its functions is to modulate incoming stimuli. Stimuli are viewed as being modified by the boundary during the process of being perceived. It has never been delineated how this process might occur but there are empirical findings which have demonstrated significant correlations between boundary attributes and several aspects of sensory input. Thus, Fisher (1970) found that the apparent perceptual vividness of a variety of visual stimuli was positively linked with the Barrier index. Cauthen (1970), following Fisher's lead, was able to show that Fisher's finding held true when the apparent vividness of a series of weights was related to the Barrier score. Wertheimer and Bachelis (1966) observed that the ability to discern fine color was positively correlated with the Barrier score. Twente (1964) reported that receptivity to sensory experience upon first awakening in the morning is positively correlated with boundary definitiveness.

The Barrier score has shown itself to be positively related to

arousal levels in those body areas most directly in contact with and involved in communication with the environment. It is positively linked with measures of activation of skin, muscle, and peripheral circulatory systems, (GSR and muscle potential). By contrast, it is negatively related to indices of internal activation (heart rate). From these findings it seems that the arousal of "exterior" body layers results in an intensified "tuning in" on what is occurring in one's immediate environment. Support for this comes from Lacey (1959) and Obrist (1962) and others whose findings indicate that during the time an individual is oriented to receive information from outside, he manifests heightened skin activity and diminished heart activity, but when his attention is turned inward, the physiological pattern is reversed. The above findings point to the fact that the more definite an individual's boundary, the more sensitive he is to "outer" stimuli.

In considering the above findings, one might question whether input itself can affect the individual's body boundary structure. Reitman and Cleveland (1964) found that sensory isolation decreases boundary definitiveness in neurotic male patients and increases it in schizophrenic male patients. Silverman (1965); Silverman, and Goldweber (1966); Silverman, and Silverman (1967); Silverman, and Spiro (1968) found shifts in boundary definitiveness could be produced by presenting subliminal aggressive stimuli (through the use of a tachistoscope) to male schizophrenics. The direction of the shift in boundary was dependent upon when the Rorschach task was presented in the experiment. When it was the first task given, the penetration score was significantly reduced and the Barrier score remained unchanged. When it was administered later, the Barrier score was significantly increased and the penetration

score showed no change. Fisher (1970) found that the following stimuli did not affect boundary definitiveness in women: exciting music, relaxing music, a film containing themes of body mutilation, a film with high boring content, a film with exciting content, and an altered visual image of one's own body viewed in a distorted mirror. Similar findings are observed for male subjects.

In sum, the Barrier score has been shown to be a very stable measure. However, since boundary functioning has been shown to be involved in such a wide variety of phenomena, it seemed to be a worthwhile endeavor to examine the situations where boundary definitiveness alterations might occur. Once such instances were discovered, procedures for reinstating boundary definitiveness could be investigated.

With this view, it was found that Fisher (1971) was able to produce a boundary decrement in the case where male subjects were required to listen to hostile auditory messages. In this particular study, no other boundary shifts occurred when subjecting both males and females to white noise, dependency messages, depressive messages, and positive reassurance messages. In discussing the results of the impact of hostile messages, it is Fisher's opinion that males are not equipped to deal with situations where hostile tensions are aroused and no adequate way to express such tensions is provided. In this study the subjects were required to sit quietly and write out responses to a series of inkblots while being continuously bombarded by rather loud and vivid communications about doing very hostile things (e.g., "hate", "kill", "stab"). Implicit in Fisher discussion was the opinion that if males had the opportunity to act on the hostile tensions aroused, the boundary decrement would have been minimal, if such decrement occurred at all. The present study

evolved from such thinking.

The present experiment was divided into two parts. Part I was an attempt to replicate Fisher's (1971) finding of a boundary decrement, measured by the Barrier index, in males when subjected to hostile messages. As a control, a second group of male subjects were subjected to "neutral" or non-aggressive messages. Replication was considered necessary since the Barrier index has been such a stable measure over a wide and varied array of input stimuli.

Part II, Extension, of the study examined Fisher's opinion, stated above, that boundary decrement results from the lack of opportunity for males to resolve the tensions elicited by the hostile messages. Three pairs of hostile message-neutral message groups were used in Part II, with the neutral message groups serving as controls for the hostile message groups. The three pairs of groups were given the following titles: 1) non-resolution group, 2) task resolution group, 3) free resolution group.

The non-resolution condition provided the subjects with the experience of undergoing boundary decrement. In this condition, the subjects heard the hostile messages of Fisher's study and they were required to immediately begin a task designed to severely limit the opportunity of the subject to act on the hostile thoughts aroused by the messages. A somewhat complex digit-symbol coding task was selected for this purpose.

In contrast to the above group, the task resolution group was designed to provide the subject with the opportunity to act on the hostile feelings aroused during the experiment by providing him with a task that, instead of preventing him from acting on his hostile feelings, would allow him to meaningfully ventilate his feelings. The task selected for

this group was an incomplete sentence stem to which the subject is free to express his current feelings. In providing such an outlet it was hypothesized that the subjects of this group would experience little or no Barrier decrement. The subjects of this task resolution group were evenly divided between those who received hostile messages and neutral or non-hostile messages.

In a similar vein, the free resolution group provided the subjects with an opportunity to bring his own individualized defenses or methods of resolution to the experimental situation with no intervening task. This was accomplished by providing a significant time gap between the time the subjects received the messages and the time they must respond to the inkblots, from which a measure of his boundary state was taken. This time gap was literally "free time" in which no experimental demands were made. It was thought that in providing this free time the subject would be able to maintain his boundary definitiveness.

It can be summarized that the predictions of the experiment were that the subjects of the non-resolution group who received hostile messages would experience a boundary decrement similar in magnitude to that of the Fisher replication, hostile message group. The results of the task resolution group would not be significantly different from those of the free resolution group, with both groups experiencing little if any boundary decrement. It was thought that these latter two groups would provide the subjects closure in dealing with the stimuli of the messages.

It was thought that the study would provide an adequate test of the Barrier index in general and, more specifically, study an instance where boundary changes occur and how the boundary might be reinstated after changes had taken place.

CHAPTER II

METHOD

Subjects

The study was composed of 80 subjects drawn from the male undergraduate population of Oklahoma State University. The subjects were randomly assigned to the eight groups of the study, with 10 Ss in each group.

Apparatus

The following materials were used in the experiment: tape recorder with external speaker; taped messages, a) aggressive messages (supplied by Seymour Fisher) made up of such words as "hate", "kill", "stab"..., etc., b) neutral messages developed by the experimenter; Holtzman inkblots, Form B in slide form, blots 1-25; a carousel slide projector; viewing screen; and response sheets for inkblot responses.

In addition to the above, the following paper and pencil tasks were involved, dependent upon group. For the Fisher replication, only inkblot response sheets were needed.

For the nonresolution group both Holtzman response sheets and a digit-symbol coding task were used. The digit-symbol task was composed by the experimenter yet was not unlike the type of task involved in the Wechsler intelligence tests. To avoid the possibility of interference of "practice effects", nine variations of the tasks were used.

For the task resolution groups a sentence completion task was used. This task was taken in large part, from Rotter's "Incomplete Sentences Blank--College Form", with four sentence stems being developed by the experimenter. The stems used in the experiment may be found in Appendix B.

The free resolution groups required only the Holtzman response sheets.

