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PSYCHOSEXUAL CONFLICTS AND DEFENSES IN VISUAL PERCEPTION

by

Sherman Eugene Nelson

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Abstract

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by Sherman Eugene Nelson

Perceptual vigilance is broadly defined as a lowered threshold and perceptual defense as a raised threshold to emotionally charged stimuli. Psychoanalytic theory provides a basis for the following postulates concerning these perceptual phenomena. Impulses which are unacceptable to the ego and denied conscious expression by it are continually striving to be released into consciousness. When such impulses are not subject to ego defense mechanisms a person should be more alert to stimuli associated with the impulses (perceptual vigilance). Closer to conscious awareness, ego defense mechanisms tend to prevent recognition of stimuli related to unacceptable impulses (perceptual defense).

The purpose of the present research was to study perceptual vigilance and defense in persons with different psychosexual conflict dimensions and ego defense preferences. The following hypotheses were tested:

1. Perceptually vigilant behavior will be evoked when stimuli associated with high psychosexual conflict are presented below the threshold of clear conscious recognition, under conditions at which ego defense mechanisms are not likely to operate.

2. Perceptually defensive behavior will be evoked in subjects predisposed to avoid or repress certain psychosexual stimuli when those stimuli are presented below the threshold of clear conscious recognition, under conditions at which ego defense mechanisms are likely to operate.

The psychosexual conflicts and defense preferences of each of 44 undergraduate men at the University of Michigan were measured by the Blacky

Pictures test, the Defense Preference Inquiry and other techniques related to the Blacky Pictures.

Four Blacky pictures were selected as psychosexual stimuli for each of the subjects, to give a distribution of high and low conflicts and defense mechanism preferences. The perceptual procedures, which were given individually, consisted of flashing four Blacky pictures simultaneously in a tachistoscope at a speed below conscious recognition. In the vigilance series, which came first, the subject was simply asked to designate after each flash the position of the picture which stood out the most--a procedure designed to minimize the effects of ego defense mechanisms. In the perceptual defense series, the subject was asked to identify verbally which Blacky pictures were occupying various positions in the viewing field--a procedure designed to call ego defense mechanisms into play.

The factors of stimulus familiarity, structural qualities of the pictures and selective verbal report were controlled.

The vigilance hypothesis was confirmed by the results. On each of the six Blacky pictures (from which the four pictures shown to each subject were selected) the high conflict people were more vigilant than the low conflict people. On three pictures the differences were significant. On a fourth picture, a sizeable difference was probably not significant because of the small number of subjects. The lack of significant difference on the two remaining pictures may have been due to the psychological or physical characteristics of the pictures.

The defense hypothesis was confirmed in that subjects classified as repressors showed perceptual defense by significantly undercalling pictures relevant to their defenses. A further finding was a significant tendency for subjects who preferred projection to defend by overcalling relevant pictures.

The implications of the study for personality and perception lie in its demonstration that perceptual vigilance and defense are related to the specific personality dynamics of the individual, and the further evidence it provides to support psychoanalytic theory. Methodologically, the study points up the complexity with which individual dynamics are manifested in perception, and the value of the Blacky Pictures as stimuli in studies relating personality to perception.

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TABLE OF CONTENTS

		Page
LIST OF TABLES		v
Chapter		
I.	BACKGROUND OF THE PROBLEM	1
	A General Review of Perceptual Vigilance and Defense Studies	1
	Immediate Antecedents of the Present Study	7
	Objectives of the Present Study	13
II.	EXPERIMENTAL DESIGN	17
III.	THE SUBJECTS	21
IV.	ASSESSMENT MEASURES	23
	Measures of Conflict	23
	Measures of Defense	26
	Measures of Forgetting	35
V.	VISUAL PERCEPTION METHODOLOGY	38
	Apparatus	38
	The Stimuli	38
	The Perceptual Vigilance Procedure	40
	The Perceptual Defense Procedure	42
	The Controls	44
VI.	RESULTS: VIGILANCE SERIES	46
	Exploration of Defense Mechanisms in the Vigilance Series	48
	Defense Mechanisms in Conjunction with Conflict	51
VII.	RESULTS: DEFENSE SERIES	55
	Exploration of Conflict in the Defense Series.	62
	Conflict in Conjunction with Defense Mechanisms	64
VIII.	ACCURACY OF DISCRIMINATION	65

Chapter | Page

IX. DISCUSSION 69

Implications for Theory of Personality and Perception..... 69
Implications for Research Linking Personality and Perception..... 72
Suggested Areas for Future Investigation..... 76

X. SUMMARY 81

APPENDIX 88

BIBLIOGRAPHY 101

LIST OF TABLES

Table		Page
1.	Dimensional Conflict Intercorrelations on Pictures Used in This Study	26
2.	Scattergram of Test (A) vs. Retest (B) Choices on the DPI; N = 2405 (All Subjects on All Dimensions)	32
3.	Comparison of DPI Choices with Choices from Other Defense Sources	34
4.	Dimensional Interrelations of Each Defense Mechanism on Pictures Used in this Study	35
5.	Vigilance Series: High Conflict (+) vs. Low Conflict (O) (Mean Calls By Picture)	47
6.	Vigilance Series: Mean Calls for Each Defense Mechanism vs. Rest of Group	49
7.	Vigilance Series: Mean Calls for Each Defense Mechanism in Conjunction with High Conflict (+) and Low Conflict (O)	51
8.	Defense Series: Mean Total Calls for Each Defense Mechanism vs. Rest of Group	57
9.	Defense Series: Mean Calls on Subjects' Response Choices for Each Defense Mechanism vs. Rest of Group	59
10.	Defense Series: Mean Calls to Experimenter's Queries for Each Defense Mechanism vs. Rest of Group	61
11.	Defense Series: High Conflict (+) vs. Low Conflict (O) (Mean Calls, Present Pictures Only)	63
12.	Defense Series: Mean Calls for Each Defense Mechanism in Conjunction with High Conflict (+) and Low Conflict (O) (Present Pictures Only)	64
13.	Vigilance Effects Broken Down by Accuracy of Discrimination (Mean Calls, High Conflict Minus Low Conflict)	67
14.	Defense Effects Broken Down by Accuracy of Discrimination for Avoidance, Projection and Forgetting (Present Pictures Only)	68
15.	Assessment Summary (Conflicts and Defenses)	88
16.	Calls on the Perceptual Vigilance Series	97
17.	Calls on the Perceptual Defense Series	98

CHAPTER I

BACKGROUND OF THE PROBLEM

A General Review of Perceptual Vigilance and Defense Studies

In reviewing the relatively brief but fertile history of experimentation in the areas of perceptual vigilance and perceptual defense, the reader can be pardoned for feelings of confusion. The diversity of methodological approaches, as well as of theoretical rationales, and the controversies which this diversity has entailed make it difficult to seek out and discover common ground among the experimenters and theoreticians.

In general, however, all researchers have studied the raised or lowered thresholds of subjects to "emotionally loaded" stimuli, under conditions of rate or intensity of presentation in which it was impossible for the subjects to perceive the stimuli clearly and fully. The following review is not intended to cover all literature and experimentation in the area. Rather, studies were selected which best typify the variety of approaches used to study perceptual vigilance and defense.

Bruner and Postman were pioneers in the original postulation of the concepts of perceptual vigilance and defense. In an experiment (6) in which the reaction time of response to anxiety-laden words on a word association test was related to tachistoscopic recognition thresholds for the same words, they pointed out two perceptual processes which may operate when threatening stimuli are presented to a subject. For the

subject group as a whole, recognition time increased initially as a function of associative reaction time, rose to a maximum, and then dropped. The drop in recognition time they attributed to a tendency on the part of their subjects to be more alert to words which carried a high degree of threat. This phenomenon was termed perceptual sensitization, or vigilance. The avoidance of moderately anxiety-laden words was termed perceptual defense, a process by which they accounted for the initial increase in recognition time as a function of associative reaction time.

The formulation of perceptual vigilance and defense raised the issue of how the subject can have a raised or lowered recognition threshold for threatening stimuli prior to full reported awareness of their threatening nature. Bruner and Postman answered this type of question in the following way:

> It is not necessary either to restrict the definition of recognition to one type of response report, or insist that all systematic responses to the stimuli depend on the prior occurrence of recognition of stimuli. A stimulus can be either truthfully reported or avoided. A hierarchy of response thresholds exists in every situation, and the threshold for an effective avoidance response is frequently lower than the threshold for report. (7, p. 26-27)

Bruner and Postman therefore established an experimental rationale both for perceptual processes prior to full recognition of the stimulus and for responses other than verbal report of full recognition.

