

PERCEPTUAL DEFENSE AND PERCEPTUAL SENSITIZATION  
UNDER NEUTRAL AND INVOLVED CONDITIONS

by

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## Chapter I

### INTRODUCTION

#### 1. Perceptual defense and perceptual sensitization

People are exposed to countless stimuli at a particular moment. What they perceive is actually a small fraction of the total possible stimuli. In an attempt to understand the nature of the process of what is and what is not seen, psychology in recent years has gone beyond the mere mechanistic and purely structural approach to the problem. From a growing interest in personality and in the dynamic aspects of behavior, studies concerned with the influence of needs and values have emerged. There have been a large number of studies which have dealt with the influence of needs and values upon perception. McClelland and Atkinson (16) and Levine, Chein and Murphy (15) have shown the influence of hunger upon the perception of food and food related objects. Leuba and Lucas (14) through the use of hypnotically induced emotional states and Murray's study of maliciousness (20) point to the relationship between mood and perception. Schafer and Murphy (24) demonstrated the relationship between reward and perception of ambiguous faces. These and many other studies are summarized by Krech and Crutchfield (12) and elsewhere.

With the acceptance of the fact that selective perception is an active, purposive, dynamic process,<sup>1</sup> it is necessary to further examine the process from the standpoint of personality differences. A start in this direction has been made by Bruner and Postman (3) with their attempt

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<sup>1</sup> Luchins (17) takes issue with what he calls the New Look investigators who show such relationships. Bruner (2) attempts to defend the New Look approach.

to further differentiate the process of selective perception. In their study of emotional or "dangerous" words they observed that some subjects revealed a high perceptual threshold to emotionally laden words while others displayed a low threshold. The high perceptual threshold was termed perceptual defense and explained as follows:

The bulk of the experimental and clinical evidence points to blockage as the process producing increase in association time to emotionally charged stimuli. Such blocking in association represents a defense against anxiety-laden stimuli. A basically similar process is at work in perception. With an increase in emotionality of stimuli, recognition may lead to anxiety and is to be avoided as long as possible (3,p.74).

In another study by Postman, Bruner and McGinnies (22) it was suggested that perceptual defense is a defense mechanism similar to the mechanism of repression. Perceptual defense, then, can be considered an adaptive mode which a person may utilize as a means of coping with emotionally disturbing stimuli. Those objects which are threatening to the person are kept out of the field of awareness as long as possible. In this manner the person attempts to reduce tension and to maintain a comfortable equilibrium.

Perceptual defense is not necessarily characteristic of all people. Some persons, to the contrary, are very much alert to emotional stimuli and show a relatively low perceptual threshold. This process is called perceptual sensitization by the authors and described as follows:

Such sensitization represents, in a sense, the obverse of defense -- a lowering of thresholds for stimulus objects of great personal relevance. Earlier experiments have led us to conclude that such sensitization occurred in the presence of highly valued stimuli. We now find sensitization in the presence of "dangerous" stimulus objects (3,p.75).

Sensitization, then, might be represented as another type of adaptive mode for coping with emotionally disturbing stimulus objects. Concerning the two perceptual modes the authors further state "In the presence

of emotional stimulus material, then, the two processes, perceptual defense and perceptual sensitization, may both operate. Whether in any given attempt to perceive they operate as additive functions, in conflict with each other, or as alternative modes of response, we do not yet know. It is clear, however, that some subjects are more prone to respond vigilantly, others defensively" (3,p.76). It is suggested by the authors that it is quite possible that perceptual defense may operate up to a critical point of emotionality and then the person begins to rely upon the sensitization process. If this were so then defense and sensitization operate within the same person but the determinant of whether one mode or the other will be evoked is dependent upon the degree of emotionality of the situation. This point requires further study and will be considered in greater detail under Part 3 of this Chapter.

The concepts of perceptual defense and perceptual sensitization have been subjected to further study since they were originally postulated by Bruner and Postman. McGinnies (18) raised the question of whether perceptual defense, which has the function of protecting the observer from an awareness of emotionally unpleasant objects, entirely isolates the person from the emotionally provoking qualities of the stimulus situations. He approached this problem by obtaining recognition thresholds for critical and neutral words as well as galvanic skin response measures. He found that the subjects responded with significantly larger GSR reactions during the pre-recognition presentation of the critical words than they did for the neutral words. McGinnies did not deal with the concept of perceptual sensitization in this study. It would be of importance to test this concept in a similar manner. As mentioned above Bruner and Postman suggest that after a critical point of emotionality has been reached the person gives up defense in favor

of sensitization. Whether sensitization functions in this manner or as an independent process characteristic of only certain people, it would still be of interest to know whether physiological tension is a concomitant of this perceptual mode.

Eriksen (7) in a recent study utilized a different type of stimulus material than previously employed in examining the concepts of defense and sensitization. He tachistoscopically exposed pictures of neutral and aggressive situations. This is of special interest here since a similar type of stimulus material is utilized in the present study. He found that some subjects responded to the aggressive pictures with a faster recognition threshold than to the neutral pictures and these subjects were called sensitizers. There were others who revealed a slower recognition threshold for the aggressive than for the neutral pictures and they were referred to as defenders. The subjects were categorized according to the difference score between the means of the neutral and aggressive pictures. If the mean recognition time of the aggressive pictures was slower than for the neutral pictures the subject was placed in the defense group. On the other hand, if the mean of the aggressive pictures was faster in recognition time than the mean of the neutral ones, the subject was considered in the sensitization group. He predicted that the perceptual sensitizers would relate more aggressive themes on the Thematic Apperception Test than would the defenders. He found such a relationship to exist. Eriksen studied these perceptual modes by dealing with a single need variable -- aggression. The previous studies for the most part have not attempted to differentiate the emotional stimulus material. This study was preceded by Eriksen's doctoral dissertation (6) in which he dealt with the relationship of perceptual defense to three need variables -- succorance, homosexuality and aggression. Although he

dealt primarily with defense, he found that a number of his subjects turned out to be perceptual sensitizers.

Bruner and Postman indicated that a defense mechanism similar to repression operates on a perceptual level. They have referred to this as perceptual defense. The authors, however, do not suggest a similar analogy for perceptual sensitization. Eriksen (6) has suggested that sensitization may be related to the defense mechanisms of reaction formation and intellectualization in which the person is alert to and seeks out emotional stimuli related to personality conflict as a means of warding off anxiety. Lazarus, Eriksen and Fonda (13) have attempted to show such a relationship. They found that subjects who were independently judged to be either repressors or intellectualizers on a clinical basis turned out to be perceptual defenders and perceptual sensitizers respectively. In the above study, it should be noted, the patients in part were grouped into the repressor and intellectualizer categories on the basis of the diagnoses of conversion hysteria and obsessive-compulsive neurosis.

As yet our knowledge is scant concerning the nature of the perceptual system in its relationships to other functional systems. The precise meaning of the correlation between perceptual modes and psychoanalytic defense mechanisms is difficult at present to answer. The conceptual framework providing the necessary intervening variables or links between various functional systems has not yet been established. Klein (9) with reference to this problem states "Even though it is possible to think of perceptual attitudes as collateral with the defenses of psychoanalytic theory, we have preferred to avoid the term defense, especially in the sense of the well-known defense mechanisms. The reason for this is the differences of method which both concepts reflect; perceptual



methods are radically unlike those which gave birth to the classical defense mechanisms. Obviously, 'methods define concepts' and psychoanalytic concepts are no exception...at this stage concepts are best linked to operations" (9,p.349). The correlations in the Lazarus, Eriksen and Fonda study may raise a number of fruitful hypotheses for future research. At present it may only imply a stable dimension which extends beyond the perceptual level but as Klein further states "neither the organizing principle nor its consequences are in any way clarified by it." It is not the purpose of the present study to pursue the problem of further examining the correspondence between different functional systems. This latter discussion has been aimed merely at the acknowledgment of the existence of this gap in psychological systematic thinking at present.

In summary, perceptual defense and sensitization have been described as two perceptual adaptive modes within the broader process of selective perception. It has been suggested that some people are prone to use defense while others rely upon sensitization with regard to threatening stimuli. These two modes have been operationally defined in terms of high and low perceptual thresholds in relation to emotionally-laden stimulus objects.

## 2. Consistency in the use of the perceptual adaptive modes

The clinician in his work is very much concerned with the problem of consistent personality patterns. The assumption underlying personality diagnosis is concerned with relatively enduring adaptive modes which are characteristic of the person. These "quasi-stable" modes in part reflect personality structure; the ways in which the person copes with internal and external demands. Psychoanalytic theory places an

important emphasis upon defense mechanisms as ego functions which enable the individual to bring to terms his internal unconscious impulses and the demands of society. These defenses are considered relatively stable tools at the disposal of the person in an effort to relieve tension and to maintain a comfortable equilibrium.