Procedure

The experiment was divided into two essential parts. Part I, Replication, consisted of an attempt to replicate the portion of Fisher's (1971) study, "Boundary Effects of Persistent Inputs and Messages", involved with the effects of hostile messages on male subjects' boundary indices. In this portion of the experiment two groups of 10 subjects each were used. One group was subjected to hostile messages, while the other group was subjected to neutral messages.

It should be noted at this point that the subjects of the study were run in groups of up to 10 subjects per session due to the nature of the experimental design (inkblots on slides and messages through an external speaker from a tape recorder, and the experimental space available).

Upon entering the experiment, the subjects were given a short briefing which included the standard instructions to the Holtzman inkblots, (see Appendix C), adapted to slide presentation. After the inkblot instruction the subjects were told they would be hearing a taped recording over a speaker.

After the above briefing and one practice trial, the following pro-

cedure was used: The taped messages were played for 45 seconds. At the end of this initial input the first Holtzman blot was projected on the screen, with the auditory messages continuing. The blot was projected for 45 seconds, during which time the subjects responded to the inkblot. All 25 trials of the experiment were given in such a manner.

Part II, Extension, consisted of three groups, 1) non-resolution group, 2) task resolution group, 3) free resolution group. Each of these groups was subdivided into a hostile condition (subjects received hostile messages) and a neutral condition (subjects received neutral messages). Each of these subdivisions had 10 subjects.

The procedure for the non-resolution group was as follows: In addition to the briefing mentioned for Part I, Holtzman instructions, the subjects were told, "Each time the tape ends you are to begin a task similar to the example before you", (the example was stapled to the response booklet). The standard instructions from the Wechsler Adult Intelligence Scale were given for the digit-symbol task (Appendix C). The subjects were told to continue with the digit-symbol task until signaled by the experimenter. At this time they were shown an inkblot and told to respond to the blot in the booklet. To increase imagery and minimize the possible interfering effects of others being present, the subjects were told to close their eyes during the playing of the taped messages. The above instruction period (and one practice trial) was then followed by 25 trials of: /message-30 sec/ digit-symbol task-30 sec/ Holtzman inkblot-30/.

The procedure for the task resolution group was as follows: The subjects received the briefing, "You will be hearing a taped recording over the speaker. As you listen to the recording close your eyes. As

the tape ends you are to complete the sentence in the booklet to express your current feelings. Be sure to make a complete sentence. At my signal (the experimenter) you will be shown an inkblot." The standard Holtzman instructions were given for the blots. This briefing and one practice trial were then followed by 25 trials of: /Message-30 sec/ sentence completion-30 sec/ Holtzman blot-30 sec/.

The procedure for the free resolution group was as follows: The subjects received the instructions, "You will be hearing a taped recording over the speaker. As you listen to the recording close your eyes. The tape will end and after a brief period of time you will be shown an inkblot." The standard Holtzman instructions were then given. These instructions and one practice trial were then followed by 25 trials of: /message-30 sec/ free time-30 sec/ Holtzman blot-30 seconds/.

Variables

After the experimental procedures listed above were carried out, the following dependent variables were extracted for analysis:

- A. Group mean Barrier scores for the eight groups.
- B. A content analysis of the Holtzman inkblot responses scored for hostile content (according to Holtzman's "Hostility" scoring system) vs. non-hostile content for the 8 groups.

Ancillary dependent variables examined included:

- A. Content analysis of the sentence completion task of the task resolution group for hostile content (Holtzman system) vs. non-hostile content.
- B. Accuracy of the coding task of the non-resolution group, made through a 20% random sample.

The above variables were extracted by two scorers, the experimenter and a "blind" scorer, with the appropriate reliability checks being made.

CHAPTER III

HYPOTHESES

From Part I of the experiment the following hypotheses were tested:

The hostile and neutral message groups would differ in their mean Barrier score and the mean aggressive content scores. The hostile message group's mean Barrier score would be less than the neutral message group's. Also, the hostile group's mean aggressive content score would exceed the neutral group's. T-tests for independent samples were used to evaluate the hypotheses.

From Part II of the study, the following hypotheses were tested:

1) The mean Barrier scores of the two "resolution" groups would not be significantly different from each other in the aggressive condition, but both mean Barrier scores would be significantly greater than the non-resolution group's mean Barrier score. In other words, there would exist a significant message x treatment interaction effect. The analysis of this hypothesis was carried out in a 3 x 2 ANOV with the above planned comparisons being made.

2) The dependent variable of the aggressive content of the Holtzman responses would show a significant message x treatment interaction effect and a main message effect, such that the mean hostile content of the "hostile message" groups would be significantly greater than that of the neutral message groups. Also, the hostile content of the non-resolution, hostile message group would be significantly greater than the two

resolution, hostile message groups.

3) The third hypothesis of Part II was concerned with the task resolution group, in which the dependent variable of aggressive content of the sentence completion was extracted. The hypothesis tested was that the aggressive content of the hostile message group would be significantly greater than the neutral message group. In addition, it was hypothesized that the mean Barrier scores of these two message conditions would not be significantly different from each other. If these two hypotheses were borne out, it would lend considerable credence to the basic premise of the experiment. That is, an individual would experience little or no boundary decrement in boundary definitiveness if he were given the opportunity to meaningfully ventilate his hostile feelings. The two above hypotheses were tested through the use of "t-test for independent samples".

4) The fourth hypothesis of Part II was concerned with answering the question, "Did the subjects actually do the task?" For the non-resolution groups, the experimenter looked for significant differences in the percentage of completed items and the accuracy of the coding by means of a 20% random sample. It was hypothesized that if differences existed, they would be in the direction of the hostile message group completing fewer items with less accuracy than the neutral group. For the task resolution group the experimenter looked at the dependent variable of frequency of completed sentences, also by a 20% sample, with the basic hypothesis mentioned above being tested. In other words, if differences existed between the percentages of completed tasks (and accuracy of the non-resolution group) it might be interpreted to mean that the hostile messages had an interfering effect on the subjects'

ability to perform the required tasks. Comparisons with the percentage of completed tasks of the neutral message groups were made.

CHAPTER IV

RESULTS

Replication

The results successfully supported Fisher's (1971) finding. In the present study, the mean Barrier Score of the hostile message group was significantly less than the neutral message group ($t = 3.372, p < .005$). The means were 1.3 for the hostile message group and 3.8 for the neutral message group. Similarly, the hostile content of the inkblot responses of the hostile message group was significantly greater than the neutral message group ($t = 3.229, p < .005$). The mean for the hostile group was 16.0 while the mean of the neutral group was 6.1.