McGinnies (15) attacked experimentally the problem of high and low thresholds for threatening stimuli prior to full awareness. On the hypothesis that negatively toned stimuli would arouse characteristic autonomic reactions before conscious awareness of the stimulus, he measured G.S.R. responses of subjects while taboo and neutral words were presented tachistoscopically. He found both higher recognition

thresholds and higher G.S.R.'s for the taboo words than for the neutral words in the pre-recognition period. He attributed the higher recognition thresholds to the operation of perceptual defense. It appeared that by relating perceptual defense to a measurable physiological process, McGinnies' finding experimentally clarified the problem of what might be called "response to emotionally toned stimuli prior to conscious awareness of the stimuli."

There were methodological criticisms of McGinnies' work, however, which proved to be characteristic of those leveled at research techniques in the perceptual vigilance and defense field. Howes and Solomon (12) held that it was unnecessary to posit perceptual defense to account for McGinnies' results. They felt that the slower recognition times for taboo words could result from the fact that taboo words, being used less than neutral words, were consequently less familiar to the subjects. Higher G.S.R.'s to these words could be attributed to conflicts felt by the subject when required to say the words. Howes and Solomon felt that what McGinnies called "discrimination without awareness" was better titled "G.S.R. discrimination before verbal-report discrimination." The factor of selective verbal report was therefore securely established as a possible pitfall in all perceptual defense methodology. Differential word familiarity was also pointed up as a snare to be avoided in experiments utilizing verbal stimuli.

Lazarus and McCleary (14) attempted to meet the objections of word familiarity and selective verbal report by using nonsense syllables. Shock was conditioned to five out of ten syllables. All the syllables were then presented in a tachistoscope and measures taken of G.S.R. and correct and incorrect report of the syllables shown. Obtaining higher

G.S.R.'s for shock-conditioned words, they concluded that autonomic discriminations could definitely be made by subjects when conscious recognition of the stimuli was not operative. Nonsense syllables paired with electric shock, however, were not identified correctly with any less frequency than the neutral syllables. Apparently the stimuli were not meaningful enough for perceptual vigilance or defense effects to manifest themselves at higher levels of recognition.

Rosenstock (18) set out to study perceptual effects of the psychoanalytic defense mechanism of repression. The author took the position that the single words used as stimuli in so many perception experiments were inadequate in tapping impulses. He therefore used experimental sentences designed to tap sexual and aggressive impulses directed at one or both of the parents, along with "unpleasant" but non-sexual and non-aggressive control sentences. Projecting the sentences on a screen at varying degrees of illumination he found that the "loaded" sentences were significantly more difficult to see than the control sentences. A sex difference was reported in that women found it more difficult to see sentences with aggressive content, while men had greater difficulty on sentences with sexual content. He concluded that, "It can now be stated with some assurance that repression is basically, or at least secondarily, perceptual." Rosenstock's experiment is noteworthy as one of the earlier attempts to relate perceptual defense to a psychoanalytic concept, that of repression, and in its use of more complex stimuli, such as sentences. He did not, however, study repression in terms of individual dynamics, but only as it was assumed to operate for sex groups.

An auditory perceptual experiment was done by Lazarus, Eriksen and Fonda (13). In an approach to perceptual experimentation in terms

of individual personality dynamics, they assessed sexual and aggressive needs in a Veterans Administration neuropsychiatric out-patient group by means of a sentence completion test. Sentences below clear audibility levels dealing with sexual, aggressive and neutral themes were then played for recognition. Patients with intellectualizing defense mechanisms (determined on the basis of the sentence completion test) perceived threatening material with significantly greater accuracy than those with repressing mechanisms.

Eriksen (9) also attacked the problem of perceptual defense in a context of individual personality dynamics. He presented pictures tachistoscopically which represented aggression, succorance and homosexual needs, as well as pictures with neutral content as controls. His subjects, Veterans Administration psychiatric patients selected from diagnostic categories in which the three needs were assumed to be especially strong, were first given a word association test to assess ego tolerance of the need areas. For the group as a whole, significant positive relationships were obtained between disturbance scores on the word association test and the degree of perceptual threshold elevation for the corresponding need scores. Eriksen concluded that it had been demonstrated that subjects defend perceptually against unacceptable needs. Although he did not obtain large relationships, he attributed this to the grossness of the techniques used and to "personality variables such as ego strength and type of defense mechanism."

In the last two years, perceptual defense has come under increased suspicion, from both a methodological and a theoretical standpoint. Prominent in criticism of this concept has been Postman, one of its original popularizers. Postman, Bronson and Gropper (17) set out to answer the question of whether there is any evidence for perceptual

defense in word recognition when the factors of familiarity, set and selective verbal report are taken into account. Finding that recognition thresholds for taboo and neutral words could be significantly altered by these variables, they concluded that the concept of perceptual defense was not supported by previous experimentation on word recognition.

Postman (16) relegated perceptual studies using sentences and pictures to the same limbo as studies using words, by pointing out that the extreme difficulty of evaluating the familiarity and structural characteristics of neutral and critical stimuli makes it impossible to interpret threshold differences as indicative of perceptual defense.

Studies using independent personality measures were dealt with by Postman as follows:

> Similar difficulties of interpretation arise in studies which correlate sensitivity to critical stimuli with independent personality measures of the subjects. Even though the personality measures purport to classify subjects in terms of their proneness to defensive reactions, it does not follow that the threshold differences observed do, in fact, represent different degrees of perceptual defense. A rigorous operational definition of defense would have to anchor the concept in antecedent as well as consequent conditions. (16, p. 299)

He goes on to point out that as the antecedent conditions have not been fully specified or brought under experimental control, differences in observed threshold can be explained by such variables as familiarity with the stimuli and selective set.

Not content with his extensive, and by no means unjustified, attack on perceptual defense methodology, Postman has also levelled a broadside against the theoretical position that the phenomena of what has been termed perceptual defense are the result of an active process of repressing or of avoiding threatening stimuli. He now subsumes perceptual defense under the Bruner-Postman hypothesis theory:

> An hypothesis is defined as a predisposition of the perceiver to organize stimulus cues in specific ways. Such hypotheses are anchored on the antecedent side in conditions of stimulus input and specified conditions of the organism (including drives and motives) and on the consequent side in systematic perceptual responses (discriminations, verbal reports, etc.) Hypotheses vary in strength, i. e., they vary in the amount of stimulation necessary to arouse, confirm or deny them. We have found the concept of hypothesis useful in the analysis of a considerable body of experimental data, including the phenomena of perceptual defense which can now be economically conceptualized in terms of interference among competing hypotheses. What appears to be perceptual defense results from the dominance of strong alternative hypotheses rather than from active repression of the inimical or dangerous. In the presence of partial information, strong hypotheses incompatible with the threatening stimulus may be evoked. . . . If this is the case, the subject will appear to be defending himself against perception. If, however, hypotheses related to the negative stimuli are strong, the opposite of defense will appear to operate. Thus the demands of theoretical parsimony led us to abandon perceptual defense as a special principle of perception and to fit the phenomena to which it referred in a broader theoretical context. (16, p. 300)

Immediate Antecedents of the Present Study

The present study derived from three previous studies, by Clapp (8) and Blum (3, 4), which were based on the following postulates of psychoanalytic theory: Psychoanalytic theory holds that psychosexual impulses which are unacceptable to the ego and denied conscious expression by it are continually striving to be released into consciousness and behavior. In general, these impulses are kept well under control by ego defense mechanisms and are manifested only indirectly through dreams and slips of speech or in psychoanalysis with the aid of such specialized techniques as free association.

We would therefore expect the degree of perception of stimuli capable of triggering off these psychosexual impulses to be a function of levels of awareness. We know from the efficacy of psychotherapeutic

free association and dreams that unconscious areas can be tapped at which ego defense mechanisms are much less successful in holding back awareness of psychosexual impulses. In an area far enough removed from conscious awareness a person should, in the absence of controls, be more alert or sensitive to stimuli associated with these impulses. Here is the basis in psychoanalytic theory for perceptual vigilance. Closer to awareness, ego defense mechanisms operate to prevent a conscious awareness of stimuli which would touch off unacceptable impulses.