Our everyday contacts with people point up certain modes of responding which enable us to anticipate in part the reactions of these people in our interpersonal contacts with them. It is the degree to which we can anticipate or expect certain reactions which adds a certain measure of stability to our everyday living. We know that Mary is likely to cry in emotional situations, that John will run away from accepting any responsibility and George will argue any point one might raise. In other words, in our personal contacts with people we get to "know" them. We learn about their characteristic modes of responding to various situations.

Experimentally there has been very little work done with the problem of consistency in the use of adaptive modes, especially on a perceptual level. This is understandable in that as yet our knowledge is limited regarding perceptual adaptive modes in relation to personality. Bruner and Postman's work has established a beginning in this direction with the postulation of defense and sensitization. Klein and his associates (9,10,11) have also begun to attack this problem through the concept of perceptual attitudes or attitudinal dimensions. By means of this approach, they state, it will make it possible to go beyond the mere demonstrations of selectivity and purposiveness and to deal with various kinds of selectivity or different kinds of equilibrating mechanisms in people. With the few attitudinal dimensions that they have thus far managed to isolate, their studies indicate that people tend to be con-

sistent in the use of these perceptual attitudes. This has been particularly so for the dimension of leveling and sharpening in which it was found that a person who is a leveler on one perceptual task tends to also show leveling on other perceptual tasks. The same was found to occur for those subjects who were perceptual sharpeners.

The concepts of perceptual defense and perceptual sensitization have not as yet been put to the test of consistency of use on a perceptual level. The past studies have shown that there are apparently correlations between these perceptual modes and processes which may be similar in other functional spheres. Bruner and Postman (3) have shown such a correspondence between associative reaction (word association test) and perceptual recognition of words. Eriksen (7) demonstrated a relationship between perceptual recognition of pictures and phantasy production (Thematic Apperception Test) and Lazarus, Eriksen and Fonda (13) have attempted to show a correspondence between psychoanalytic defense mechanisms and these perceptual modes. This latter study, however, has dealt to some extent with the problem of consistency of these modes in that observations of defense and sensitization are studied in relation to two different need variables -- sex and aggression. It was found that when both sex and aggression were disturbing areas on a sentence completion test, then the person was consistent in his use of either defense or sensitization with regard to both sexual and aggressive perceptual material.

The question of consistency of use of these perceptual modes is in a sense essential to the determination of whether these are relatively stable adaptive tools or whether they are merely chance phenomena. A start in the direction of exploring this question would be to check the reliability of the use of defense and sensitization by repeating the same or nearly the same procedure and conditions on the same subjects. This

leads to the first hypothesis of the present study. It is predicted that a person who shows perceptual defense to emotional stimuli in the first situation, will continue to show the same adaptive mode on two successive repetitions of the same situation. Also, a person who proves to be a sensitizer in the first situation, will continue to show sensitization on the repetition of the same situation.

### 3. The effect of involvement upon perceptual adaptive modes

The problem of the effect of an increase in anxiety upon adaptive modes is also of central importance to the clinician and the personality theorists. The study of this area is necessary for a further understanding of human behavior. There have been a number of studies which have utilized experimentally induced anxiety or frustration in order to observe its effects upon various aspects of behavior. Williams (26) set up an anxiety arousing situation and found that it tended to impair the performance of his subjects on the digit symbol test. Postman and Bruner (21) produced also a marked degree of frustration and anxiety in their subjects and found a detrimental effect upon learning. Many studies concerned with completed and uncompleted tasks under neutral and ego-involved conditions have been done. Rosenzweig (23), for example, attempted to bring these latter studies closer to a personality approach. He found that some subjects experienced the unfinished tasks as failures and tended to repress them. Most of the studies, however, have dealt with involvement in relation to its effect upon learning. Barker, Dembo and Lewin (1) have studied the consequences of frustration in children and found a regression or de-differentiation tending to occur. The Yale studies (4) have dealt with the relationship of frustration to aggression. These studies, however, leave much to be desired in our understanding of

personality and the various processes operating to produce these effects as well as the differences between individuals. This again brings us back to the problem of attempting to understand human behavior in terms of such personality variables as adaptive mechanisms.

The experimental literature at present is lacking with regard to the study of specific adaptive modes under increased anxiety. The clinician observes in patients various degrees of anxiety and the effects upon defense or coping mechanisms. On psychological tests the clinician observes the functioning of various adaptive modes in normals, neurotics and psychotics. A person with a hysterical character structure seems to show fewer indications of repression when he is normal than when he is neurotic. The normal person with a compulsive character structure may reveal his compulsiveness in keeping things neat and well arranged with a fair degree of orderliness to his everyday living. The compulsive neurotic, however, will reveal an exaggeration of his compulsive behavior. Psychoanalytic literature and clinical histories are replete with such examples.

Menninger (19) has attempted to deal with this problem in systematic fashion. He postulates four orders of pathological tension relieving devices of which only the first is especially important to our present study. The first order of pathological devices reflects an intensification or exaggeration of the more normal devices and refers to a hyper-defensiveness of ego functioning. He lists in this category such devices as hypersuppression, hyperrepression, hyperintellectualization, etc. The subsequent orders are concerned with coping mechanisms or devices which emerge when the normal defenses in exaggerated form are unable to adequately cope with the discomfiture of the disequilibrium. These involve severe neurotic and psychotic devices.

Hartmann (8) has introduced into psychoanalytic theory the concept of the conflict free sphere of the ego which pertains to the free energy at the disposal of the ego to deal with the external world. The exaggeration of normal defenses would imply a withdrawal of some of the energy in the conflict free sphere of the ego in an effort to reinforce the existing defense mechanisms. The greater the withdrawal the less the energy that is available for adequate reality testing.

The special interest in the present study is with adaptive modes on a perceptual level, especially perceptual defense and perceptual sensitization. Our digression into the discussion of psychoanalytic mechanisms has been with the purpose of attempting to observe whether any hypotheses might emerge that would shed light upon the process involved when perceptual adaptive modes are subjected to increased anxiety. One question which can be asked is whether perceptual modes reveal a similar process under increased anxiety as do the psychoanalytic mechanisms of defense. It is this question which we intend to pursue to some extent in this study. The second hypothesis in this study can be stated as follows:

A person who shows perceptual defense under relatively neutral conditions will reveal an accentuation of this adaptive mode under more involved conditions. The perceptual sensitizer, on the other hand, is expected to be more of a sensitizer under greater involved conditions.

In the above discussion the terms involvement and anxiety have been used interchangeably. In the present context involvement refers to an experimentally inducted anxiety arousing situation in which the subject seemingly experiences a feeling of threat. By setting up a situation in which relatively neutral and involved conditions exist, it becomes possible to observe the effects of greater involvement upon the perceptual modes. The two conditions will be discussed in detail in the next chapter.

## CHAPTER II

### METHOD

#### 1. General description

##### a. Procedure

The subjects were shown drawings of two people in different social situations. These pictures were flashed upon a screen at 1/25 sec. under varying degrees of light. Each picture was flashed twice in succession, approximately one second apart. A variac was used to regulate light intensity so that pictures were first shown under very dim light and gradually increased by steps of two. The light intensities used were 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38 and 40, a total of 14 intervals. These gradations were the percentage indications of maximum output voltage and will be referred to, henceforth, as PMV. The maximum output of the electrical outlet used was 110 volts.

There were three equated sets of six pictures each. All of the pictures in the first set were exposed first at 14, then 16, then 18, etc., until 40 PMV was reached. This procedure was repeated for the second and third sets of pictures. The subjects were required after each exposure to tell what the two people in the picture were doing. The responses were recorded by the experimenter on a recording sheet devised for the experiment. The subjects were tested individually and given five minute rest

periods between sets of pictures. There was also a fourth set of pictures which was used in a practice session which immediately preceded the three experimental sets of pictures. Each of the three sets of experimental pictures contained four neutral and two aggressive pictures. The first two sets were given under neutral conditions and the third set was administered under an involved condition.

b. Physical setting

The room used for the experiment was  $18 \times 8\frac{1}{2}$  feet. It contained a table  $4 \times 2\frac{1}{2}$  feet which was situated in the center and towards the front of the room. The examiner's chair was on the right side and toward the front of the table. The subject sat in a soft comfortable chair located in back and to the left of the table. An aluminum painted screen was tacked on the front wall and to the left so that the subject had a clear and direct visual path. The screen measured  $22 \times 28$  inches and the picture projected upon it was  $17 \times 12$  inches and was shown on the left side of the screen. The top of the screen stood three feet from the floor so that the subject could view the screen without having to tilt his head up or down or to the side. The subject's chair was located  $10\frac{1}{2}$  feet from the screen. The tachistoscope rested on the front end of the table five and two-thirds feet from the screen. The case for the projector was also on the table in back of and



slightly at an angle to the tachistoscope. The case served the purpose of eliminating from the subject's view the experimenter's activity of changing slides and recording responses. The examiner sat on the right side of the table beside the tachistoscope. To his right on another chair was a variac which the experimenter could easily operate.