Extension

The results comparing the mean Barrier scores of the three experimental groups are depicted in Figure 1. Although a significant message x treatment interaction effect was not found ($F_{(1,54)} = 1.345, p > .10$) [see Table I, Appendix D], the results of the planned comparisons indicate that the "task resolution group" and the "free resolution group" were not significantly different from each other ($t = .6266, p > .10$), but were significantly greater than the "non-resolution group" ($t = 1.85, p < .05$) when comparing the hostile message groups. The means for the hostile message groups were as follows: "task resolution" = 2.4; "free resolution" = 2.9; "non-resolution" = 1.5. The mean Barrier scores for

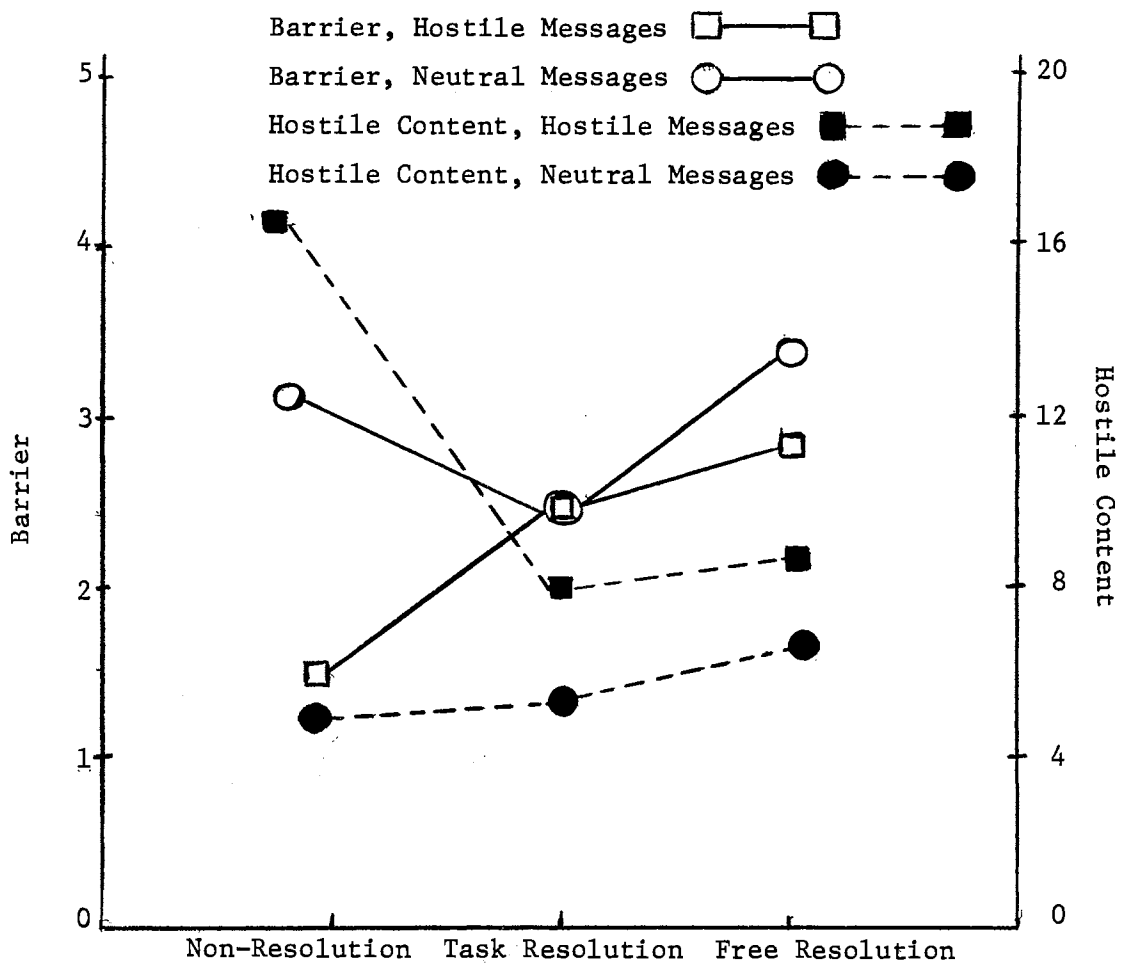


Figure 1. Message X Treatment Interaction in the ANOVA on Both the Barrier Scores and Hostile Content of Inkblot Responses.

the neutral message groups were: "Task resolution" = 2.4; "Free resolution" = 3.3; "non-resolution" = 3.1. These results support the hypothesis that a subject's Barrier score will undergo a decrement if he is subjected to a hostile situation with no opportunity to respond in a meaningful manner to the hostility.

With regards to the variable of aggressive content of the inkblot responses, it was found that a significant message effect existed ($F_{(1,54)} = 4.88, p < .05$) [see Table II, Appendix D]. The mean for the hostile message groups was 11.133, while the mean for the neutral message groups was 6.133. Among the hostile message groups, the planned comparisons revealed the hostile content of the "non-resolution" group was significantly greater than the two "resolution" groups ($t_{(1.54)} = 2.42, p < .025$). The mean of the hostile message group were: "non-resolution" = 16.599; "task resolution" = 8.00; "free resolution" = 8.80. See Figure 1.

The results comparing the hostile content of the completed sentences of the "task resolution" groups show that the hostile message group produced a significantly greater number of aggressive themes in their sentences than the neutral message group ($t = 3.4665, p < .005$). The mean for the hostile message group was 5.3, while the mean for the neutral message group was .90. Also, it was found that the mean Barrier scores of two message conditions of the "task resolution" groups were identical ($\bar{X} = 2.4$). These results, together with the finding above on the differential increase of hostility in the inkblots of the "hostile-task resolution" group, that the nature of the task is an important feature in maintaining an individual's Barrier when he is subjected to hostile messages.

It was found that the level of accuracy of the digit-symbol task of the "non-resolution" groups was consistently high across both message conditions, with the subjects making no more than 0.5% errors for any one subject. Similarly, it was found that every sentence completion task was attempted except for one subject in the hostile message group. Perhaps in this one case the hostile messages had an interfering effect on the subject's ability to perform the required task. The above accuracy checks were made by random 20% sample in the case of the "non-resolution" groups and visually inspecting all of the sentence completion tasks.

Inter-scorer reliability measures for all other variables were made through the use of two scorers, the experimenter and a "blind" scorer taking a 20% sample. As with Fisher's findings (re: all Fisher studies cited) the inter-scorer reliability of the Barrier index was high ($r = .92$). The reliability of the aggressive content of the inkblot responses and the sentence completion were also high ($r = .89$ and $r = .85$, respectively).

CHAPTER V

DISCUSSION

The purpose of the study was twofold. The first portion of the experiment was an attempt at replicating Fisher's (1971) finding that a boundary decrement occurs in males if they are continuously subjected to hostile auditory messages. This replication was successfully achieved. In that the Barrier index has been found to be a relatively stable personality measure over a wide range of situations, this replicated finding is particularly important. As an additional control to Fisher's (1971) procedure, a neutral or non-aggressive message group was used. In contrast to the hostile message group, the individuals of this group experienced no boundary decrement. These findings seem to support Fisher's contention that males are not equipped to deal with situations where hostile tensions are aroused with no adequate way to respond to such tensions.

Part II of the study was an attempt to discover ways which might "equip" the male subjects with a means of dealing with the hostile situation of the experiment. It was found that if subjects are exposed to hostile input and then are required to perform a somewhat tedious digit-symbol task which requires concentration, a boundary decrement was reflected in the inkblot responses. This result is interpreted to mean that the digit-symbol task of this "non-resolution" group interferes with the subject's ability to deal with the hostility aroused by the

auditory messages. This is analogous to the persistent hostile input of the Replication. It will be noted that the subjects who listened to neutral messages and then performed the digit-symbol task did not show a decrease in boundary definiteness. In other words, the digit-symbol task in this case was not interfering with the subjects' coping with non-hostile signals from his environment. However, this was the case where the input was hostile in nature. The high impact of aggressive stimulation on an individual's functioning demonstrated elsewhere (Silverman, et al. 1964-1969; Fisher, 1970) is once again seen in the present study.