While the studies of Eriksen and Lazarus and Rosenstock had approached perception in a context of psychoanalytic theory, the first experimental study in which both perceptual vigilance and perceptual defense were closely related to their formulations in psychoanalytic theory was done by Clapp (8). He used as perceptual stimuli the Blacky Pictures (2), a projective technique for assessing personality dynamics along psychosexual dimensions (1). Clapp's hypothesis was:

> When "more" and "less" emotional stimuli are presented in pairs at two levels of unconscious awareness, there will be a relative shift in the judgment of perceptual clarity, from the more emotional stimulus seen as clearer at the lower level (vigilance) toward the less emotional stimulus seen as clearer at the higher (defense).(8, p. 7)

Blacky pictures were picked for the pairings on the basis of the physical qualities of the pictures and on the degree of emotionality associated with the pictures on the basis of psychoanalytic theory. Three pairs of pictures, two pairs combining a more emotional with a less emotional stimulus and one pair consisting of two less emotional stimuli, were presented to the subjects, in groups, at speeds of 1/20 sec., 1/17 sec., and 1/25 sec. for the lower level of unconscious awareness

or level of vigilance, and at speeds of 1/6 sec., 1/5 sec., and 1/7 sec. for the higher level of unconscious awareness or level of perceptual defense. Subjects were in three groups. The experimental group was given the group Blacky test before tachistoscopic trials in order to "saturate" them with the emotional qualities of the pictures. One control group had no prior experience with the Blacky Pictures before the tachistoscopic presentation, to check on the possibility of a perceptual shift due to the physical characteristics of the pictures alone. The other control group was given the Blacky Pictures prior to tachistoscopic presentation, but the instructions and pictures were modified in the direction of a non-emotionally loaded, more neutral set. All subjects were asked which picture in a given pair seemed to be the clearer.

The experimental subjects showed statistically significant shifts from relative clarity preference for the emotional stimulus at the fast speeds to preference for the less emotional stimulus at the slow speeds, with no shift between the pair of less emotional stimuli. However, the findings in the case of the control groups raised some question as to whether the hypothesis had been clearly confirmed. One more and less emotionally loaded pair of pictures, and the neutral pair of pictures, significantly supported the hypothesis, in that the shift in relative clarity did or did not occur in accordance with the prediction for the specific group. In the case of the third pair, however, consisting of a more and less emotional picture, the shift in relative clarity was significant, and in the same direction, on both control groups. The author concluded that the evidence was indeterminate as a basis for accepting or rejecting the hypothesis.

The importance of Clapp's study lies in its probable, though not conclusive, confirmation of the underlying psychoanalytic constructs for perceptual vigilance and defense, and for its use of stimuli closely relevant to dynamic factors mediating the perceptual process, the Blacky Pictures. Clapp concluded his study by pointing up the need for individual perceptual experimentation based on psychoanalytic theory.

In a study entitled "An Experimental Reunion of Psychoanalytic Theory With Perceptual Vigilance and Defense" (3), Blum tested perceptual vigilance and perceptual defense as psychoanalytic phenomena on individual subjects. In testing the vigilance hypothesis, naive subjects were first "sensitized," by structuring the Masturbation Guilt Blacky picture (V) as traumatic for 7 male subjects, and the Oral Sadism picture (II) as traumatic for 7 female subjects. These two pictures were then presented simultaneously in a series of tachistoscopic flashes, along with two other Blacky pictures, Oral Eroticism (I) and Identification Process (VII), which had been slightly altered to serve as distractors. In the vigilance series, the patterns of Blacky pictures were flashed at .03 sec., and the subjects were asked to indicate the position of the one picture "standing out the most." In the defense procedure, the tachistoscopic speed was slowed to .20 sec., and the subjects were asked to locate the correct positions of selected pictures. The changed set and slower speed were calculated to bring the stimuli closer to conscious awareness and facilitate the operation of ego defenses.

The vigilance hypothesis was confirmed in 11 of the 14 individual cases ($P < .05$) as most subjects responded relatively more often to the psychosexual stimulus which had been structured as traumatic

for their sex than they had done on pre-sensitization trials, although there was no conscious recognition of the pictures. The defense hypothesis was supported in 12 of the 14 cases ($P < .006$). At the closer to conscious level, most of the subjects had more difficulty locating a traumatic psychosexual stimulus picture than a relatively neutral one, although earlier, in the vigilance series, they had found it easier to locate the traumatic one. Blum pointed out that further research in the area of perceptual vigilance and defense should concern itself with individual differences in response, as mediated by personality dynamics assessed prior to the perceptual procedure. If significant trends referrable to psychoanalytic theory could be shown on groups, as in Clapp's work, and in sex differences, as in Blum's, a more precise knowledge of individual conflicts and defense mechanisms should make possible greater precision and refinement of prediction on perceptual vigilance and defense behavior.

A second study by Blum (4) was devoted to an investigation of the relationship between perceptual defense and a specific defense mechanism, that of repression, when in conjunction with psychosexual conflict. The hypothesis was: "Subjects predisposed to use the mechanism of repression in conjunction with a given conflict will, when confronted subliminally with a conflict-relevant stimulus, show defensive behavior directly traceable to the perceptual process itself."

The subjects, 17 advanced graduate students in clinical psychology, were assessed for conflict and the defense mechanism of repression on psychosexual dimensions represented by the Blacky Pictures. As all of the subjects were "sophisticated" in that they were familiar with the Blacky Pictures, the Blacky test could not be utilized in the

conventional way to measure psychosexual conflict. Therefore the pictures were utilized in a series of recall and problem ranking methods, independent of prior knowledge of the administration and prior knowledge of the test, to provide conflict and repression indicators.

The subjects were asked to name four Blacky pictures flashed simultaneously in a tachistoscope at .03 sec., a speed well below conscious awareness. The subjects were not informed, nor did they become aware of the fact, that the same four pictures, I (Oral Eroticism), II (Oral Sadism), V (Masturbation Guilt) and VII (Identification Process), were presented over and over again. Therefore, all eleven Blacky pictures were called. This provided an effective control on the possibility of selective verbal report.

The calls of subjects with conflict and repression on given pictures were compared with those of subjects without conflict and repression, and the comparisons were made for calls both to pictures actually shown and to absent pictures. If selective verbal report were the significant factor in the subjects' responses, significant undercall tendencies could be expected for the conflict + repression group on both present and absent picture call comparisons. As predicted, those with conflict + repression on given psychosexual dimensions significantly undercalled pictures associated with that dimension when the pictures were actually shown, but not when they were absent.

Perceptual defense was therefore linked directly to high psychosexual conflict with the defense mechanism of repression. Equally as significant, the variables which Postman (16) had pointed up as making perceptual defense results dubious, if not invalid, were controlled. Familiarity with the stimulus and experimental set were held constant, and selective verbal report was checked by the present-absent picture

technique. Antecedent conditions were to be found in the prior assessment of psychosexual conflict and the defense mechanism of repression. Blum took the position that the Bruner-Postman hypothesis theory of perceptual defense was incompatible with his results, unless it were to be held that the conflict + repression group had a strong hypothesis not to perceive the threatening stimulus, and the response of not perceiving was tripped off by the appearance of the stimulus. If this were true, he asks, "Why does the individual develop a hypothesis not to perceive?" and points to psychoanalytic theory and perceptual defense as the source of the best answer. The studies of Clapp and Blum therefore made the following contributions to study in the area of perceptual vigilance and defense: (a) they demonstrated the intimate relationship between perceptual phenomena and psychoanalytic theory, with good methodological controls; (b) they contributed, tested and verified the value of stimuli relevant both to individual dynamics and to perception--the Blacky Pictures; and (c) they opened the way to studying perceptual phenomena in terms of individual personality dynamics such as psychosexual conflicts and defense mechanisms.

Objectives of the Present Study

The present study is an investigation of perceptual vigilance and defense in terms of a variety of psychosexual conflict dimensions and defense mechanism preferences specific to the individual. The perceptual vigilance behaviors shown in Clapp's study (8) and in Blum's first study (3) had its theoretical rationale in a sensitivity to stimuli associated with repressed psychosexual impulses. This sensitivity was possible only because levels or areas of the unconscious were tapped at which ego defenses did not operate to control the impulses.