Since the procedure was rather lengthy, approximately one and a half to two hours, a 100-watt bulb encased in a frosted glass globe on the ceiling toward the front of the room was kept burning during the entire experiment and was the only source of light in the room. This avoided the necessity of having the subject adapt to the darkness. The amount of light reflected by the screen was 1.1 foot candles at a distance of two feet.

## 2. Stimulus material

The stimulus material consisted of trace drawings of two men in different social situations. These drawings were made by the Medical Illustration Laboratory at Winter Veterans Administration Hospital in the following manner: The scenes were staged and then photographed. From the 8 x 10 inch photographs trace drawings were made. An attempt was made to equate the formal properties of the pictures by having only two people in each picture, no background, and four props. The drawings were then photographed and made into 2 x 2 inch projector slides. A total of 19 neutral and eight aggressive pictures were drawn. The

EXPERIMENTAL ROOM



original selection of the neutral and aggressive pictures was based upon the general agreement of three clinical psychologists.

The final selection of 12 neutral and six aggressive pictures was based upon the administration of the total 27 pictures to nine normal subjects. A mean recognition threshold for each picture was determined which then enabled the experimenter to arrange them into three equal sets. Table 1 shows the means of each of the four neutral and two aggressive pictures for each of the three sets.

A rank order correlation was done comparing the rank order of difficulty of all 27 pictures for the first five and last four subjects in the normative group. The correlation was .83 which is significant at less than the 1% level. Even though only nine subjects were used in the normative group, a fairly high degree of reliability seems to exist for the pictures.

Five of the discarded neutral pictures were used for the practice set. On the following pages are reproductions of the practice and three experimental sets of pictures.

### 3. Equipment

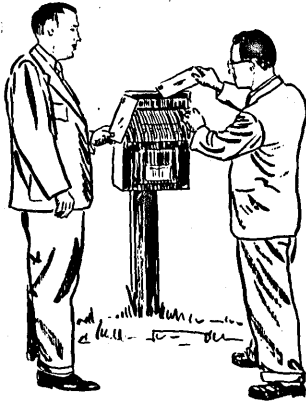
A tachistoscope was assembled by fitting a camera shutter to a lens of a projector. A Bell and Howell Filmo Slide Master 2 x 2 projector was used which contained a 1000-watt bulb and a five-inch F/4.5 lens. A number four universal shutter made by the Ilex Optical Company was attached to the lens. A cable release extended from the shutter which facilitated the operation of the shutter.

Table 1.

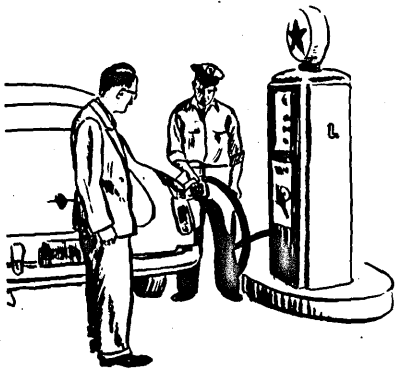
Mean FMV of neutral and aggressive pictures for each of three sets

Set I		Set II		Set III	
Neutral	Aggr.	Neutral	Aggr.	Neutral	Aggr.
1. 30.20	1. 30.00	1. 30.70	1. 26.70	1. 30.00	1. 25.20
2. 25.10	2. 18.70	2. 26.10	2. 22.20	2. 26.00	2. 23.60
3. 24.00		3. 22.30		3. 24.00	
4. 18.30		4. 18.30		4. 18.30	
M. 24.40	24.35	24.35	24.45	24.57	24.40
GM	24.38		24.38		24.52

# PRACTICE SET



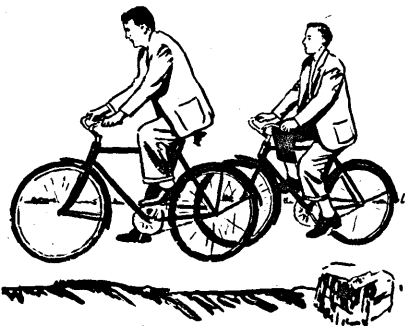
**FULL EXPOSURE**



**P 1**



**P 2**

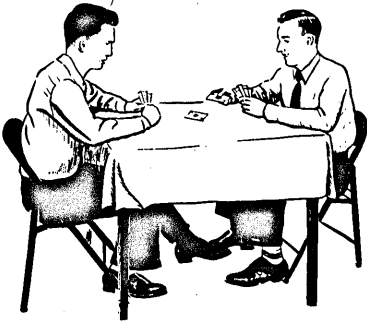


**P 3**



**P 4**

# SET 1



1



2



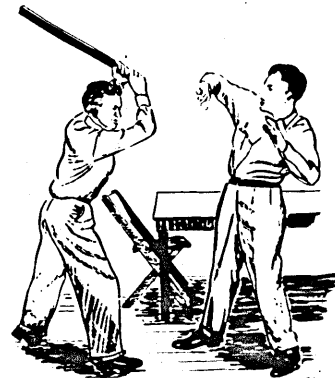
3



4



A 1

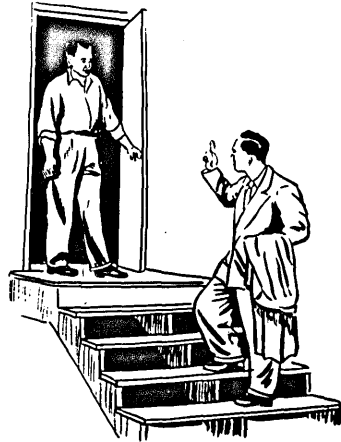


A 2

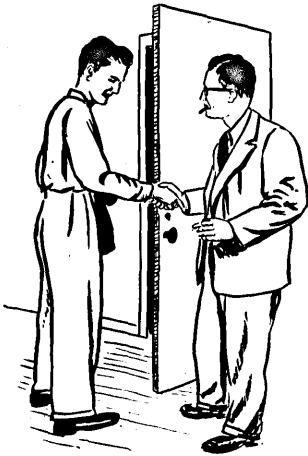
# SET 2



1



2



3



4

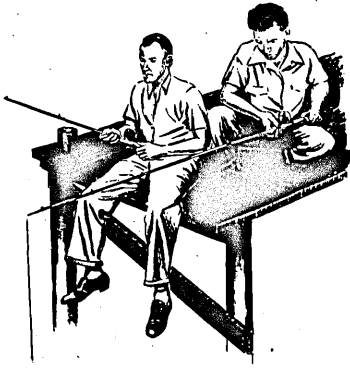


A 1

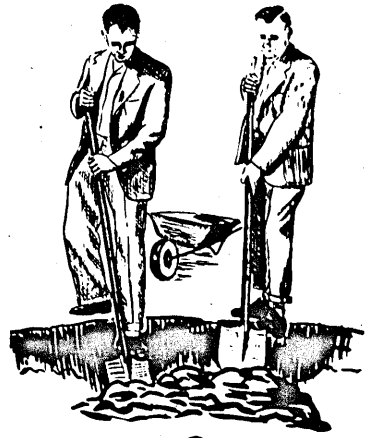


A 2

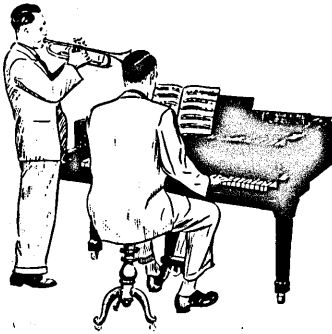
# SET 3



1



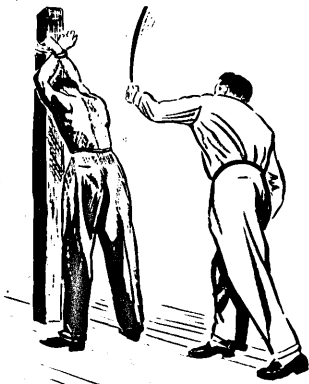
2



3



4



A 1



A 2



A variac made by the Superior Electric Company was used which had dial gradations from 0 to 100 that gave the percentage indications of maximum output voltage.