In contrast to the interference of the digit-symbol task of the "non-resolution, hostile message group", a sentence completion task and "free time" were in the two "resolution" groups. It was hypothesized that the sentence completion task would allow the subjects to ventilate the tensions due to the hostility of the tapes and in so doing, maintain their boundary structure. A somewhat similar line of reasoning was used in the "free resolution" group where the subjects were not required to perform a task but merely wait for a specified period of time until the inkblots were presented. This procedure allowed the members of this group to deal with the hostile situation in their own idiosyncratic method of boundary maintenance. Also the sentence completion task would provide an adequate control for the differences in task discrepancy between the "non-resolution" groups and the "free resolution" groups. The sentence completion task provided an equivalence with the non-resolution group, in providing filled time of permitting the specification of the effect to be due to the non-resolution aspects of the digit-symbol task.

The results of the study show that the two resolution groups who received hostile messages were not significantly different from each

other in mean Barrier scores but were significantly higher in Barrier score than the hostile "non-resolution" group. The notion that the subjects were in some way successfully working off the hostility in the sentence completion task is given support from two sources. First of all, it was found that the hostile content of the inkblot responses of the "non-resolution, hostile message" group was significantly greater than the two "resolution, hostile message" groups. Secondly, the hostile content of the "task resolution, hostile" group was significantly greater than the hostile content of the "neutral, task resolution" group and yet the mean Barrier scores of the two messages conditions were identical. These results seem to indicate that the subjects of the two resolution groups had effectively dealt with the tensions aroused by the hostile messages by the time the inkblots were presented whereas the subjects of the "non-resolution" group had to "wait", due to the nature of the digit-symbol task, in coping with the situation until the presentation of the inkblots. It is this wait period that permitted the detection of the Boundary decrement before they resolved the effects of the hostile messages. This is analogous to the situation of the Replication where the subjects were permitted no time to deal with the aroused hostile tensions. This analogy seems to be quite strong, especially when comparing the mean Barrier scores of the two hostile groups (1.3 for the Replication group and 1.5 for the hostile "non-resolution" group) and the hostile content of the inkblot responses (16.0 for the Replication group and 16.59 for the hostile "non-resolution" group). However, it is not the "wait" per se that elicited the above effects but rather the hostility and its unresolved effects that yielded the Boundary decrement.

It should be noted that when compared with other studies using the

Barrier index, the mean number of Barrier responses in the present study appears to be lower than in other studies using similar subject populations (college males) and method of administration (group) (Goldfried, Stricker, and Weiner, 1971). At this point, the reason for these seemingly low scores is not clearly evident. Clues to this situation no doubt lie in the fact that a rather conservative scoring of Barrier responses was carried out. Conservative to the point that where the response was questionable with regard to fitting the criteria for Barrier that response was dropped from consideration. This approach was undertaken to make the Replication as difficult to achieve as possible, thereby increasing the strength of the results if found to be significant. Additional clues to the low Barrier scores might lie in an exploration in the effects of the rather regimented procedure in which time to respond to the blots, complete a task (in some groups), and listen to a recorded message were carefully monitored. Such a procedure may have been a debilitating factor in all groups including the so-called "neutral message" groups. Another variable to be explored is the possible negative effect of physical crowding in the laboratory. In some instances, (the number of subjects per session varied) as many as ten subjects were crowded into a rather small room. It will be noted that in Fisher's (1971) study the subjects were handled singly. The possible effects of the above variables require further investigation before a more definitive statement can be made.

One theoretical framework that especially fits these results in Fritz Perls' Gestalt theory. In his book, Ego, Hunger, and Aggression (1947), Perls delineates the process whereby the individual responds to tension arousing situations through the cycle of organismic balance.

Perls defines the six-step cycle as follows:

1. The organism at rest.
2. The disturbing factor, which may be
 - a. An external disturber--a demand made upon us or, an interference that puts us on the defensive.
 - b. An internal disturber--a need which has gathered enough momentum to strive for gratification and requires
3. The creation of a mental image or external reality (perception of disturber).
4. The answer to the situation, aiming at
5. A decrease in tension--achievement of gratification or compliance with the demands resulting in
6. The return of the organismic balance.

The procedure of the present study of the two hostile resolution groups provided a means whereby the subjects could respond to the "external disturber", the hostile tapes (which put the subject "on the defensive") in such a way as to complete the holistic function and return to organismic balance, i.e., maintaining boundary structure.

The members of the two resolution groups who listened to "neutral messages" also maintained their boundary composition due largely to the condition that the neutral tapes produced no discernible disturbance.

This, however, was not the case for the "non-resolution" group who listened to hostile messages and then were required to perform the digit-symbol task. As with the other hostile message groups, these subjects were also "disturbed" by the hostility of the tapes. But because of the interference of the digit-symbol task, they were not able to proceed in the cycle to "achieve an answer to the hostile situation (Step #4)."

Therefore no reduction in tension was achieved which breaks the cycle and does not allow the return to "organismic balance".

One might think of the digit-symbol task as an experimentally-induced avoidance mechanism which prevents the integration of the hostility by the subjects. More specifically, the avoidant nature of the digit-symbol task may be likened to that of an obsessive defense mechanism. Perls reminds us that "The disadvantage of 'avoidance' is the impairment of the holistic function. By avoidance, our spheres of action and our intelligence disintegrate. Every contact, be it hostile or friendly, will increase our spheres, integrate our personality and by assimilation contribute to our faculties,...,as long as there is a chance to master it." (Perls, 1947, p. 64-65).

The digit-symbol task can also be thought of as functioning similarly to Silverman's subliminal presentation of stimuli, in that such presentation prevents the subject from dealing with input. According to Silverman and Perls' concept of "most urgent need", the aggression aroused by hostile input, needs in some way to be dealt with and discharged. This, however, cannot take place when the subject must perform the digit-symbol task.

What then is the effect of impairment of the holistic function, when the person "alienates" himself from the anxiety aroused in the hostile situation? Perls stated "Every inhibition and repression narrows down the Ego-boundaries" (Perls, 1947, p. 142). This may be what is reflected in the experimental situation where it was found that the hostile "non-resolution" group's body boundaries, as reflected in decreased Barrier scores, were diminished. The above is based on the assumption that ego boundary can be equated with body boundary. To Perls, "...only the

boundaries, the places of contact, constitute the Ego. Only where and when the Self meets the "foreign" does the Ego start functioning, come into existence, determine the boundary between the personal and the impersonal "field" (p 143). Perls also attributes an integrative function to the Ego,

The Ego, in a kind of administrative function will connect the actions of the 'whole' organism with its foremost needs; it calls, so to speak, upon those functions of the whole organism which are necessary for the gratification of the most urgent need. Once the organism has identified itself with a demand, it stands as wholeheartedly behind it as it is hostile towards anything alienated (p. 145).

To Fisher and Cleveland (1958)

Thus the boundary may be conceptualized as playing an important role in maintaining homeostasis in the course of the individual's psychological transactions with the world. It is a projection of certain assumptions about life to an area of behavioral space which separates the individual from what is 'out there' (p. 365).

It is also found that Fisher and Cleveland do not define the body-image boundary in absolute terms,

We consider that our work has established for body-image concepts a more substantial place in personality theory. It is paradoxically true that we have almost taken the "body" out of "body-image" by postulating that the body-image boundary does not really mirror the actual properties of the body surface, but that it is rather a representation of attitudes and expectance systems which have been projected onto the body periphery...Within our frame of reference, body image is most meaningfully viewed at a level which takes off from the fact that the body has a special position in the perceptual field insofar as it is both a perceptual object and also intimately close to the central personality systems (p. 367).