Neither of the two studies attempted to relate vigilance to psychosexual conflicts specific to the individual, but restricted themselves to tapping vigilance tendencies assumed to operate in general for a group or subgroup. Clapp assumed, on the basis of psychoanalytic theory, that certain Blacky pictures were "more emotional" in content, and others less, for subjects in general, and paired his presentation pictures on this basis. Blum structured the Masturbation Guilt (V) Blacky picture as more traumatic for males in general and the Oral Sadistic picture (II) as more traumatic for women in general. The assumptions made, that the Blacky pictures and the psychosexual conflict dimensions they represented were of general applicability to both mixed and sex-split groups, were generally confirmed in the results. However there were subjects who were exceptions to the general findings, and differential degrees of vigilance and defense were found among those whose results were in the predicted direction.

A major purpose of the present study, therefore, is to study the effect on perceptual vigilance of high and low conflict on a number of psychosexual conflict dimensions. It would follow from psychoanalytic theory that a person with a high degree of conflict in a psychosexual dimension would be more vigilant, at levels of the unconscious where ego defenses are relatively inoperative, to stimuli relevant to that dimension, than a person with a low degree of conflict. In the person who has low conflict on a given psychosexual dimension, the impulses associated with the dimension are not pressing as strongly for release. Therefore the pressure of impulses striving to break through into conscious areas is far less for low conflict people than those with high

conflict. If a psychosexual cue is introduced or "slipped under" the ego defense mechanisms, the more highly conflicted person will be more alert, due to the greater pressure of his impulses.

The second major area of investigation is the effect of specific ego defense mechanisms on perceptual defense. Ego defense mechanisms, according to the theory, ward off impulses which approach conscious awareness, and perceptual defense results. However, the question arises as to whether perceptual defense always takes the form of a warding off or an avoidance of the threatening stimuli.

Both theory and previous research on the defense mechanism of repression indicate that a higher threshold to threatening stimuli is associated with this mechanism. If impulses are prevented from reaching awareness by being pushed into the unconscious by repression, it would follow that stimuli associated with these impulses would be avoided. Blum's finding (4) that subjects with high conflict and repression significantly undercalled pictures associated with the conflicted dimension provided experimental evidence for this postulation. However, in this study repression was considered only when it occurred with high conflict; subjects predisposed to repress without high conflict were not studied. In view of the general avoiding or warding-off nature of the mechanism of repression, it might be suggested that all repressors would show a tendency to undercall stimuli associated with psychosexual affect.

Too little is known about the operation of such other ego defense mechanisms as projection, regression, reaction formation and intellectualization to state hypotheses. It might be inferred from psychoanalytic theory that the projector would not avoid stimuli associated with his unacceptable impulses, but that his defense would be one of

over-alertness to them, because he is highly prone to seeing in others manifestations of impulses threatening to him. Therefore perceptual defense in the projector may take the opposite direction to the avoidance of threatening stimuli postulated for the repressor.

Similarly it might be argued that intellectualization and regression are somewhat less "restrictive" defenses than repression and reaction formation in that they allow somewhat more expression of the impulse. There is an indication in the auditory perceptual study of Lazarus, Eriksen and Fonda (13) that intellectualizers are somewhat more accurate in perceiving threatening material than repressors.

In addition the effects on perceptual vigilance and defense of the other defense mechanisms when they occur in conjunction with high and low conflict can be investigated.

CHAPTER II

EXPERIMENTAL DESIGN

The experiment is designed to test the following hypotheses:

1. Perceptually vigilant behavior will be evoked when stimuli associated with high psychosexual conflict are presented below the threshold of clear conscious recognition, under conditions at which ego defense mechanisms are not likely to operate.

2. Perceptually defensive behavior will be evoked in subjects predisposed to avoid or repress certain psychosexual stimuli when those stimuli are presented below the threshold of clear conscious recognition under conditions at which ego defense mechanisms are likely to operate.

In perceptual vigilance, while the hypothesis states that vigilance behavior will occur as a result of high conflict, the study has the further aim of exploring possible relationships between vigilance and: (a) the ego defense mechanisms of repression, projection, regression, reaction formation and intellectualization, irrespective of high or low psychosexual conflict; and (b) the various ego defense mechanisms when they occur in conjunction with high or low psychosexual conflict.

While it is hypothesized that perceptual defense behavior will be shown by subjects who are predisposed to avoid or repress, an exploratory investigation is also made of relationships between perceptual defense and: (a) the other ego defense mechanisms; (b) high and low

psychosexual conflict, irrespective of defense mechanisms; and (c) the various ego defense mechanisms when they occur with high or low psychosexual conflict.

The subject group, which consists of 44 undergraduate men in a fraternity at the University of Michigan, is described in Chapter III.

Psychosexual conflicts are assessed by the Blacky Pictures test (2), from which scores of high or low conflict on nine psychosexual dimensions are derived. Defense preferences for the defense mechanisms of avoidance, projection, intellectualization, reaction formation and regression on each of the nine psychosexual conflict dimensions are tested by the Defense Preference Inquiry (DPI) (see Appendix B) and other techniques related to the Blacky Pictures. A preference for avoidance on the DPI, and the forgetting of Blacky Pictures, which is tested by a recall technique, are considered as indicators of repressive tendencies. The assessment procedures are described in more detail in Chapter IV.

Four Blacky pictures are selected for each subject as psychosexual stimuli for the perceptual procedures. The pictures are chosen from among I (Oral Eroticism); II (Oral Sadism); V (Masturbation Guilt); VI (Castration Anxiety); VIII (Sibling Rivalry); and IX (Guilt Feelings). The perceptual vigilance and defense procedures are given individually to the subject in the same session, with the perceptual vigilance procedure first in sequence.

Both vigilance and defense procedures consist of flashing four Blacky pictures simultaneously in a tachistoscope, with the pictures varying in position from exposure to exposure. The same four pictures are flashed repeatedly for a given subject, although the combinations of four pictures selected from the six differs from subject to subject.

To rearouse affect associated with the pictures and to refresh the subject's memory he is briefly shown the six pictures and told that the four Blacky pictures he will be seeing in the tachistoscope will be from among them.

The only difference between the perceptual vigilance and perceptual defense procedures is in the response task which is given to the subject. In the vigilance procedure, which is first in time, the subject is asked only to designate after the flash the position of the picture in the viewing field which stands out the most. This task is designed to tap unconscious processes in such a way that ego defense mechanisms are not likely to operate and therefore to allow impulse expression in terms of relevant pictures, i. e., pictures on which the subject has high conflict.

In line with the vigilance hypothesis, the prediction is that subjects with high conflict on a psychosexual conflict dimension will call the positions of the relevant Blacky picture significantly more often than will the subjects with low conflict on the dimension.

In the perceptual defense procedure, which immediately follows the perceptual vigilance procedure, the task is changed by asking the subject after each flash to name which Blacky pictures are occupying various positions in the viewing field. The necessity of bringing Blacky pictures to mind, by identifying them verbally, is intended to call ego defense mechanisms into play. In accordance with the perceptual defense hypothesis, the prediction is that subjects predisposed to avoid or repress stimuli associated with given psychosexual dimensions will significantly undercall Blacky pictures relevant to those dimensions.

For the exploratory sections of the study, conflict scores, as well as defense preferences for which hypotheses are not stated, are related to the defense series; defense preferences to the vigilance series; and combinations of conflict + defense preferences are related to both series.

The factors of structural differences in the pictures, differential stimulus familiarity and selective verbal report are controlled.

CHAPTER III

THE SUBJECTS

The subjects were 44 members of Tau Delta Phi, a Jewish fraternity at the University of Michigan. The group was given a $500 grant, from the funds of the research project of which the present study formed a part, for their services. This money was paid to the chapter, rather than to individual members, and was used for the benefit of the fraternity as a whole. In this way the cooperation of each individual member was secured, since by contributing to the research he was also helping his fraternity.

Before the assessment procedures, the subjects were given an orientation on their roles in the research in a talk to the group. They were told that they were to participate in research in the areas of personality and social behavior and that further details could not be given at that time for fear it might influence the results. It was stressed that they were helping to make possible an extensive and intensive program of personality research which had not been done since Murray's personality assessment of college men. Complete feedback on the purposes and methods of the project was promised at the end of the testing program. The subjects were assured that the material collected would remain confidential, and that each person's data would be coded, rather than identified by name.

Each member of the group was asked to contribute approximately 15 hours to the project over the period of the following few months, which would be distributed among group and individual sessions. It was emphasized that total cooperation was necessary, and that missed appointments for testing procedures would seriously hamper the design and the schedule of the project. The subjects were cautioned prior to and during the various assessments not to divulge any experimental procedure to fellow subjects who had not yet been tested.