4. Neutral and involved conditions

The neutral and involved conditions were produced primarily by the instructions given to the patient. He was informed by the nurse or aide on the ward that he was to take part in an eye test survey and he was sent to the experimental laboratory on another ward which had the sign on the door VISUAL LAB. To add to the neutral effect, the subject was made as comfortable as possible by providing him with a soft, comfortable chair with arm rests and he was permitted to smoke. The examiner tried to create a friendly, non-threatening atmosphere. The subject was given the following neutral instructions:

We are taking a survey on the amount of light needed to recognize different pictures. We will have a lot of people who will be going through this procedure so that we can determine the average amount of light needed in order to recognize the different pictures. You will notice that under dimmer light some pictures are easier to recognize than others. This doesn't make any difference since we are interested in the average amount of light needed to recognize the individual pictures. All of the pictures will be of

two people doing something. We would like you to describe the two people and what they are doing. These pictures will be flashed on the screen in front of you just for a moment. We will begin under very dim light and gradually increase the light and you will find the pictures getting clearer. Under dim light you may get some idea of what the people are doing but you may not be sure. Go ahead and make a guess anyway since we are interested in finding the lowest amount of light needed to recognize these pictures. You may feel certain that you have recognized some of the pictures before we reach the brightest light interval but I'll keep showing the pictures over and over again until we go through all the different light brightnesses. It may get a little boring but try to stick with it anyway. Now I'll show you what these pictures are like so that you will have some idea of them. (The subject is shown with open shutter the picture of two men standing at a mail box). All the pictures will be drawings like this. You would describe this as two men standing at a mail box and one man is mailing a letter and the other is standing there with a letter in his hand ready to mail it. If you watch the picture you will notice that I can change the

amount of light under which you can see it. I can make the light dimmer to the point where you can't see anything at all. (This is demonstrated by the experimenter). Also I can make it much brighter than it was before. (This is also demonstrated).

Now I'll show you what it looks like when it is flashed on the screen for a moment. (The shutter is set at  $1/25$  sec. and the picture is flashed twice with approximately a one-second interval).

Now we will begin with the first set of pictures.

We will start by showing them under very dim light and gradually increase it.

The practice set was then administered and following its completion the subject was told:

We will now go to the next set of pictures. We will begin under dim light and gradually increase the light as we did before.

This latter instruction was again repeated for the next set of pictures so that the practice set and the first two experimental sets of pictures were given under the same conditions.

The final set of pictures was administered under involved conditions. The subject was told the following:

The last set of pictures has already been given to a large number of people and we know the average amount of light needed in order to recognize them.

This last set has also been found useful as a

psychological test which tells us something about how you as a person get along with other people. It also tells us how nervous you are. We will go through this set in the same way as we did the other pictures. We will start by showing the pictures under very dim light and gradually increase the light as we did before.

The selection of the above instructions for the neutral and involved conditions was made on an empirical basis. It is felt to be generally true that when a person, especially the unsophisticated patient, is exposed to psychological tests, anxiety occurs. The clinician quite frequently observes this manifestation in patients and in many cases attempts to allay the anxiety as much as possible in order to put the patient at ease. It was thought that instructions which communicated to the subject that this procedure was a "psychological test which revealed how he got along with people and how nervous he was" would produce the desired effect of increasing involvement. Following the experiment an interview was conducted informally and non-directively. The interview served a two-fold purpose: a) It attempted to be therapeutic in an effort to reduce the anxiety and tension produced by the instructions, and b) it permitted the experimenter to observe from the subject's verbalizations whether the instructions had the effect of involvement or threat. Judging from the comments made by many of the subjects

it appeared that they did become quite involved. One subject asked with much concern whether he would be sent to a closed ward. Another subject, whose mean differential score was very large, on his return to his ward immediately began talking at some length with the nurse and social workers about the procedure in an upset manner. A number of subjects opened up and began talking about their problems. In many instances material emerged which hadn't been told to the interviewing psychiatrists. Still others began denying that their symptoms or complaints had any psychological basis. One patient, for example, said, "I think I have ulcers. It can't just be my imagination or nervousness. I can feel real pain." Many of them following the involved condition would ask how well they did. Most of these same subjects did not ask this question following the neutral condition and yet they had ample opportunity to do so during the rest periods between sets of pictures. Another factor which might indicate that the involved instruction was threatening was that most of the subjects were first admissions to this hospital and many did not consider their illness as having a psychological basis. Half of the subjects in this study did not remain in the hospital for treatment but rather left following their evaluation on the Diagnostic and Appraisal Section.

The neutral instruction appeared relatively neutral, especially when compared with the involved instruction. During

the subjects' stay on the evaluation section, they were exposed to many laboratory tests and it seemed that this experimental procedure labeled as an "eye test survey" would be construed by them as part of the hospital routine in their work-up. As mentioned above the subject was made as comfortable as possible and the experimenter attempted to create a friendly and non-threatening atmosphere. To add to the non-threatening effect, the subjects were shown at full exposure one of the pictures so that they would have an acquaintance with the nature of the stimuli. Most of the patients appeared to the examiner to be more relaxed under the neutral than under the involved condition.

##### 5. Scoring

The recognition score on the individual pictures was in terms of percentage indications of maximum output voltage (FMV). The gradations used ranged from 14 to 40 in steps of two. If the subject recognized the picture on the first exposure his score would be 14; if on the second exposure it would be 16, etc. The total score used for the subject for each set of pictures was the mean differential score between the mean of the neutral and mean of the aggressive pictures. This was calculated by subtracting the mean of the two aggressive pictures from the mean of the four neutral pictures. The mean differential score might be plus or minus. Where the mean of the aggressive pictures fell below that of the neutral pictures, the subject

was considered to be a perceptual sensitizer. In other words, he recognized aggressive pictures more quickly, or under dimmer light, than the neutral pictures. When the reverse occurred, that is, when the mean of the aggressive pictures fell above the mean of the neutral pictures, the subject was considered a perceptual defender.

The criteria for scoring a response correct was based upon a preliminary study. The subject had to give consistently correct responses on subsequent exposures of the same picture if his correct score was counted at the earliest recognition interval. If he gave a correct response and on later exposures changed it to an incorrect response, his score would be based upon the succeeding exposure where he again gave the correct response and continued to do so from that point. An example will make this clear. Suppose a subject first recognized picture #1 of Set 1 at 22 FMV and then changed it to an incorrect response at 24 FMV but gave the correct response again at 26 FMV and he repeated the same correct response for the succeeding voltage readings through 40, then his score would be 26 for that picture. Since 40 was used as the upper limit, a subject who failed to give a correct response at that level of light intensity was scored 40 for that picture.

Listed below are the criteria for a correct response for each of the pictures.

Set 1

1. Cards. Must be seen as two men playing cards.
2. Reading. Must be seen as one man sitting at the table reading and another man looking on or looking over his shoulder.
3. Cigarette. Must be seen as one man lighting a cigarette for another man.
4. Baseball. Must be seen as a batter and a catcher.
- A1. Choking. Must be seen as one man on top of another and choking him.
- A2. Stick. Must be seen as a man with a stick, club, bat or pipe raised ready to strike. The other man has his arms up in defense or trying to ward off the blow.

Set II.

1. Coffee. Must be seen as two men drinking coffee.
2. Waving. Must be seen as one man waving good-bye or leaving the man in the doorway.
3. Hand shake. Must be seen as two men shaking hands.
4. Barber. Must be seen as a barber giving a man a haircut.
- A1. Shooting. Must be seen as one man shooting another.
- A2. Scuffle. Must be seen as one man having a hold on the other from behind with one arm around his neck and one hand holding the other's arm. It may also be seen as one man having hold of the other from behind and is going to throw him to the ground.



### Set III.

1. Fishing. Must be seen as two men on a wharf, pier or dock, fishing.
2. Digging. Must be seen as two men with shovels digging.
3. Music. Must be seen as one man playing a piano and the other is playing a horn, trumpet or trombone.
4. Golf. Must be seen as one man ready to hit a golf ball and the other man is watching or caddying.
- A1. Whipping. Must be seen as one man with a whip or stick whipping or beating a man whose hands are tied to a post.
- A2. Fight. Must be seen as one man having socked another man who is falling backwards.

To check the accuracy of the scoring, another psychologist independently scored 15 of the 24 records selected at random. This involved scoring a total of 270 pictures. Perfect agreement between the scoring of the experimenter and the independent judge occurred in 94.4% of the pictures. Agreement within plus or minus one interval was 98%.

### 6. Order of presentation

Set I was held constant and always administered first while Sets II and III of the pictures were rotated. Therefore, half the subjects received the pictures in the order (of Sets) I, II, III, whereas the other half received them in the order (of Sets)

I, III, II. The former will be referred to as order A and the latter as order B. Sets II and III were rotated in order to control the effects of any difference in difficulty of Sets II and III. Any difference that should be obtained between the orders A and B could be dealt with in the statistical analysis. Another reason for alternating the sets was to observe whether one set was more sensitive to change under the involved condition.

Set I was held constant since this set was used to determine whether the subjects belonged to the defense group or to the sensitization group and the results of Set I did not enter into the test of the second hypothesis. It was on this basis that the prediction was made that the subjects would continue to show the same perceptual mode on the next two sets of pictures. It could then be observed whether defense and sensitization were merely chance phenomena or whether they were perceptual modes consistently used by the same subjects. Since Set I was used to initially determine the subject's perceptual mode, it was not included in the statistical analysis of the results. Only Sets II and III were so treated.