While these theorists speak in somewhat different terminology, they are addressing the same psychological phenomenon.

What then are the effects of narrowed body-boundaries (ego-boundaries)? Although not examined directly in the present study, we can again look to Fisher and Cleveland and Perls for possible answers. To

Perls such 'avoidance' and subsequent shrinking of Ego-boundaries disrupts the organismic balance of the individual which is accompanied by anxiety and in extreme cases, a neurotic means of coping. Therefore, the present study might be considered as an experimental analogue for Perls' conception of the genesis of neurosis.

To Fisher and Cleveland an individual with an ill-defined body-boundary is one that is less able to withstand stressful situations as well as those with more definite boundaries. Similarly, such a person who feels poorly differentiated from the 'outside' would be more likely to seek stabilization through a tendency toward isolation and restricting proscription (1958, p. 366). This sounds much like Perls' concept of "alienation". The author feels that the psychological correlates of Barrier decrement is an area that requires further research.

The role of hostility in Perls' theory is an integrative one. Just as food must be taken in, destroyed, and finally assimilated, so also must the experiences of the individual be broken down and integrated if he is to develop and continue personal growth. That is one must assimilate his experiences, "make them his own", before he may profit from them. These experiences, unless properly "destroyed" and assimilated by the individual, may block future growth.

Along similar lines, it is interesting to note that when the subjects of the present study were not permitted to assimilate the stress of the hostile messages, they experienced a decrement in body boundary. (As has been pointed out elsewhere the body boundary concept is closely related theoretically to the concept of ego boundary.) The results of the study are found to be in accord with the predictions that follow from Perls' concept of ego-functioning. It is also of interest to note

that, in both the present study and in previous research with normal subjects, only hostile input seems to produce this disturbance of ego-functioning. The seemingly very specific effect of hostile input is an area warranting further research.

Perls is the only major theorist who assigns hostility the function of ego-boundary formation. The experimental literature (Fisher, 1971) has found that the specificity of hostile impulses that are not permitted expression produce Barrier decrement. This convergence of theoretical and empirical findings lend credence to Perls' conception of the specific relationship between one's aggressive impulses and the maintenance of ego boundaries.

The results of the present study suggest some interesting therapeutic questions and implications. First of all, if free time helped the subjects maintain their boundary structure, then why do neurotics not improve with the mere passage of time? Although theorists might answer somewhat differently, most would agree that the neurotic's idiosyncratic method of dealing with hostility includes ineffective defenses which do not permit expression of hostility. This brings up a question of therapeutic strategy. Would one help the patient by increasing his hostile tensions to a point that would override his defensive balance to then permit expression?

Two noted therapists employ a style of interaction with their patients that do just this. The late Fritz Perls used a confrontative and frustrating style intentionally to anger his patients. The expected result was to have patients express their anger and confront, rather than avoid, their conflicts. Albert Ellis' style is to directly contradict a patient's irrational belief. The effect of this technique is that

it frustrates the patient, although Ellis would not see this as curative. Therefore, this rationale of increasing hostile tensions as part of a therapeutic strategy is presently in use by some contemporary psychotherapists.

Along similar lines, the level of unexpressed hostility, present in a person prior to any hostile inducement procedure, might influence the degree of ego-boundary enhancement following expression. This question requires further research and might lead to important therapeutic applications and possible restrictions on the use of a confrontative style in therapy.

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A P P E N D I X E S

APPENDIX A

LITERATURE REVIEW

Rorschach As A Personality Test

As the present experiment revolves about the use of the Barrier index obtained from inkblots, the review of the literature will begin with a discussion of the problem of evaluating inkblot techniques.

Since Herman Rorschach first published his monograph, "The Form Interpretation Test", in 1921, the Rorschach has become one of the most heavily researched and most disputed instruments to appear on the psychological scene. Since its introduction, the Rorschach has unquestionably generated research. To date, the number of publications on the Rorschach has gone well beyond the 3000 mark.

"Despite all the research, most psychologists seem to remain in one of two camps: believers or non-believers." (Goldfried, et al., 1971). The reasons for this split are varied, to be sure, but seem to cluster around the question of the Rorschach's "validity". A good deal of this controversy seems to be perpetuated by the unsystemic approach which has been taken in the attempts to validate the Rorschach. This lack of direction in research may be attributed to the very elusive nature of the question that has been asked about the Rorschach. "Is the Rorschach valid?" approaches to the evaluation of the Rorschach have been guided by this rather global question and too much room has consequently been left for variability as to what is actually being asked.

In the past, the classic analogy about projective tests in general, and the Rorschach in particular, was that they were like psychological X-rays. Projective tests were seen as being the ideal method for bypassing an individual's defenses and inhibitions and getting information as to what he is "really" like. Few today would hold this view, but continuing with the analogy will make a useful point. If one had occasion to question the validity of the X-ray itself, any technician would readily admit that his device is useful only for certain purposes; clearly x-rays are not able to measure everything under the skin. The implication for the Rorschach seems obvious. And yet it seems at times those questioning the validity of the Rorschach make such a requirement. If this is the job of the Rorschach, to measure everything psychological about a person, it will never be shown to be "valid". The job of measuring such a global concept as "personality" is likely too large for any test, let alone one made up of only ten inkblots.

Goldfried, et al. (1971) suggest that rather than focusing on the interpretive significance of isolated aspects of a protocol (such as the hypothesis that a high F% indicates constriction), a more meaningful and yet manageable way to approach the validity question is to use the personality characteristic, and not the test, as the point of departure. In other words, the relevant validity question which should be asked is: "What is the Rorschach valid for?"

Harris (1960) expressed a very similar orientation to the problem of Rorschach validity:

The search for validity of personality description from Rorschach data seems, then, to require not so much the splitting apart of primary traits or tendencies into infinitesimal units, as a conservative retention of larger traits (which may change with the development of theory) and an empirical specification of the major environmental situations in which these traits usually express themselves (p. 414).

In asking what the Rorschach is valid for, the kinds of questions which need to be asked are as follows: "Can the Rorschach be useful in predicting success in psychotherapy?", "Is the Rorschach a valid indicator of homosexuality?", "Is the Rorschach a good measure of a person's defensive style?", "Is the Rorschach a good measure of degree of hostility?". One can continue to pose as many questions as there are uses for the Rorschach. The list of such questions will undoubtedly grow, "yet it is by asking these specific questions that we shall determine those areas in which the Rorschach may and may not be validly applied (Goldfried, et al., 1971, p. 5)".

By the reduction of the larger question of Rorschach validity to questions of validity in specific areas, the vagueness of what is being measured is reduced, but by no means eliminated. The reason for some continuation of this vagueness is that the nature (either behaviorally or theoretically) of many of the constructs which the Rorschach is purported to measure are themselves often loosely defined. This is perhaps the case in using Elizur's (1949) approach in scoring for anxiety. However, not all areas of Rorschach applicability involve this problem of definition. In some approaches, the definition of the construct being measured is delineated better by theory. An example of this approach would be Friedman's (1953) scoring for developmental level, in which the definition of the construct comes directly from Werner's (1948) theory of development. In still other Rorschach approaches that which is being measured is defined behaviorally. Thus, if one scores the Rorschach for suicide indicators the question of what is being measured is less likely to involve problems of definition.

The Holtzman Inkblot Technique

Since the present study used the Holtzman Inkblot Technique as its primary measurement, a brief description of the evolution and use of the technique will be given.