Following is some of the most important descriptive information on the composition of the subject group. The typical subject is a little over 19 years old, majoring in a business or pre-professional course. His father is a business or professional man with an annual income of between $9,000 and $15,000. The subject has been raised in a large city or metropolitan area. He is most likely to be making about a B- average in college. It is important to stress that three-quarters of the group have either taken no psychology courses, or only a beginning course.

Age: Median = 19 yrs., 4 mo. (at time of testing)
Range = 18-27

College Major:

Business	16
Law	2 + ½
Medicine	7
Dentistry	2
Political Sci.	6
Economics	2
Speech	2
Engineering	2
Journalism	1
Other	3 + ½

Father's Occupation:

Unskilled	0
Semi-skilled	0
Skilled	1 + ½
Farmer	0
Businessman	33
Professional Man	9

Family Income:

Under $3000	0
$3000-5000	0
$5000-7000	8
$7000-9000	3
$9000-15,000	12 } + 3
$15,000-25,000	8 }
Over $25,000	5

Size of Town Where Most of Life Spent:

Under 10,000	4
10,000-50,000	2
50,000-100,000	2
100,000-1 million	6
Over 1 million	30

(Often smaller town is suburb of city)

Psychology Courses Taken:

None	18
1	15 (intro course)
2	5
3	2
4	1
5 or more	3

CHAPTER IV

ASSESSMENT MEASURES[1]

The two personality variables specified in this investigation are intensity of psychosexual conflict and type of preferred defense. In this chapter the methods by which conflict and defense were assessed will be examined in some detail.

Measures of Conflict

Measures	Dates of Administration
1. Standard Group Blacky	October 19-27, 1953
2. Picture Problem Ranks	December 14-17, 1953

Since their inception in 1946, the Blacky Pictures have been used to assess intensity of disturbance or conflict along a series of psychosexual conflict dimensions. The original scoring system (1) was constructed in *a priori* fashion and subsequently revised on the basis of an internal consistency analysis of several hundred protocols obtained from normal and hospitalized groups.[2] The latter revision is used in the present study. Four sources of data contribute to the final conflict score on each dimension: (a) spontaneous story about the picture;

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[1]This chapter, which has been written in connection with a larger research project of which this study is a part, is to a great extent common to three dissertations.

[2]Revised scoring system for research use of the Blacky Pictures, available in mimeographed form from the author of the Blacky Pictures, Gerald S. Blum.

(b) multiple choice and open-ended inquiry items; (c) related comments occurring in response to other pictures; and (d) cartoon preferences obtained at the end of the test. These four sources, which are intended to tap different levels of response to a given psychosexual conflict dimension, are described in detail in the Blacky manual (2). Of the four, subjectivity of scoring is a major problem only for the spontaneous story. Three graduate students in clinical psychology scored every story independently and a pooling conference was then held with the author of the test. The per cent agreement on presence or absence of conflict for each member's original scores with the final pooled scores ranged from 77% to 100% throughout all the dimensions, with a median of 92%.

In addition to the above measures derived from the standard group administration of the Blacky Pictures, a new technique called Picture Problem Ranks (Self) was included in scoring conflict. This procedure, hereafter referred to as PPR, was also administered in group form, approximately seven weeks after the standard Blacky test and subsequent to several other tasks involving the pictures. It makes use of the following instructions to the subjects:

> As you have probably all guessed by now, each of the Blacky Pictures represents a possible problem area. Your next job will be to rank the eleven pictures according to how you see them as problems in yourself. In some cases you may not be sure exactly what problem is supposed to be portrayed by the picture, but don't let that disturb you. Just rely on your intuitive feelings about how much each picture bothers you and rank them all from 1 through 11. Go about your ranking in the following way: Begin by placing a "1" opposite the letter of the picture which you feel is most of a problem in yourself, and an "11" opposite the letter of the picture which you feel is least of a problem in yourself. Next do ranks 2 and 10; then 3 and 9. Finally, fill in the remaining ranks in any sequence you wish. You will only have a few minutes, so record your first impressions and work rapidly.

On the assumption that pictures which the subject singles out as representing most of a problem in himself should actually reflect conflict in those areas, PPR ranks 1 and 2 were correlated with the standard Blacky dimensional scores. The overall relationship was highly significant ($P < .001$) and the positive direction was upheld in each of the separate dimensions. Accordingly, ranks 1 and 2 were included as indices of conflict.

The final dimensional conflict scores assigned to the subjects (see Appendix A) were therefore derived from five sources: the four sources obtained from the standard Blacky, and the Picture Problem Ranks 1 and 2. A dimensional score for any given subject was obtained first by adding up his number of +'s or conflict indicators (each source is scored in terms of 0, + or ++ and an additional + was included for PPR 1 and 2), and then by splitting the scores of the total group of subjects as close to the median as possible on every dimension. Thus each subject eventually wound up with a score of either high conflict (+) or low conflict (0) on every dimension. It should be noted at this point that no assumptions are made about the absolute amount of conflict in an individual, but rather his relative standing in the upper or lower half of his group.

Table 1 shows the tetrachoric correlations among the Blacky dimensions used in this study. It may be seen that three of these relationships are significant at the $< .10$ level in comparison with chance expectancy of 1.5.

TABLE 1

DIMENSIONAL CONFLICT INTERCORRELATIONS
ON PICTURES USED IN THIS STUDY

	Pictures					
	I	II	V	VI	VIII	IX
Oral Eroticism (I)		-.01	.35	-.14	-.16	-.01
Oral Sadism (II)			-.49*	.41*	.11	.22
Masturbation Guilt (V)				-.11	-.28	-.03
Castration Anxiety (VI)					-.43*	-.15
Sibling Rivalry (VIII)						.08
Guilt Feelings (IX)						

*Significant at the $<.10$ level.

Measures of Defense

Measures	Dates of Admin.
1. Defense Preference Inquiry, Form M53 (1st admin.)	Nov. 19-Dec. 1, 1953
2. Defense Preference Inquiry, Form M53 (2nd admin.)	Dec. 14-17, 1953
3. Picture Problem Ranks (Self)	Dec. 14-17, 1953
4. Picture Problem Ranks (Group)	Dec. 14-17, 1953
5. Standard Group Blacky	Oct. 19-27, 1953

The major source of data for the assessment of defense was the Defense Preference Inquiry, Form M53, for the Blacky Pictures. The purpose of the DPI is to tap defensive reactions to psychosexual stimuli in an indirect, though objectively scorable, fashion. The subtlety of the approach lies in the fact that the subject is asked to judge a series of alternatives (each an operational definition of a defense mechanism) in terms of "how well they represent the way Blacky seems to be feeling or acting" in a particular picture--in other words, encouraging him to identify with Blacky and thereby reveal his own personal reactions. Spontaneity of response is further facilitated by very short time limits,

which preclude the possibility of careful deliberation in assigning the ranks. Objectivity of scoring is achieved by having the subject simply rank-order a given set of statements for each dimension.

The first study to make use of this method was done by Goldstein (10) in 1951. The latter explored the consistency of defense preference among a mixed group of male and female undergraduates and also the interrelationships of choices among the defenses themselves. This first version of the DPI, which came into being only after a painstaking series of preliminary tryouts, contained eight of the Blacky pictures. The four mechanisms operationally defined on each of these dimensions were repression, reaction formation, projection and regression. The face validity of each statement was established in advance by judges' ratings, and the differential popularity of statements within a set of four was minimized by a process of trial and revision. It was necessary to attempt to meet the criterion of roughly equal group choice among the four statements because any extremely popular or unpopular item would work against the influence of psychological forces in the subject's responses. Also, the aim of the research was to examine defense preferences within the group and the criterion of equal mean choice permitted a greater spread of responses.

Goldstein found that most of his subjects tended to prefer a variety of defenses across the eight dimensions, e. g., repression on Oral Eroticism, reaction formation on Oral Sadism, projection on Oedipal Intensity, and so forth. However, a significant minority tended to choose the same defense, regardless of t he conflict area. These people with "rigid" preferences he labeled "general defenders." The latter group also turned out to show more disturbance in their spontaneous stories

for the Blacky Pictures. In analyzing the relationships among the defenses he discovered a mutual affinity between choices of repression and reaction formation on the one hand, and between projection and regression on the other, all in accordance with theoretical expectation.

The next investigator to employ the DPI was Sinnett (21) who sought to relate the ranks to the ordering of statements based on conflict-laden stories comparable to three dimensions of the Blacky Pictures, and to the recall of story content depicting the various defense mechanisms. Primarily a methodological study, this research pointed to two important considerations in the evaluation of DPI items--differential plausibility and face validity.