The positions of the neutral pictures within each set were randomized by means of the table of random numbers so that the positions for these pictures within each set were different for each subject except by chance. The position of the aggressive

pictures remained fixed within each set but the positions were different for each of the three sets. In Set I the aggressive pictures occupied positions 3 and 6, in Set II the positions were 3 and 5, and in Set III they were 4 and 6. When Sets II and III were rotated, the aggressive pictures still held their original positions. For example, subjects  $S_1$  and  $S_2$  had the following order of presentation of pictures:

$S_1$			$S_2$		
<u>Set I</u>	<u>Set II</u>	<u>Set III</u>	<u>Set I</u>	<u>Set III</u>	<u>Set II</u>
1	2	4	2	2	4
3	3	1	4	4	3
A1	A1	2	A1	1	A1
2	4	A1	1	A1	2
4	A2	3	3	3	A2
A2	1	A2	A2	A2	1

## 7. Subjects

The subjects who were used for the study were male patients hospitalized at Winter Veterans Administration Hospital. All of the patients were new admissions to the hospital and resided on the Diagnostic and Appraisal Section of the hospital. Only those patients who were diagnosed within the neurotic range were used. Those who were thought to be psychotic, incipient schizophrenics, and primary medical (non-psychiatric) problems

were not included in the study. The criterion for selection was the final diagnosis concurred in by at least two psychiatrists. This experimenter made no contribution to the diagnostic picture of any of the subjects who took part in this study. Following is a list of the different diagnostic categories given to the subjects of this study and the total number within each group:

1. Conversion reaction (3)
2. Anxiety reaction (7)
3. Psychogenic respiratory reaction (1)
4. Psychogenic musculo-skeletal reaction (1)
5. Depressive reaction (2)
6. Psychogenic skin reaction (1)
7. Passive-aggressive reaction (1)
8. Psychogenic gastro-intestinal reaction (6)
9. Hypochondriacal reaction (1)
10. Psychogenic neuromuscular reaction (1)

The subjects had in common a midwestern background in that all of them came from a tri-state area -- Kansas, Missouri and Oklahoma. The mean age of the groups was 33.8 years with a range from 23 to 54. The mean age of the perceptual defense group was 33.4 and for the perceptual sensitization group, 34.8. The average education for subjects was 10.2 years. The defense group averaged 9.6 and the sensitizers 11.4 years. All of the subjects were white except four. Three were Negro and one was an American Indian. Their occupations ranged from postal

clerks to general laborers, farmers, factory workers, brick mason, cook, carpenter, barber, salesman and coin machine operator.

The total number of subjects used was 24. There were 16 in the defense group and 8 in the sensitization group. During the preliminary study it was found that the perceptual defenders were more frequent in our hospital population than were the sensitizers. There appeared to be approximately four defenders for every sensitizer. Since the procedure was time consuming, it was decided in advance to use 16 defenders and eight sensitizers. As soon as the 16 defenders were obtained, additional defenders were discarded on the basis of Set I of the pictures and were not administered the two additional sets. This procedure was followed until the group of eight sensitizers had been completed.

## CHAPTER III

### ANALYSIS OF RESULTS

This chapter is divided into three parts: a) a statistical analysis of the main hypotheses; b) additional statistical analysis suggested by the data and c) a qualitative analysis.

#### 1. An analysis of the main hypotheses

The two hypotheses to be tested are: a) those subjects who are found to be perceptual defenders or perceptual sensitizers on the first set of pictures will continue to show the same perceptual mode on the next two sets of pictures, and b) there will be an accentuation of the perceptual mode under the involved condition. To test for these hypotheses, an analysis of variance\* involving repeated measurements on the same subjects is used.

Before discussing the statistical tests in relation to the hypotheses, an explanation of Table 2 is in order. This table gives the mean differential scores between the neutral and aggressive pictures of each subject for each set of pictures. The numbers I, II and III at the top of each group of scores represent the set numbers of the pictures. The subscripts N

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\* Edwards (5) and Snedecor (25) were used as models for the design of this study.

and I beside these set numbers specify whether the set was administered under the neutral (N) or the involved (I) condition. It is seen that Set I is always given under the neutral condition but Sets II and III are alternated so that the condition is dependent upon the order of presentation of the sets. The column labeled M which is to the right of each group presents for each subject the mean differential score for Sets II and III only, since Set I was not used in the main statistical analysis. At the bottom of each group the inter-subject mean is shown for each of the sets of pictures. The subscripts used with this mean represent the order of presentation of the sets and the perceptual mode of the group. D refers to defense and S to sensitization while A refers to order A and B represents order B. Total means for the sets given under neutral and involved conditions for order A and order B are shown at the right of the Table as is the grand mean. The mean for the total defenders is represented in  $M_{DAB}$  and for the total sensitizers in  $M_{SAB}$ . The number of the subject is listed to the left of each group under S's. The scores in each set are the mean differential scores for each subject for each of the three sets of pictures. An illustration will clarify how these scores are calculated. The first subject listed in the defense order A group had a mean differential score of 5 for Set I. Since this differential score is positive, it means he required more

Table 2

Mean differential scores for each subject  
for each set of pictures.

DEFENSE ORDER A

S's	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>	M
1.	5.0	4.5	2.0	3.25
2.	2.0	6.5	7.5	7.00
3.	5.5	4.5	3.0	3.75
4.	7.0	0.0	5.0	2.50
5.	4.0	4.5	1.5	3.00
6.	3.5	1.0	6.5	3.75
7.	7.5	- 2.5	5.0	1.25
8.	7.5	0.0	5.5	2.75

M<sub>DA</sub> 5.25    2.31    4.5    3.41

DEFENSE ORDER B

S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>	M
1.	3.5	2.0	8.5	5.25
2.	3.0	1.0	6.0	3.50
3.	1.0	11.5	10.0	10.75
4.	16.0	10.0	14.0	12.00
5.	2.0	5.5	9.0	7.25
6.	2.5	1.0	12.0	6.50
7.	7.0	4.5	6.0	5.25
8.	0.5	3.5	8.0	5.75

M<sub>DB</sub> 4.44    4.88    9.19    7.03

M<sub>DAB</sub> 4.84    3.59    6.84    5.22

N = neutral condition  
I = involved condition  
D = defense  
S = sensitization  
A = order A  
B = order B  
M = mean  
T = total

SENSITIZATION ORDER A

S's	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>	M
1.	- 2.5	- 3.5	- 8.5	- 6.00
2.	- 4.0	+ 3.0	- 7.0	- 2.00
3.	- 4.5	- 3.5	- 3.0	- 3.25
4.	- 2.0	-10.5	- 0.0	- 5.25

M<sub>SA</sub> - 3.25    - 3.63    - 4.63    - 4.13

TOTAL ORDER A

	II <sub>N</sub>	III <sub>I</sub>	TM
M <sub>DSA</sub>	.33	1.46	.895

SENSITIZATION ORDER B

S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>	M
1.	- 4.0	- 6.0	- 8.0	- 7.00
2.	- 1.0	- 4.5	-12.5	- 8.50
3.	- 2.0	- 1.5	- 5.5	- 3.50
4.	- 2.0	- 1.0	- 4.5	- 2.75

M<sub>SB</sub> - 2.25    - 3.25    - 7.63    - 5.43

M<sub>SAB</sub> - 2.75    - 3.14    - 6.13    - 4.78

TOTAL ORDER B

	III <sub>N</sub>	II <sub>I</sub>	TM
M <sub>DSB</sub>	2.17	3.58	2.88

GRAND TOTAL (ORDER. A & B)

	N	I	GMT
M <sub>DS</sub>	1.25	2.52	1.89



illumination to perceive aggressive than neutral pictures. Therefore he was classified as one who belongs to the defense group. His scores on the other sets were 4.5 for Set II, and 2 for Set III. The mean PMV readings for the neutral and aggressive pictures on Set I were 25 and 30 respectively, a difference of 5 between the two means. On Set II they were 26.5 and 31, and on Set III they were 25 and 27, which yield differences in means of 4.5 and 2 respectively. The intra-subject mean of 3.25 is the average of the means of Sets II and III, viz., 4.5 and 2.

In the first hypothesis it is stated that we expect defenders and sensitizers to be consistent in the use of their perceptual mode. It is predicted that if a person is a defender or a sensitizer on Set I, he will continue to use the same perceptual mode on the next two sets of pictures. An inspection of the data in Table 2 reveals that only two of the 24 subjects show a change from one mode to the other. Subject 7 of the defense order A group is a defender on Set I, changes to a sensitizer on Set II but reverts back to defense on Set III. Subject 2 of the sensitization order A group is a sensitizer on Set I, a defender on Set II but again shows sensitization on Set III. In both cases the reversal to the other mode occurs in Set II under the neutral condition.