An extensive program for research was begun in 1954 at the University of Texas to overcome the psychometric limitations in the Rorschach by constructing completely new sets of inkblots. "The objective was to develop an inkblot test comprised of two alternate, interchangeable forms, each of which would contain many more inkblots than the Rorschach (Holtzman, et al., 1962).

A professional artist helped to construct thousands of inkblots varying in symmetry, form, color, and shading. Experimental test forms were assembled and standardized responses to 135 of the more promising blots were obtained from both psychotic patients in mental hospitals and normal adults. Unlike the Rorschach where the person is free to give as few or as many responses to each blot as he wishes, the instruction encouraged the subject to give only one response per blot, thereby reducing variation in the number of responses to a minimum. The subjects were asked to look at each inkblot and tell what it might look like, what it might represent, or what it could be. After three years of developmental research, the final forms of the Holtzman Inkblot Technique were constructed by taking the best inkblots and arranging them in two sets each containing 45 blots. The resulting Form A and Form B are strikingly similar, assuring their interchangeability as parallel forms of the same test.

Standardized inkblot records were obtained for over fourteen hundred cases in populations ranging from five-year-old normal children to

superior adults, from mentally retarded individuals, to chronic schizophrenic patients. Psychologists in universities and hospitals throughout the United States participated in the project by collecting protocols and other relevant information from carefully defined populations of individuals. In some instances it was possible to administer the technique twice, using the alternate form for the second administration. The time between test and retest sessions varied from one week to one year, permitting rather broad generalizations about the equivalence of the two forms and the stability of inkblot scores over time.

The scoring system developed for the Holtzman Inkblot Technique includes twenty-two different variables that cover many aspects of an individual's response to an inkblot. The more important scoring systems for scoring the Rorschach were carefully taken into account in defining these variables so that most Rorschach scores could be easily derived from the basic elements in them. Several criteria played a prominent role in the formulation of variables for the scoring system. First, the variable had to be one which could be scored for any legitimate response, making it at least theoretically possible for a score to range from zero to 45 when given unitary weight. Second, the variable had to be sufficiently objective to permit high scoring agreement among trained scorers. Third, the variable had to show some 'a priori' promise of being pertinent to the study of personality through perception. And fourth, each variable had to be logically independent of the others whenever possible in order to code the maximum amount of information in the most flexible, efficient manner. The twenty-two variables are summarized in the Appendix E.

Inter-scorer consistency for "highly trained scorers is usually

high, characteristically varying between high .80's to .98. The best estimates of reliability in the traditional sense of internal consistency are those based on the split-half method. Regardless of the population studied, Reaction Time, Rejection, Location, and Form Definiteness have uniformly high reliability (.88 - .97). The reliability of measurement within the abnormal populations is likewise high for Form Appropriateness, Color, Shading, Movement, Pathognomic Verbalization, Human, and Animal (.78 - .88). Only seven variables--Space, Sex, Abstract, Balance, Anxiety, Penetration and Popular--yield estimates of reliability that are generally low (.51 - .66). In most cases these latter variables are too skewed and truncated in distribution to permit adequate estimates.

The third kind of reliability estimate routinely obtained is the test-retest stability of scores over a specified period of time, using alternate forms of the inkblot technique for the two sessions. Most of the correlations for an interval of one week are moderately high, ranging from .39 to .88 (typically .60's and .70's). Similar results were obtained in other samples with intervals up to one year between testing sessions, indicating sufficient stability through time for most of the inkblot variables to justify their use in prediction studies.

Three general methods have been employed in answering the question of validity of the Holtzman Technique. First, inter-correlations have been computed among the 22 inkblot variables and factor analyses have been carried out for all standardization groups to determine the common dimensions underlying inkblot perception and how they may differ in patterning from one population to another. Second, some of the external correlates of inkblot variables have been determined and used as a basis for testing earlier hypothesis taken from the Rorschach, as well as pro-

viding data bearing upon interpretation of personality. And Third, numerous significant differences among well defined samples were extracted which shed further light on the meaning of inkblot variables while also providing a basis for psychodiagnosis of the individual. For a further discussion of the question of inkblot technique validity, refer to section I of this review.

Body Image, Boundary, and Barrier Response

One construct that has been tested through the use of the Rorschach and the Holtzman inkblot techniques is that of body-image and body boundaries. The concept of body-image has found a significant place in the formulation about personality both by theorists who emphasize the importance of early experience and by those who stress the impact of the current situation. Whether the discussion centers about the infant trying to separate himself from the external world and learning what is part of him and what belongs to others, or whether it is concerned with the existential immediacy of current situations, body-image is of crucial importance.

Fisher and Cleveland (1958) have devised a system for scoring the Rorschach in a manner they feel sheds light on the individual's body image. Particularly, the system attempts to describe the body boundaries according to whether they are "firm" and "substantial" or, on the other hand, "weak" and easily "penetrable".

Fisher and Cleveland's interest in the body-image boundary dimension began with their study of the personality of patients with rheumatoid arthritis (Fisher and Cleveland, 1955). At that time, they noted that the Rorschach responses of these patients were characterized by a

number of unusual references to the boundary qualities of the percepts. From these observations Fisher and Cleveland developed a scoring system for the "Barrier" quality of Rorschach responses. (Fisher and Cleveland's scoring system was later adopted by Holtzman in the development of the Holtzman Inkblot Technique.) Initially this Barrier quality seemed to have been somewhat negative, in that the implication was that these patients were rigid both in their personality and their conceptions of their body. However, this negative implication very quickly dropped out and theorizing about the high Barrier person has become quite positive. The theoretical system sees an individual's body image as being a reflection of the type of object relations he has been able to establish. That is, people with high Barrier scores are seen as having formed substantial images of their own bodies and as being capable of dealing with others from this locus of a firm, well-integrated self-image. Being secure within their own homebase, so to speak, they are able to deal with people and situations in a commanding, well-integrated, effective manner (Cleveland and Mortin, 1962; Frede, Gautney, and Baxter, 1968; Ramer, 1963). Conversely, those individuals with lowered Barrier scores are seen as having unfirm, easily penetrable body images, and, as a result, deal with others from this weakened position.

This physical referent for an individual's conception of his body-image boundary is not clearly specified, but it is seen as usually being identified with his body wall. However, exceptions to this location at the body wall can be cited in the case of individuals in early stages of development or acting under a variety of pathological syndromes (Fisher, S., 1964; Fisher and Fisher, R., 1964). Since the individual's body-image corresponds only roughly to the body wall, and since it includes a

number of explicit and implicit attitudes, it is not seen as being consistently related to any physical characteristics of the individual. It is relatively stable after it has become developed and is not easily changeable despite changes in the physical appearance of the individual (Ware, Fisher, Cleveland, 1957; Fisher, 1959).

Although the concept is developed in body terms, it seems more clearly to be a theory of personality development rather than a theory of body development, in that the role of the body is seen as important only in the way it mirrors significant developmental experiences. Thus, although the concept arose from the study of psychosomatic individuals and physically ill patients, a number of hypotheses were tested with patients with psychosomatic disorders (Fisher and Cleveland, 1960; Cleveland and Fisher, 1960; Shipman, et al., 1964), and a number of studies have concerned body images of the subjects directly (Fisher and Fisher, 1964; Fisher and Mirin, 1966; Rogers and Walsh, 1959). The later developments in the theorizing have served to take the "body" out of body-image; at some points, it is difficult to distinguish between body boundaries and ego boundaries, or between body-image and self-concept (Fisher and Cleveland, 1958, p. 367).