Shire (20) utilized the DPI in a more intensive analysis of the personality characteristics of the "general defender" in contrast to that of the more prevalent "specific defender." The former proved to be, as predicted, significantly more maladjusted than the latter on two genotypic measures--the Munroe Inspection Technique for the Rorschach and the spontaneous stories on the Blacky. On the more phenotypic Guilford-Martin GAMIN those general defenders in the repression and reaction formation categories turned out to have significantly high facade scores, i. e., they were defensive in filling out the inventory in an effort to "look good" even though their responses were anonymous. With respect to rigidity, there were no differences between the defender types on two measures--a Rorschach rigidity scale and the California F-Scale.

Fourth in the succession of DPI studies was one by Segal (19), involving the prediction, based on type of defender, of attitudes expressed by college girls toward their mother during a personal interview. As expected, those girls in the general defender category were less

able than the specific defenders to express feelings of hostility or dependency toward the mother, despite the fact that the two groups had been equated for strength of hostile or dependent impulses.

Previous to this investigation an attempt was made to extend the DPI to include all eleven Blacky Pictures, with five instead of four defenses for each one. However it was not possible to write defense items strictly relevant to the conflict categories on VII (Identification Process) and XI (Love Object) and these dimensions were eliminated from the data analysis. However, they did serve more than a heuristic purpose, for their presence made possible uniform exposure to all of the pictures, a condition necessary for a number of the investigations which followed.

The other extension, five defenses instead of four, was a more substantial gain in the direction of comprehensiveness. Fenichel (11) lists the following nine psychoanalytic defense mechanisms: sublimation, denial, projection, introjection, repression, reaction formation, undoing, isolation and regression. This list can be immediately reduced to seven, for denial and repression are considered very close (the latter is described as a derivative of the former), and undoing is intimately related to reaction formation. Sublimation was discarded because of the difficulty in translating this defense into meaningful responses to the Blacky Pictures. Of the remaining six mechanisms, five were retained. Attempts to compose introjection statements proved to be a series of repetitions of Blacky imitating his parents, and it was felt that the flavor of the defense would be lost in the superficiality of the items, to say nothing of their monotony. Isolation was added to the original four in one of its most common forms, intellectualization.

Also, the repression-denial category was renamed with the generic term "avoidance," since statements resembling both repression and denial alternatives occur in the DPI. Thus, the final list of defenses tapped on each of the nine Blacky conflict dimensions includes the following:

Avoidance

Reaction Formation

Projection

Regression

Intellectualization

A "neutral" alternative was not included among the inquiry statements for the following reasons: (a) primary interest was in the relative defense preferences within the group of subjects; (b) the excessive use of a neutral or no response category would serve as an evasion of the defense items; and (c) the indefinable quality that a "neutral" response to a dimension of psychosexual conflict would have.

Statements representing the five defenses were pre-tested on large groups to check for equal popularity. The final form, DPI M53, can be found in Appendix B, along with the mean ranks for each item obtained in the present group of subjects. Only five of the 45 statements used in the study (avoidance on III, IV, and IX; intellectualization on IV; and projection on V) do not fulfill the criterion of being in the middle range, i. e., with group means between ranks of 2.5 and 3.5.

The preliminary instructions to the subjects were as follows:

> The first task tonight will be different from the last time but will again involve your reactions to the Blacky Pictures. We are going to flash each picture for 15 seconds, during which time we want you to think about the story you wrote last time, if you can remember it. After the 15 seconds on a picture are up, you will be asked to turn the page to a series of five statements describing some possible feelings or reactions of Blacky in the cartoon you just saw. We want you

to rank these statements as to how well you think they represent the way Blacky seems to be feeling or acting in that situation. Naturally, there are no right or wrong answers involved. Just write a "1" alongside the statement that fits best, a "2" alongside the second best, a "3" for the third best, a "4" for the one that fits fourth best, and a "5" for the one that fits worst. Regardless of how well or poorly the statements seem to fit, be sure to rank them all from 1 through 5. Never leave a statement unranked. You will have 45 seconds for each set of rankings, so you'll have to work rapidly. There will be a warning when only 10 seconds are left. Never turn a page until I give the signal and never look back at what is already done. Any questions? All right, turn to the back of the next page and begin. (After 35 seconds:) 10 seconds to go. Be sure you have ranked all the statements from 1 through 5. (After 45 seconds:) Stop!

The DPI was re-administered to the subjects from three to four weeks (a few subjects had only a two-week interval) after the first administration. This was done to obtain a more stable measure of defense preference over time. The instructions presented below contain a slight modification from the first administration in that subjects were asked to begin each set of rankings by designating their first and last choices. Apart from serving as a plausible rationale for retesting, the modification enabled one to observe changes in the "5" ranks under the two different instructions.

Next we're going to ask you to make some more rankings on statements you saw last time, but in a slightly different way. In these booklets, you remember, are statements describing the way Blacky is feeling or acting in each of the Blacky Pictures. We'll show each picture briefly to refresh your memory and then give you 45 seconds, as before, to rank the statements. But tonight, begin by looking for the statement that <u>fits best</u> and place a "1" opposite it. Next look for the one that <u>fits worst</u> and place a "5" opposite it. Finally, fill in the remaining ranks in any order you wish. Be sure to follow these instructions in going about the ranking. Start with the best statement--number 1, then record the worst--number 5, and finally numbers 2, 3 and 4. Any questions?

Table 2 shows the relationship between choices on test and retest. The reliability estimates directly pertinent to the way the ranks were subsequently used in the defense assessment are the per cent

TABLE 2

SCATTERGRAM OF TEST (A) VS. RETEST (B) CHOICES ON THE DPI;
N = 2405 (ALL SUBJECTS ON ALL DIMENSIONS)

A Ranks	B 5	4	3	2	1
1	29	52	50	100	250
2	53	80	103	135	110
3	78	94	148	109	52
4	114	145	104	83	35
5	207	110	76	54	34

$r = .45$ ($P < .001$)

% First Choices on A coming out as First or Second Choices on B = 73%
% First Choices on B previously given as First or Second Choices on A = 75%
% Fifth Choices on A coming out as Fourth or Fifth Choices on B = 66%
% Fifth Choices on B previously given as Fourth or Fifth Choices on A = 67%

agreements between first choice on one administration and either first or second on the other. The obtained agreements of 73-75% are considerably above a purely chance expectancy of 40%. The memory effect was probably slight, both in terms of later reports from the subjects and the fact that the 55 statements had to be ranked in very brief time intervals. It is interesting to note that the "5" ranks held up fairly well despite the modified instructions. In other words, it seems that the "5" ranks were probably also singled out in the first administration, rather than having been assigned to a statement left over after the first four had already been ranked.

The Picture Problem Ranks (Self) procedure, described earlier in this chapter (p. 24), furnished additional data for two of the defenses, avoidance and projection. The picture which each subject designated as "least of a problem" in himself (Rank #11) was scored for avoidance, since he singled it out in what can be readily interpreted as an act of denial.

Projection was scored in combination with another application of PPR presented in the next paragraph.

After the PPR (Self) rankings had been made, the subjects were given the following task:

> This time, instead of ranking the pictures as problems in yourself, rank them according to how you see them as problems in your group, that is, the rest of the fraternity as a whole. Do the rankings the same way as before--1 and 11, 2 and 10, 3 and 9, and then the rest.

Projection was scored if a subject assigned a picture rank between 7 and 11 for himself, and for the group at least two ranks below the mean rank of that picture based on the responses of all the subjects. In other words, if he tended to say, "This is not a problem area for me, but it is for the group," when in reality it was not considered that much of a problem by the group as a whole, the mechanism of projection was assumed to be operating.

Still another source of data for the assessment of defense was the standard Group Blacky, which had been given first in the sequence. Two staff members coded all the spontaneous stories for the five defenses, and selected items in the multiple-choice inquiry were also used.

Table 3 gives a comparison of DPI choices (combining test and retest responses) with defense choices gathered from each of the other sources. Consistency is noted in every case where data are available, except for projection on PPR. However, the strong positive relationships to the Blacky Spontaneous Stories and Inquiry are somewhat spuriously high, due to the fact that certain Blacky codings were previously eliminated for lack of relationship to the other defense measures. The main purpose in presenting the table is to show that the combination of the defense measures, described below, is generally based on established communality among them.