Consistency in the use of the preferred perceptual mode should also be revealed in a positive correlation between sets of pictures administered under the same condition. In order A

Sets I and II were administered under the neutral conditions while in order B Sets I and III were subjected to the same condition. The correlations between the scores obtained under similar conditions are calculated separately for the two groups presented with different orders. For order A a product moment correlation yields .465. In order B the correlation between the two sets is .672.

A further test of the first hypothesis can be seen in a statistical comparison between sensitizers and defenders. If the hypothesis is to be upheld, a significant difference should be obtained between sensitizers and defenders on Sets II and III since they were categorized on the basis of Set I. The grand mean for the defense group is 5.22 ( $M_{DAB}$  in Table 2) and for the sensitizers it is -4.73 ( $M_{SAB}$  in Table 2). A test of the difference between these two groups is shown in line 1 of Table 3 in an analysis of variance design. This comparison yields an F equal to 95.75 which is significant at less than the .001 point.

The second hypothesis is concerned with the question of whether there is an accentuation of the perceptual mode under the involved condition. It is expected that the mean of the involved condition will be significantly larger (further from 0)

Table 3

Analysis of variance of mean differential scores of defender and sensitizer subjects under neutral and involved conditions with order A and order B presentations of sets of pictures.

Source of Variation	Sum of squares	d.f.	Mean squares	F.	P*
1. Sensitization vs Defense (mode)	1066.67	1	1066.67	95.75	<.001
2. Order A vs Order B (DA + SA - DB + SB)**	47.00	1	47.00	4.21	
3. Interaction: sens-def. x order (DA - SA - DB - SB)	65.01	1	65.01	5.84	<.05
4. Between subjects within groups (error)	<u>222.82</u>	<u>20</u>	11.14		
5. Total between subjects	1401.50	23			
6. Neutral vs involved condition (between trials) (DN + DI - SN + SI)	17.38	1	17.38	1.49	
7. Interaction: sens-def. x condition (DN - DI - SN - SI)	96.00	1	96.00	8.27	.01
8. Interaction: order x condition	2.25	1	2.25	---	
9. 2nd order Interaction: (sens-def. x condition) x order	18.92	1	18.92	1.63	
10. Interaction: pooled subjects x condition (error)	<u>232.07</u>	<u>20</u>	<u>11.6</u>		
11. Total within subjects	<u>366.62</u>	<u>24</u>			
12. Total	1768.12	47			

\* For 1 and 20 d.f., 4.35 and 8.10 are required for significance at the .05 and .01 points respectively.

\*\* See Table 2 for legend.

Data from Set I of the pictures not included in the statistical analysis.

than the mean for the neutral condition. Table 4 below shows the means for the two conditions. In order to compare the two conditions, it is necessary to turn to the interaction of mode

Table 4

A two-fold table comparing the means between neutral and involved conditions.

	N	I	Diff(N-I)
D	3.59	6.84	-3.25
S	-3.44	-6.13	2.67
Interaction = 2.67 - (-3.25) = 5.92			

and condition. The difference between the means of the interaction is 5.92. Line 7 of Table 3 reveals an F equal to 8.27 for this interaction which is significant at the 1% point.

The two hypotheses seem to be borne out. In the first hypothesis which is concerned with consistency we found only two cases of change from one mode to the other within the same person, positive correlations between two sets of pictures administered under the same neutral condition, and a highly significant difference between defenders and sensitizers. The second hypothesis which deals with the accentuation of the mean differential score under the involved condition is also upheld as is evidenced by the difference which is significant at the 1% point.

A question which can be raised at this point is whether these significant differences are the result of differences in means or whether they are attributable to the variance. A test of homogeneity of variance was done. Table 5 reveals a chi square of 10.748 which is not significant for 7 df. It appears, therefore, that the variances are homogenous and the differences can be confidently ascribed to the means.

## 2. Additional statistical analyses

In the analysis of variance design shown in Table 3, it is observed in line 3 that the F value for the interaction of mode and order is significant at less than the 5% point. This implies that one order discriminates between sensitizers and defenders significantly more than the other. Table 6 points this up more clearly. The difference between the means for sensitizers and defenders in order A is 7.54 and for order B is 12.46 and the difference of the difference between the two orders is 4.92.

The significant difference between order A and order B requires some explanation. Further statistical analyses are indicated in an effort to determine the factors which are responsible for this difference. It would be of great interest first to see whether order A or order B produces a greater significant difference between the neutral and the involved

Table 5  
Test of homogeneity of variance

Group	N	$\sum x^2$	$s^2$	s	$\log s^2$	$(N-1)(\log s^2)$
DAN	8	110.25	15.75	3.97	1.19728	7.38096
DAI	8	194.00	27.71	5.26	1.44264	10.09848
DBN	8	301.00	43.00	6.56	1.63347	11.43429
DBI	8	729.25	104.18	10.11	2.01778	14.12446
SAN	4	143.75	47.92	6.82	1.68052	5.04156
SAI	4	130.25	43.42	6.59	1.63769	4.91317
SEN	4	59.50	19.83	4.45	1.29732	3.89196
SBI	4	<u>270.75</u>	90.25	9.10	1.95545	<u>5.86635</u>
		1938.75				62.75122

1.  $\log \frac{\sum \sum x^2}{\sum (N-1)} = 1.68547$

2.  $\left[ \sum (N-1) \right] \left[ \log \frac{\sum \sum x^2}{\sum (N-1)} \right] = 67.41880$

3. DIFF = 4.66758

4. Chi square = 10.748\* P not significant

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\* A chi square of 14.067 is required for significance for 7 df at 5%.

Table 6

A two-fold table comparing means between orders A and B

	D	S	Diff (D-S)
A	3.41	-4.13	7.54
B	7.03	-5.43	12.46
Diff of Diff =			4.92
P =			<.05

condition. A t-test comparing neutral and involved conditions for order B shows a significant difference but order A is not significant. (See Tables 7 and 8).

Table 7

A t-test comparing neutral and involved conditions for order A.\*

$M_N$	=	2.75
$M_I$	=	4.54
Diff	=	1.79
t	=	1.32** P not significant

\* To simplify the analysis the minus signs for the sensitizers are ignored; 2.75 indicates the mean differential score ignoring signs.

\*\*For 22 df, 2.074 and 2.819 are required for significance at the 5% and 1% levels respectively.

Table 8

A t-test comparing neutral and involved conditions for order B.\*

---

$M_N$	=	4.33
$M_I$	=	8.67
Diff	=	4.34
t	=	3.24** P <.01

---

An inspection of the data in Table 2 reveals that Set II of the pictures is more sensitive to change from neutral to involved conditions than Set III. When this is subjected to a t-test, it is found that Set II is significantly different between neutral and involved conditions whereas a similar comparison for Set III does not yield a significant difference. (See Tables 9 and 10).

Table 9

A t-test comparing Set II under neutral and involved conditions\*

---

$M_N$	=	2.75
$M_I$	=	8.67
Diff	=	5.92
t	=	4.16** P <.01

---

\* Plus signs used for sensitization mean differential scores.

\*\* For 22 df, 2.074 and 2.819 are required for significance at the 5% and 1% levels respectively.



Table 10

A t-test comparing Set III  
under neutral and involved  
conditions\*

---

$M_N$	=	4.33	
$M_I$	=	4.54	
Diff	=	.21	
t	=	.16**	P not significant

---

This difference in the sensitivity of the sets indicates the source of the differences in discrimination between orders. Set II was in the favored position in order B since it is so much more sensitive to involvement than Set III.

The tables on the following pages point up more specifically where the differences in sensitivity between the two sets may lie. Tables 11 and 12 show the mean PMV readings at which the neutral and aggressive pictures are recognized. Table 13 extracts the mean PMV readings from the above mentioned two tables for an easier comparison and shows the changes from the neutral to the involved conditions for Set II and Set III. When the total differences of Set II and Set III of the neutral pictures are compared, it is found that what differences between defenders and sensitizers exist reflect a slower recognition of neutral pictures by sensitizers under the involved condition, especially on Set II. The differences are not

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\* and \*\* See footnotes p. 45.

Table 11

The mean PMV readings of the neutral and aggressive pictures for the defense group.