Although the theorizing about the individual has left the body far in the background, there also has been a tendency to integrate data on physiological reactivity to the body-image concept (Fisher and Cleveland, 1958). A rather elaborate theory of physiological reactivity has been stated by Fisher and Cleveland (1957). They hypothesize that individuals with clear and definite body-image boundaries are predominately reactive to the outer body layers and less reactive within the body interiors; on the other hand, those individuals who are characterized by more weak

and indefinite boundaries exhibit the converse pattern. The body exterior in this theory includes the skin, the striate musculature, and the vascular components of these two systems; the body interior includes all of the interior viscera. Although this division is not one of a common or easily recognizable differentiation of the nervous system, it does serve to distinguish roughly between those areas which are normally under voluntary and conscious control, and those which are more within the realm of involuntary responses. Hence, individuals who have more firm and definite body-image boundaries are capable of responding voluntarily and mastering a situation, whereas those of more indefinite boundaries are more passive recipients of stimulation, with their predominant responses being involuntary and interior. There have been a number of studies which have largely confirmed this particular hypothesis, and there also have been a number of studies with a variety of psychosomatic patients which have stemmed from the hypothesis that excitation is centered in the body exterior for the person with firm body boundaries and in the body interior for persons with weak body boundaries (Fisher and Cleveland, 1958; Fisher, S., 1970).

Aside from the physical and physiological characteristics of the person with well developed body boundaries, there is also a personality constellation which Fisher and Cleveland have identified with such an individual. This model sees the person with well-developed boundaries as being "self-steering"; that is, the definiteness of his boundaries is presumed to be directly related to his ability to function as an independent person, with clear and definite standards and goals. He approaches tasks in a forceful manner, is not easily frustrated, and expresses himself through actively dealing with the environment in an

attempt to make it conform to his own wishes. The person of less clearly defined body boundaries is seen as possessing the opposite of these characteristics in that he is more passive, more easily frustrated, and more suggestible. Rather than attacking the environment and making it conform to his wishes, he is more likely to allow the environment to shape him and to be passive in the face of external stimulation (Nichols and Tursky, 1967; Fisher and Cleveland, 1958; Cleveland and Morton, 1962).

The concepts which have been defined above are related principally to a single score--the Barrier score--in the Fisher and Cleveland scoring system. There is also a second score, the Penetration of Boundary score, a dimension that was initially conceptualized as reflecting the personal vulnerability the individual might feel. Theoretically, this dimension was seen as being opposite of the Barrier dimension and predictably should have been highly negatively correlated with the Barrier dimension. This has not proven to be so, and most of the research and theorizing have centered upon the Barrier concept, with the Penetration score showing a less consistent utility in research. The scoring system of the Barrier index may be found in the Appendix E.

In evaluating the Body-image boundary scoring system and subsequent research Goldstein, Stricker, and Weiner (1971, p. 186-187) have pointed to some of the problems involved with Barrier research. Among these is the fact that all relationships mentioned above which have been investigated have been based on dichotomization at a median, which has varied between 3 and 6. The use of this high vs. low dichotomy, as well as the large amount of overlap obtained in the research would suggest that, except in extreme cases, the Barrier score has little clinical value for

idiographic decisions. Equal problems are posed for research, since the failure to replicate can often be traced to the use of varying median scores, resulting in the failure of the high-Barrier groups to be constituted of individuals with similar scores.

Another major problem involved in research with the body-image boundary scoring system has been the liberty which various investigators have taken with the types of stimuli, administration, and response total employed. Rorschach and Holtzman plates, group and individual administrations, and prescribed and free response totals have been used in the several validation studies. There has been no adequate demonstration of equivalence across these various methods. There is a notation in a dissertation by Conquest (1963) that Fisher, in a personal communication, has recommended the use of the Holtzman blots rather than the Rorschach blots because one response per card makes response total comparable, under easy control, and allows the presentation of a wider range of stimuli. The present study has followed Fisher's lead.

Perls' Theory of Ego Boundaries

The use of the concept "Boundary" has not been restricted to the work of Fisher and Cleveland and their associates. Perls has used Federn's conception of Ego-boundary as a starting point from which he expands. To Perls (1947), "...only the boundaries, the places of contact, constitute the Ego. Only where and when the Self meets the 'foreign' does the Ego start functioning, come into existence, determine the boundary between the personal and impersonal 'field' (p. 143)." In other words, the Ego and its boundary is delimited through a simultaneous process of identification (what the individual perceives as belonging to

his "Self") and alienation (attributes "foreign" or not belonging to the "Self").

Recent Ego-analytic Research on Aggressive Drive

In a series of papers (Silverman, 1965, 1966; Silverman and Goldweber, 1966; Silverman and Silverman, 1964, 1967; Silverman and Spiro, 1966, 1967), an experimental method was described for studying the effects that the activation of drive derivatives has on ego functioning. Drive-related and neutral pictorial stimuli have been presented tachistoscopically at a subliminal level, and the reaction to each have been sought immediately afterward through the Rorschach and other measures. The overall finding has been that after presentation of drive-related stimuli, various kinds of pathological reactions and defensive processes appeared which were not in evidence after the neutral pictures. It has been reasoned that the occurrence of this phenomena was enhanced be, if not dependent on, the presentation of the drive stimuli in subliminal form. Data from two experiments (Silverman and Goldweber, 1966; Silverman, and Spiro, 1966) support this contention. It is felt the subliminal presentation creates a situation where the direct discharge of the drive derivatives elicited is more apt to be blocked, a condition which increases the likelihood of a pathological outcome (Silverman, 1965; Silverman, Spiro, Weisberg, and Candell, 1969).

In one of the earlier studies (Silverman, 1966), the effects of aggressive stimuli had on the thinking of schizophrenics as revealed in a Rorschach task were examined. The main dependent variable under consideration was the amount of pathological thinking manifested, that is thinking that is illogical, unrealistic, and loose--primary process.

thinking. Each of 32 hospitalized patients was seen on separate days for an experimental and control session. First, a "baseline" measure of the schizophrenic's propensity for this kind of thinking was obtained much as it would be in a psychodiagnostic situation. Then after subliminal exposure to an aggressive stimulus on one occasion and a neutral stimulus on the other, another measure of pathological thinking was taken. In line with what had been predicted, pathological thinking was found to increase significantly under the aggressive condition. This finding was seen as consistent with theoretical formulations that have been offered by a number of writers to the effect that much of the ego disturbance in schizophrenia is a result of an inability to successfully cope with aggressive impulses (Bak, 1954; Cohen, 1954; Hartman, 1953; Pious, 1949). The more recent studies have supported this finding and further found that regressive thinking does not occur in reaction to the triggering of non-aggressive libidinal impulses (Silverman and Silverman, 1967; Silverman, S. E., 1969) except in the case of undifferentiated schizophrenics who respond paradoxically to subliminal "merging" stimuli pathologically (Silverman, et al., 1969).

The Role of Dreams in the Resolution of Stress

As was found in reviewing Silverman's research, a conflict situation is produced when tensions are aroused due to a presentation of aggressive stimuli and no efficient means of dealing with the tensions are available. In Silverman's case, the subjects could not deal with the stimuli because the stimuli were presented subliminally. The results of such stimulation lead to a disruption in thinking and other pathological signs.