TABLE 3

COMPARISON OF DPI CHOICES WITH CHOICES FROM OTHER DEFENSE SOURCES

DPI (A & B)	Blacky SS	Blacky Inq.	PPR
Av	+[a]	+	+
RF	+	+	. . .[b]
P	. . .	+	NS[c]
Rg	+	+	. . .
I	. . .	. . .	. . .

[a] + indicates strong positive relationship
[b] . . . indicates no data or insufficient data available
[c] NS indicates not significant

Next, the several defense measures were differentially weighted and combined so as to give each subject a numerical score for every defense on each of the nine dimensions.

Two points were assigned for each first choice on the two DPI administrations and an additional point for a second choice in conjunction with a first choice. The PPR measures were likewise given two points, whereas the Blacky Spontaneous Story and Inquiry codings received either one or two points. In the final analysis a subject was considered to have a clear preference for a defense on a certain conflict dimension if his weighted score totaled four or more points. Thus, each subject was given either a specific defense preference or a "no clear preference" on each of the nine conflict dimensions. The couple of isolated instances in which a subject got four points for two defenses on the same dimension were classified in the "no clear

defense" category. Appendix A contains the defense preferences assigned to all the subjects.

Table 4 shows the interrelationships of defense preferences across all dimensions used in the present study. For example, do the subjects who prefer reaction formation on one dimension also tend to use it on the others? There are 15 interrelationships possible for each defense, except for projection which had no entries on Oral Eroticism. The results indicate a chance number of positive interrelationships.

TABLE 4

DIMENSIONAL INTERRELATIONSHIPS OF EACH DEFENSE MECHANISM ON PICTURES USED IN THIS STUDY

	Av	RF	P	Rg	I
N (number of possible interrelationships)	15	15	10	15	15
Number of positive interrelationships expected by chance at $P < .10$	0.75	0.75	0.50	0.75	0.75
Number obtained	1	0	0	1	2
Pictures on which positive interrelationships obtained	II-V			I-VIII	I-V V-IX

Measures of Forgetting

Measures	Dates of Administration
1. Free Recall-Timed Recall (1st administration)	Nov. 19-Dec. 1, 1953
2. Free Recall-Timed Recall (2nd administration)	Dec. 14-17, 1953

The forgetting of a Blacky picture was considered to be an indicator of repression in the psychosexual dimension associated with the picture. Forgetting was measured by a series of free and timed tests, in which the subjects were asked to write down the Blacky pictures from memory. In both administrations, the Free Recall Test was given first, and various assessment procedures intervened before the Timed Recall Test was given.

The instructions for the Free Recall Test were as follows:

> Now we have a memory task for you. We want to see <u>how many</u> of the Blacky pictures you remember. When I say, "Begin," write down as many of the Blacky pictures as you can remember. Use <u>just a few words</u> to identify each picture, but make sure you write enough so that we will be able to tell which one you mean.
>
> We are interested in <u>how many you can remember</u>, rather than the details of each one. Write them down in any order, as they come to mind. All right, go ahead.
>
> (After 1½ minutes:) Stop! Draw a line below those you have already put down, and write others beneath the line. Go ahead.
>
> (After 1 minute more--same instructions as above.)
>
> (After 1 minute more:) Stop! Please be sure to write your name at the bottom.

The instructions for the Timed Recall Test were as follows:

> Now for the last job of the evening. I want you to repeat one of the earlier tasks, only this time under speed pressure. When I say, "Go," write down the Blacky pictures again as fast as you can. Ready, go!
>
> (After 20 seconds:) Stop! Draw a line below those you have already put down, and write others beneath the line. Go ahead.
>
> (After 20 seconds more--same instructions as above.)
>
> (After 20 seconds more:) Stop! Please be sure to write your name at the bottom.

Each of the four recall tasks was then scored in the following way:

1. A complete omission of a picture = 3 points
2. Mention of a picture delayed until the last time interval = 2 points
3. Mention of a picture delayed until the second time interval = 1 point

A subject was considered to have shown forgetting on a dimension if he had a total score of 7 points or more on a given picture.

Forgetting scores for subjects on the six pictures used in the present study are included in Appendix A.

CHAPTER V

VISUAL PERCEPTION METHODOLOGY

Apparatus

A tachistoscope designed by R. Gerbrands of Arlington, Massachusetts for use with individual subjects was employed. The stimuli in both the perceptual vigilance and perceptual defense procedures were presented at a speed of .03 sec., with the following illuminations:

	Adapting Field	Viewing Field
1. Just prior to running subjects	0.56 foot-lamberts	0.88 foot-lamberts
2. After running 24 subjects	0.61 foot-lamberts	0.89 foot-lamberts
*3. After running all subjects	0.36 foot-lamberts	0.81 foot-lamberts

The Stimuli

Of the eleven Blacky pictures, pictures VII (Identification Process) and XI (Love Object) were dropped because of the difficulty of devising defenses on the DPI which were pertinent to the conflict areas tapped on these dimensions. Picture X (Ego Ideal) was dropped because of its similarity to picture XI, which would have made it virtually impossible in tachistoscopic presentation for the subject to discriminate one from the other.

The remaining eight Blacky pictures were pre-tested in various combinations in the tachistoscope to determine the stimulus values of

*The drop in illumination of the adapting field at some time after the first 24 subjects were run was due to the failure of the lower of two lights on the adapting field without the experimenter's knowledge. The data were examined to see what influence this change in illumination might have had, and no discernible effect was found.

the pictures, irrespective of conflict and defense factors. Undergraduate students in psychology courses were used, very few of whom had ever seen or heard of the Blacky Pictures. The experimenter had no knowledge of any subject's personality conflicts or defenses. Subjects were asked simply to respond to which of four Blacky pictures stood out the most when the pictures were flashed simultaneously at a speed of .03 sec. The pictures used were small (1 3/4" x 2 1/4") photo-copies of the originals. They were shown in a stimulus board with four windows, cut in the top, bottom, left and right positions, and the subject gave as a response only the position of the picture which he saw as standing out the most.

It was found that pictures III (Anal Sadism) and IV (Oedipal Intensity) were consistently undercalled, and that pictures II (Oral Sadism) and V (Masturbation Guilt) were consistently overcalled. Attempts were made to increase the number of calls for the two undercalled pictures by accentuating their lines with a heavy black art pencil. Pictures II and V were covered with one and two thicknesses respectively of a transparent, greyish tinted celluloid-like material called typing plate.

It was impossible to bring pictures III and IV closer to equality of stimulus appeal with the other pictures, probably because of structural qualities, and they were eliminated. However, by accentuating the lines (though not altering the basic composition) of the other pictures, a closer equality of calls was achieved when they were shown with the slightly toned-down pictures II and V.

The six pictures finally used in the experiment were:

I--Oral Eroticism

II--Oral Sadism

V--Masturbation Guilt

VI--Castration Anxiety

VIII--Sibling Rivalry

IX--Guilt Feelings

The decision as to which four pictures to present to any subject was based on his conflicts and defense preferences on the above six pictures. It was necessary to have enough cases of high conflict, low conflict and the various defenses in order to make comparisons meaningful. In all but three cases, the subjects had both high and low conflicts among their four pictures. Two subjects had all high conflict pictures, and one all low conflict. The experimenter had no prior knowledge of a subject's specific conflicts and defenses, and was informed by a coder which four pictures were to be shown to each subject.

The Perceptual Vigilance Procedure

The subjects were tested individually on the perceptual series at times ranging from three to four months after the personality assessment procedures were finished.

The 1 3/4" x 2 1/4" photo-copies of the Blacky pictures and the stimulus boards on which they were shown, described in the pretesting procedure, were used on both the perceptual vigilance and the perceptual defense procedures.

A check was made with every subject prior to the experimental run as to whether or not he wore glasses. The experimenter made certain that those subjects who needed glasses continuously were wearing them. Subjects who wore glasses for certain types of work were asked to use their judgment about wearing them after looking at the adapting field.