NEUTRAL PICTURES				AGGRESSIVE PICTURES			
<u>ORDER A</u>				<u>ORDER A</u>			
S's	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>	S's	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>
1.	25.0	26.5	25.0	1.	30.0	31.0	27.0
2.	26.0	30.5	25.5	2.	28.0	37.0	33.0
3.	27.5	26.5	27.0	3.	33.0	31.0	30.0
4.	28.0	26.0	25.0	4.	35.0	26.0	30.0
5.	28.0	27.5	29.5	5.	32.0	32.0	31.0
6.	24.5	22.0	21.5	6.	28.0	23.0	28.0
7.	28.5	31.5	29.0	7.	36.0	29.0	34.0
8.	<u>20.5</u>	<u>23.0</u>	<u>20.5</u>	8.	<u>28.0</u>	<u>23.0</u>	<u>26.0</u>
M	26.0	26.69	25.38	M	31.25	29.0	29.88

<u>ORDER B</u>				<u>ORDER B</u>			
S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>	S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>
1.	25.5	23.0	20.5	1.	29.0	25.0	29.0
2.	29.0	31.0	31.0	2.	32.0	32.0	37.0
3.	33.0	28.5	26.0	3.	34.0	40.0	36.0
4.	24.0	24.0	26.0	4.	40.0	34.0	40.0
5.	32.0	25.5	22.0	5.	34.0	31.0	31.0
6.	29.5	23.0	28.0	6.	32.0	24.0	40.0
7.	25.0	20.5	24.0	7.	32.0	26.0	30.0
8.	<u>34.5</u>	<u>25.5</u>	<u>24.0</u>	8.	<u>35.0</u>	<u>29.0</u>	<u>32.0</u>
M	<u>29.06</u>	<u>25.13</u>	<u>25.19</u>	M	<u>33.5</u>	<u>30.13</u>	<u>34.38</u>
GM	27.53	25.9	25.28	GM	32.37	29.56	32.13

Table 12

The mean FMV readings of the neutral and aggressive pictures for the sensitization group.

NEUTRAL PICTURES ORDER A				AGGRESSIVE PICTURES ORDER A			
S'	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>	S's	I <sub>N</sub>	II <sub>N</sub>	III <sub>I</sub>
1.	26.5	25.5	30.5	1.	24.0	22.0	22.0
2.	33.0	29.0	30.0	2.	29.0	32.0	23.0
3.	28.5	23.5	23.0	3.	24.0	20.0	20.0
4.	<u>27.0</u>	<u>31.5</u>	<u>26.0</u>	4.	<u>25.0</u>	<u>21.0</u>	<u>26.0</u>
M	28.75	27.38	27.38	M	25.5	23.75	22.75

ORDER B				ORDER B			
S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>	S's	I <sub>N</sub>	III <sub>N</sub>	II <sub>I</sub>
1.	26.0	26.0	31.0	1.	22.0	20.0	23.0
2.	32.0	27.5	36.5	2.	31.0	23.0	24.0
3.	25.0	24.5	25.5	3.	23.0	23.0	20.0
4.	26.0	21.0	24.5	4.	<u>24.0</u>	<u>20.0</u>	<u>20.0</u>
M	<u>27.25</u>	<u>24.75</u>	<u>29.38</u>	M	25.0	21.5	21.75
GM	28.0	26.06	28.38	GM	25.25	22.61	22.25

Table 13

Mean PMV readings for Sets II and III of the defense and sensitization groups showing the amount of change from the neutral to the involved condition.

	NEUTRAL PICTURES				AGGR. PICTURES			
	II <sub>N</sub>	II <sub>I</sub>	III <sub>N</sub>	III <sub>I</sub>	II <sub>N</sub>	II <sub>I</sub>	III <sub>N</sub>	III <sub>I</sub>
D	26.69	25.19	25.13	25.38	29.00	34.38	30.13	29.88
S	27.38	29.38	24.75	27.38	23.75	21.75	21.50	21.75
Diff	.69	4.19	.38	2.00	5.25	12.63	8.63	8.13
Total Diff.		3.50		1.62		7.38		.50

significant although under the involved condition it approaches but does not reach significance. (See Tables 14 and 15).

Table 14

A t-test comparing the mean PMV readings of the neutral pictures for defenders and sensitizers under the neutral condition.

M <sub>D</sub>	=	25.91	
M <sub>S</sub>	=	26.06	
Diff	=	.15	
t	=	.10*	P not significant

\*For 22 df, 2.074 and 2.819 are required for significance at the 5% and 1% levels respectively.

Table 15

A t-test comparing the mean PMW readings of the neutral pictures for defenders and sensitizers under the involved condition.

---

$M_D$	=	25.28
$M_S$	=	28.38
Diff	=	3.10
t	=	1.96* P not significant

---

On the other hand the aggressive pictures show a slower recognition for the defenders than the sensitizers for each set under neutral and involved conditions. When the defenders and sensitizers are compared, a significant difference is found to exist for the aggressive pictures. The difference is even more significant under the involved than the neutral condition. (See Tables 16 and 17).

Inspection indicates that the average of the aggressive pictures for Set II and Set III are alike but that Set II is very sensitive to involvement while Set III is not. (See Table 13).

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\*For 22 d f, 2.074 and 2.819 are required for significance at the 5% and 1% levels respectively.

Table 16

A t-test comparing the mean PMV readings of the aggressive pictures for defenders and sensitizers under the neutral condition.

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$M_D$	=	29.56	
$M_S$	=	22.61	
Diff	=	6.95	
t	=	3.42*	P < .01

---

Table 17

A t-test comparing the mean PMV readings of the aggressive pictures for defenders and sensitizers under the involved condition.

---

$M_D$	=	32.13	
$M_S$	=	22.25	
Diff	=	9.88	
t	=	7.37*	P < .01

---

Set II is therefore more sensitive to involvement on both sides, its neutral pictures are recognized more slowly by sensitizers under involved conditions and its aggressive pictures are recognized more

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\* For 22 d f, 2.074 and 2.819 are required for significance at the 5% and 1% levels respectively.

slowly by defenders under the involved condition. Set III on the other hand is almost as effective in discriminating between sensitizers and defenders but shows no effect of involvement.

In an attempt to isolate this difference more clearly, Table 18 shows the mean PMV readings for each picture in Sets II and III. It can be seen that each aggressive picture in Set II contributes to the total effect, i.e., it is higher for defenders than sensitizers and goes up for defenders and down for sensitizers under involvement. Neither picture in Set III shows any effects of involvement; if anything, A1 in Set III goes contrary to expectations.

An inspection of the neutral pictures of Set II in Table 18 indicates that each picture tends to contribute to the effect of involvement. The defenders reveal a lower PMV reading for each picture under involvement and the sensitizers have a higher reading for each picture with the exception of No. 4. Set III shows this effect under involvement in only two pictures for both the defenders and sensitizers. In discriminating between defenders and sensitizers, three of the four neutral pictures of Set II (Nos. 2, 3, and 4) show this effect, i.e., the sensitizers reveal higher PMV readings. In Set III only one picture (No. 3) shows a similar effect.

### 3. Qualitative analysis

It has been pointed out that Set II of the pictures is more

Table 18

Mean PMV readings of the individual neutral and aggressive pictures for Sets II and III under neutral and involved conditions for the defense and sensitization groups.

## NEUTRAL PICTURES - Set II

	1 <sub>N</sub>	1 <sub>I</sub>	2 <sub>N</sub>	2 <sub>I</sub>	3 <sub>N</sub>	3 <sub>I</sub>	4 <sub>N</sub>	4 <sub>I</sub>
D	31.00	27.75	29.25	28.50	24.75	24.50	22.75	20.25
S	25.00	26.50	30.00	37.00	27.00	30.00	27.50	24.00

## NEUTRAL PICTURES - Set III

	1 <sub>N</sub>	1 <sub>I</sub>	2 <sub>N</sub>	2 <sub>I</sub>	3 <sub>N</sub>	3 <sub>I</sub>	4 <sub>N</sub>	4 <sub>I</sub>
D	29.50	27.25	29.25	27.50	24.25	26.75	18.50	20.00
S	24.50	27.50	26.00	35.00	29.00	29.00	19.50	18.50

## AGGRESSIVE PICTURES

	Set II				Set III			
	A1 <sub>N</sub>	A1 <sub>I</sub>	A2 <sub>N</sub>	A2 <sub>I</sub>	A1 <sub>N</sub>	A1 <sub>I</sub>	A2 <sub>N</sub>	A2 <sub>I</sub>
D	30.00	34.75	28.00	34.00	32.50	32.25	27.75	27.50
S	25.00	22.50	22.50	21.00	21.50	25.50	21.50	20.00



sensitive to change from neutral to involved conditions than Set III and that the two aggressive pictures are mainly responsible for this change. In an examination of the content of the responses for the group receiving Set II under the neutral condition and the group receiving it under the involved condition, certain differences emerge. These differences are characteristic of the defense groups primarily and not of the sensitizers. Picture A1 shows a man being shot by another man. Under the neutral condition the defenders tend to see it merely as a hold-up in which one man has a gun and the other is just standing there. Even a very general inquiry on the part of the examiner for a description of the men did not seem to elicit any further elaborations of the man being held up. This was particularly true under dimmer illumination in which the subjects persisted in the same incorrect response. Eventually, under much brighter light most of them were able to change the incorrect hypothesis to the correct one with almost an "Aha" phenomenon. The defense subjects who were shown picture A1 of Set II under the involved condition tended to give greater elaborations and distortions but also around the theme of a hold-up. This pertained primarily to the description of the behavior of the man being held up. Following are some of the types of responses which they gave:

Man is getting his wallet out.