How does one normally deal with such tensions? It has been felt that one of the functions of dreams is to discharge stress. Breger et al. (1971) sought to test this proposed function of dreams. In this extensive study, two different sets of experimental groups were used. One group was composed of members of ongoing encounter groups. The other group consisted of individuals awaiting surgical operations. Careful records were kept of each subject's dreams. The dreams were analyzed and scored thematically on a manifest level. Dreams records of those in the encounter groups reflected that conflicts which arose during the group sessions were represented in the individuals dreams. Similarly, tensions aroused by the pre-operative situation of the surgical patients were also expressed in their dreams. The findings of this ambitious study lend considerable support to the contention that one of the functions of dreams is the resolution of conflict and tension.

The Use of Sentence Completion Techniques in the Measurement of Tension Discharge

Can this process of discharge mentioned in the section above take place on a more conscious level and can such discharge be measured? Breger's research (1971) demonstrated that one need not look beyond the manifest content level of dreams to detect the discharge of conflict and tension. This suggests that measures taken on a conscious level might also reflect such discharge. It is felt by Rotter and others (1947, 1949, 1950) that, the productions from the Incomplete Sentence Technique reflects a subject's wishes, desires, fears, and attitudes on a conscious level, (or at least what he is willing to write under test conditions). Such a conception seems analogous to the function of dreams as described

by Berger, et al., (1971). With this formulation in mind, the present study used the incomplete sentence method to measure the discharge of hostility.

APPENDIX B

INCOMPLETE SENTENCE STEMS

The following sentence stems from Rotter's "Incomplete Sentences Blank-College Form" were used in the present study:

1. I like _____.
3. I want to know _____.
5. I regret _____.
7. Boys _____.
10. People _____.
12. I fell _____.
13. My greatest fear _____.
15. I can't _____.
18. My nerves _____.
20. I suffer _____.
21. I failed _____.
23. My mind _____.
25. I need _____.
28. Sometimes _____.
31. I hate _____.
32. I am very _____.
33. The only trouble _____.
34. I wish _____.
36. I secretly _____.
37. I _____.
39. My greatest worry is _____.

In addition, the experimenter developed the following stems, bringing the total number of stems to 25:

- Today _____.
- Right now _____.
- This room _____.
- This experiment _____.

APPENDIX C

INSTRUCTIONS

Holtzman Inkblot Instructions

"I'd like you to look at each inkblot and write down what it might look like, what it might represent, or what it could be. Since these are only inkblots, there are no right or wrong answers and each blot looks like different things to different people. It is possible for a person to see several things in each inkblot but I want you to give only one response for each slide."

Wechsler Instructions for Digit-Symbol Tasks

"Look at the boxes (pointing to the key). Notice that each has a number in the upper part and a mark in the lower part. Every number has a different mark. Now look below where the upper boxes have numbers but the squares beneath have no marks. You are to put in each of these squares the mark that should go with each number. (At my signal), you are to begin and fill in as many squares as you can without skipping any."

APPENDIX D

TABLE I
ANALYSIS OF VARIANCE OF BARRIER SCORES

Source	Mean Square	df	F
Message	6.667	1	2.59
Treatment	3.799	2	1.49
Message x Treatment	3.467	2	1.35
Error	2.578	54	

Planned Comparisons

1. Task Resolution vs. Free Resolution		t	
2.4	2.9	.6266	
2. Non-Resolution vs. Task & Free Resolution		t	
1.5	2.65	1.85*	

*p < .05, for unidirectional test.

TABLE II
ANALYSIS OF VARIANCE OF HOSTILE CONTENT
IN INKBLOT RESPONSES

Source	Mean Square	df	F
Message	375.00	1	4.88*
Treatment	97.32	2	1.21
Message x Treatment	135.45	2	1.76
Error	76.80	54	

<u>Planned Comparisons</u>			
Non-Resolution	vs.	Task & Free Resolution	t
16.59		8.4	2.42**

*p < .05.

**p < .05, for unidirectional data.

APPENDIX E

HOLTZMAN SCORING SYSTEM

The name, abbreviation, brief definition, and scoring for each of the 22 variables of the Holtzman Inkblot Technique are given below.

Reaction Time (RT). The time, in seconds, from the presentation of the inkblot to the beginning of the primary response.

Rejection (R). Score 1 when S returns inkblot to E without giving scorable response; otherwise, score 0.

Location (L). Tendency to break down blot into smaller fragments. Score 0 for use of whole blot, 1 for large area, and 2 for smaller area.

Space (S). Score 1 for true figure-ground reversals; otherwise score 0.

Form Definiteness (FD). The definiteness of the form of the concept reported, regardless of the goodness of fit to the inkblot. A five-point scale with 0 for very vague to 4 for highly specific.

Form Appropriateness (FA). The goodness of fit of the form of the percept to the form of the inkblot. Score 0 for poor, 1 for fair, and 2 for good.

Color (C). The apparent primacy of color as a response-determinant. Score 0 for no use of color. 1 for use secondary to form, 2 when used as primary determinant but some form present, and 3 when used as a primary determinant with no form present.

Shading (Sh). The apparent primacy of shading as a response-determinant. Score 0 for no use of shading, 1 when used in secondary manner, and 2 when used as primary determinant with little or no form present.

Movement (M). The energy level of movement or potential movement ascribed to the percept, regardless of content. Score 0 for none, 1 for static potential, 2 for casual, 3 for dynamic, and 4 for violent movement.

Pathognomic Verbalization (V). Degree of autistic, bizarre thinking evident in the response as rated on a five-point scale.

Integration (I). Score 1 for the organization of two or more adequately perceived blot elements into a larger whole; otherwise, score 0.

Human (H). Degree of human quality in the content of response. Score 0 for none; 1 for parts of humans, distortions, cartoons; and 2 for whole human beings of elaborated human faces.

Anatomy (At). Degree of "gutlike" quality in the content. Score 0 for none; 1 for bones, x-rays, or medical drawings; and 2 for visceral and crude anatomy.

Sex (Sx). Degree of sexual quality in the content. Score 0 for no sexual reference; 1 for socially accepted sexual activity or expressions (buttocks, bust, kissing); and 2 for blatant sexual content (penis, vagina).

Abstract (ab). Degree of abstract quality in the content. Score 0 for none; 1 for abstract elements along with other elements having form; and 2 for purely abstract content (bright colors remind me of gaiety).

Anxiety (Ax). Signs of anxiety in the fantasy content as indicated by emotions and attitudes, expressive behavior, symbolism, or cultural

stereotypes of fear. Score 0 for none; 1 for questionable or indirect signs; and 2 for overt or clearcut evidence.

Hostility (Hs). Signs of hostility in the fantasy content. Scored on a four-point scale ranging from 0 for none to 3 for direct, violent, interpersonal destruction.

Barrier (Br). Score 1 for reference to any protective covering, membrane, shell, or skin that might be symbolically related to the perception of body-image boundaries.

Penetration (Pn). Score 1 for concepts which might be symbolic of an individual's feeling that his body exterior is of little protective value and can be easily penetrated.

Balance (B). Score 1 for instances where there is overt concern for the symmetry-asymmetry feature of the inkblot; otherwise score 0.

Popular (P). Each form contains 25 inkblots in which one or more popular percepts occur. To be classified as popular in the standardization studies, a percept had to occur at least 14% of the time among normal subjects. Score 1 for popular core concepts as listed in the scoring manual; otherwise score 0.

VITA

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