Other man is pleading with the man with the gun not to shoot.

One with the gun ready to steal other's clothes and other man getting ready to take his breeches off.

One with gun and other standing there tensed and doesn't know what to do.

The defenders who saw this picture under the involved condition appeared to give more attention to the man who is being aggressed against by elaborating and even distorting his actual behavior. Manifestations of compliance, a pleading helplessness and panic seem to be imposed upon the man seen as being held up.

Picture A2 shows a man who has a hold on the other from behind and is attempting to throw him to the ground. Again the defenders who were shown this picture under the involved condition tended to elaborate and distort it more frequently. Following are some examples:

There are three people in the picture. One is trying to break up the fight between the other two.

Looks like two people dancing there.

Tackling the guy and taking the gun away from him like in the FBI.

He has hold of the seat of his trousers.

Under the neutral conditions the subjects for the most part described the scene as two men wrestling without being able to describe accurately or to elaborate the behavior of each of the men. The aggressivity of the scene is minimized by merely subsuming the action under a wrestling match.

A similar pattern is noted for the aggressive pictures in the other two sets but it does not occur with the effect and frequency as seen in Set II. There are individual cases where the aggressive act is distorted into a non-aggressive scene and the subjects were not able to see the aggressive content of the scene even at the brightest light interval used in the experimental procedure.

It was pointed out earlier that the neutral pictures of Set II also seem to be more sensitive to change under involvement than Set III, i.e., the recognition threshold decreases for the defenders and increases for the sensitizers. An inspection of the data reveals that picture No. 2 is most sensitive to change under involvement, especially for the sensitizers. This picture shows one man in a doorway and another man at the bottom of the steps waving goodbye. The sensitizers under involvement tend to impose aggressive content on this picture with such responses as:

Man on top step threatening the other by shaking his fist at him.

Man on step has finger up threatening the other.

Telling him to get out of the house and pointing finger at him.

The other neutral pictures show some change between conditions but not as much as picture No. 2. The sensitizers who show an increase in recognition threshold do not necessarily impose aggressive content upon the remaining neutral pictures but

rather seem to show greater difficulty in perceiving the essential aspects which yield the correct meaning of the pictures. There also occurred some minor distortions which added to the increase in the recognition threshold for involvement.

## CHAPTER IV

### DISCUSSION

The results of the experiment seem to bear out the two hypotheses. Perceptual defense and perceptual sensitization are consistently utilized in the repetition of the perceptual situation. Those subjects who were defined as defenders and sensitizers on Set I of the pictures continued to show the same perceptual mode on the next two sets of pictures. It was also shown that an accentuation of the perceptual mode occurs under involvement. The defender becomes more of a defender and the sensitizer more of a sensitizer in terms of the size of the mean differential score.

The mean differential score is a function of both the neutral and aggressive pictures. In itself it does not reveal whether the increase in size of the score under involvement is the result of only the aggressive pictures or whether the threshold for the neutral pictures is also affected. The PMV readings, however, do shed light upon this question. For the most part the aggressive pictures seem to be mainly responsible for the increase in size of the mean differential score under involvement. When the aggressive pictures are compared for the defenders and sensitizers under the neutral condition, a significant difference exists. Under involvement the difference is even more significant. This would then indicate that the sensitizers show a faster

recognition and the defenders a slower recognition for the aggressive pictures under involvement than under the neutral condition. When the defenders and sensitizers are compared for the neutral pictures under the neutral condition there is no significant difference. A similar comparison between the two groups under the involved condition reveals that the neutral pictures approach but do not reach significance at the 5% level. The defenders tend to show a faster recognition and the sensitizers a slower recognition for the neutral pictures under involvement. This would seem to suggest that under involvement both the neutral and aggressive pictures contribute to the effect of accentuation or increase in the mean differential score.

A qualitative analysis indicates that the defenders tend to elaborate and distort the aggressive pictures under involvement, thereby increasing their recognition threshold for these pictures. Under involvement the sensitizers become more accurately alert to the aggressive pictures, especially in Set II, hence decreasing their recognition threshold. The alertness to aggressive pictures is carried over to some extent by the sensitizers to the neutral pictures under the involved condition. This is for the most part reflected by the picture in Set II where a man is waving goodbye to another man in a doorway. Under dimmer light the sensitizers tend to distort this into an aggressive scene. The sensitizers do not seem to impose aggressive content upon the other neutral pictures which may be due to the fact that these pictures do not

lend themselves as readily to such a distortion. These pictures, however, do seem to show some increase in threshold for the sensitizers under involvement which appears to result from incomplete perception of the essential aspects of the pictures and minor distortions.

Bruner and Postman have suggested that after a critical point of emotionality has been reached there is a tendency to change from one perceptual mode to the other. They state that a person will use perceptual defense and then change to sensitization when the emotionality of the situation is increased. In the present study the subjects were observed under relatively neutral and involved conditions. In accordance with Bruner and Postman's statement, we would expect the subjects, especially the defenders, to change from one perceptual mode to the other in a situation of increased emotionality. An anxiety arousing situation was introduced in the form of the instruction to the subject that 'this is a psychological test which reveals how they get along with people and how nervous they are' and the subjects did become more anxious in this situation. The effect seemed to be that an increase in defense and sensitization occurred. Both the defenders and sensitizers revealed an increase in the size of the mean differential score under involvement. The results seem to agree with Menninger's (19) postulation that an exaggeration of the normal equilibrating mechanisms occurs under increased anxiety. As mentioned above the results indicate that the accentuation is not

solely a function of the aggressive pictures. Under involvement the recognition threshold of the neutral pictures also tends to change in the opposite direction from the aggressive pictures. The defenders not only perceive the aggressive pictures more slowly but recognize the neutral pictures faster. Likewise, the sensitizers recognize the aggressive pictures faster and the neutral pictures slower under involvement.

The accentuation of the perceptual mode under involvement is pointed up more clearly in order B than in order A. Set II, which is more sensitive to change than Set III, is administered under the involved condition in order B. The greater sensitivity of Set II is reflected in both the aggressive and neutral pictures. The construction of a sensitive picture requires that its recognition threshold change under involvement in opposite directions for sensitizers and defenders. The aggressive pictures in Set II show an increase in threshold for defenders and a decrease for the sensitizers. Both aggressive pictures lend themselves to greater distortion by the defenders under involvement. Picture A1, the shooting scene, depends upon the recognition of the stance and position of the hands of the man who has been shot. The sensitizers are relatively quick to perceive the correct meaning of the picture while the defenders take much longer to recognize that the man has been shot. Picture A2 also seems to become more ambiguous and subject to distortion by the defenders. This picture also requires a correct recognition of body stance



and the position of the arms in order to perceive the aggressive action of the scene. Picture A1 in Set III, the whipping scene, requires that the subjects recognize the fact that the hands are tied to the post. This detail is just as difficult for the defenders to perceive under the involved condition as it is under the neutral condition. It becomes more difficult for the sensitizer to perceive this detail under involvement. As for the neutral pictures, the one which is most sensitive to change in Set II, especially for the sensitizers, is the one in which the man is waving goodbye. The sensitizers tend to impose aggressive content upon the scene. It seems then that a sensitive neutral picture is one which also lends itself to distortion under involvement.

## Chapter V

### SUMMARY AND CONCLUSIONS

Twenty-four neurotic subjects were shown pictures of neutral and aggressive scenes under neutral and involved conditions. The pictures were exposed at 1/25 sec. under varying degrees of light intensity. Defense and sensitization were determined on the basis of the mean differential score between the neutral and aggressive pictures. Those subjects who had a lower recognition threshold for the aggressive than for the neutral pictures were considered perceptual sensitizers. Those who had a higher threshold for the aggressive than for the neutral pictures were termed defenders. There were three equated sets of six pictures. Each set contained four neutral and two aggressive pictures and the mean differential score was determined within each set. Set I was held constant since it was used to determine whether the subject belonged to the defense or sensitization group. Sets II and III were rotated so that each set was administered an equal number of times under neutral and involved conditions. The difference in sensitivity to change for these sets from neutral to involved conditions was discussed. Qualitative differences of the responses of the same set under the two conditions was also discussed. Following are the conclusions that may be drawn from the study.

- a) Perceptual defense and perceptual sensitization are consistent perceptual modes with regard to aggressive stimuli. Those subjects who show defense on Set I continued to show the same mode on the next two sets. The sensitizers also showed their preferred mode on all three sets.
- b) There is an accentuation of the preferred perceptual mode under

the involved condition. The defense and sensitization groups both showed a larger mean differential score under involved than under the neutral condition.

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