The subject was seated at the tachistoscope and given a short orientation on its purposes and uses. He was then told:

> I'm going to flash some Blacky pictures very quicky, at a fraction of a second. (A blank stimulus board was shown to the subject while the experimenter said:) There will be four <u>different</u> pictures shown simultaneously at each flash, one at the left, right, rop and bottom. What I want you to do is simply to say which one of the four stands out the most. Obviously with these very fast speeds you may feel quite uncertain of your judgments. But in every case make a guess. I am mainly interested in your first impressions. You will see different patterns or combinations of pictures during the series of flashes.
>
> In each flash, the four pictures shown will be from among those on this board. (The subject was handed a board on which small copies, 3¼" x 2½", of the Blacky pictures were mounted, and the experimenter pointed each one out as he mentioned it.) To refresh your memory they are:
>
> "Blacky and the conscience figure"
> *"Blacky nursing from Mama"
> "Blacky with Mama's collar"
> "Blacky watching Mama and Papa pet Tippy"
> "Blacky discovering sex"
> "Blacky watching Tippy and the knife"
>
> Will you look in here, please? Remember to say just left, right, top or bottom, according to which picture appears to stand out the most. When I say ready, focus on the dark spot in the center of the screen. That will give you the best chance to see all four pictures at once. I will flash the pictures right after the ready signal. Remember that it is important that you continue to focus on the black dot every time I say ready. If by accident you should ever happen not to be looking at the black dot when the patterns are flashed, let me know so I can make a note of it. Keep looking into the machine until I give you the signal for a rest period.

Any questions were answered by reference to the instructions.

The four pictures were presented in eight basic patterns so that each picture appeared in the top, bottom, left and right positions twice in each pattern, and 12 times in each position in the 48 trials.

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*The titles of certain pictures were altered from those given in the Blacky Pictures Test and DPI presentation, where the designations of the pictures were left purposely vague. Here they were changed to facilitate the task of recognition by the subject and to rearouse affect associated with the pictures, e. g., "Here is Blacky nursing from Mama" was originally "Here is Blacky with Mama."

The order of presentation of the eight patterns on the 2nd, 4th and 6th runs was exactly the reverse of that on the 1st, 3rd and 5th runs. Subjects were given a brief rest period after each 16 trials. They were cautioned at intervals to: "Remember to keep focussing on the black dot."

In spite of the fact that there was nothing in the vigilance instructions requiring the subjects to identify any of the pictures, the comment, given either with a tinge of mild annoyance or with apology, that the pictures were unrecognizable, was widespread. There were only two instances out of the 2112 flashes where the subject reported that he had failed to focus on the black dot.

The Perceptual Defense Procedure

After a brief rest period, the subject was given the following instructions:

> This time I'm going to flash four Blacky pictures again, but now instead of saying which stands out the most, I will ask you to tell me which pictures are in certain positions. For example, after a flash, I might call top and left, and you are to say, "Top, Blacky . . ., etc., and left, Blacky . . .," etc. I will always ask you to identify two of the Blacky pictures but the positions asked for will keep changing, for example right-bottom, or top-bottom, or left-top and so on. It doesn't matter which position you reply to first, but be sure that you tell me which of the two positions the picture you name is in. (A blank stimulus board was shown to further illustrate this last point.)
>
> You will see different patterns or combinations of pictures during the series of flashes. In each flash, the four pictures shown will be from among those on this board. (The pictures on the display board were pointed out and titled in the same manner as on the vigilance procedure.)
>
> You don't have to use these exact titles as long as I know which picture you're referring to. Will you look in the instrument again, please? Again you may feel quite uncertain of your judgments, but make two guesses, in every case. Your immediate impression is important. Remember to keep focussing on the black dot when I say ready, just as you did before. And tell me if you ever missed the dot by accident so I can make a note of it. Keep looking into the machine until I give you a signal for a rest period.

At intervals during the series of flashes the subject was told to: "Remember to keep focussing on the black dot."

The same four pictures which the subject had seen on the vigilance procedure were presented in the same patterns and order of patterns for 48 flashes or trials. The subject was asked which pictures were in two of the four positions on each trial, or a total of 96 queries for the 48 trials. The queries were organized so that in the total of 96 first and second queries, there were 24 queries about each of the four pictures, or six queries about each picture in each of the top, bottom, left and right positions. The order of queries was set up in as seemingly random an order as possible so that the positions asked for would not hit the same picture too often on successive trials.

The subject was given his choice or option of answering first to either the experimenter's first or second query. This was done to give him some freedom to respond to the position of the two requested of which he might have been somewhat more certain visually.

As in the perceptual vigilance procedure, subjects were given a brief rest period after every sixteen trials.

The initial reaction of most of the subjects to the perceptual defense instructions was one of mild consternation and wonder. Many asked if the pictures were going to be shown at slower speeds than on the vigilance procedure, which was not answered. A number asked for a third look at the display board to further refresh their memories, which was not permitted. When the defense series had started, the subjects' reactions ranged from good-natured tolerance to open annoyance at the difficulty of the task. The most common verbal reaction was that the subject could make out nothing and was only guessing. In the perceptual defense procedure, as in the perceptual vigilance procedure, the cases

where the subject failed to focus on the black dot were very few, only 19 out of 2112 total flashes. It has been emphasized that in the perceptual defense procedure, the subject was led to expect that he would be seeing any or all of the six pictures on the display board which was shown to him. Therefore his calls could be, and were, either to the four pictures actually present, or to whichever were the two absent pictures in his particular case. Of the total 4224 calls there were only 10 for a picture not on the display board. This indicates that the subjects were able to limit themselves to the six pictures from which the four in the tachistoscopic presentation were selected. The fact that all of the 10 calls were for picture IV (Oedipal Intensity) is not surprising in view of its similarity to picture VIII (Sibling Rivalry), which was actually among those shown.

The Controls

The factor of structural differences in the stimulus pictures were controlled as follows: (a) some of the pictures were toned down and others accentuated, as described in the section under "stimuli;" (b) in the analysis, the calls of two groups to be compared (e. g., high vs. low conflict) were compared on each picture, or across all six pictures (e. g., projectors vs. the rest of the group); therefore obtained differences could not be attributed to the fact that the stimulus qualities of certain pictures were more of a factor in the calls of one group in a comparison than of another.

The opportunity for stimulus familiarity was identical for all subjects, as all saw each picture for an equal time in both the assessment and perceptual procedures.

The variable of selective verbal report was more important in the perceptual defense procedure than in the perceptual vigilance

procedure, where the subjects had only to call out the positions of Blacky pictures. Each subject was shown a combination of four Blacky pictures selected from the same six pictures. The combinations of the four pictures selected differed among the subjects. While each subject was shown only four pictures repeatedly, he was led by the instructions to expect any or all of the six. In view of the extremely short exposure rate, which made discrimination very difficult, some of each subject's calls on the perceptual defense procedure were to the two pictures which were not being shown in his particular case. Mean calls to absent pictures were derived for all defense preference and defense preference + conflict categories, just as on the present pictures. If no perceptual process were taking place, dynamic factors such as conflict and defense mechanism preference might be operative, but only in the verbal reports of the subjects. Therefore, if the avoidance preference group or forgetting group was found to undercall significantly in comparison to the rest of the group on present pictures, the same significant undercall could be expected in the same comparison on absent pictures, in which case the perceptual process would appear to be negligible and verbal report the deciding factor in the subject's responses. Therefore all defense comparisons made on present pictures were checked with the same comparisons made on absent pictures.

CHAPTER VI

RESULTS: VIGILANCE SERIES

The vigilance hypothesis is stated as follows: Perceptually vigilant behavior will be evoked when stimuli associated with high psychosexual conflict are presented below the threshold of clear conscious recognition, under conditions at which ego defense mechanisms are not likely to operate.

In the vigilance procedure the subject called the position of the picture which stood out the most to him after each of the 48 flashes. The data for each subject are in the form of 48 calls distributed among four pictures.

The prediction on the vigilance series was that subjects with high conflict on a psychosexual dimension would call the positions of the relevant Blacky picture significantly more often than would subjects with low conflict on the dimension.

In Table 5, the mean calls for the high and low conflict groups are compared on each of the six pictures. On all six pictures, the high conflict groups show higher mean calls than the low conflict groups. The differences are significant on pictures I (Oral Eroticism), II (Oral Sadism) and V (Masturbation Guilt). There is a sizeable difference on picture IX (Guilt Feelings) which does not reach statistical significance because of the very small N.

TABLE 5

VIGILANCE SERIES: HIGH CONFLICT (+) VS. LOW CONFLICT (O)
(MEAN CALLS BY PICTURE)

		N	Mean Calls	P
Picture I	+	7	14.28	$< .05^{1*}$
	O	21	10.09	
Picture II	+	18	13.83	$< .05^{1}$
	O	16	11.62	
Picture V	+	15	10.26	$< .05^{1}$
	O	10	6.20	
Picture VI	+	17	11.82	N.S.
	O	10	11.50	
Picture VIII	+	16	12.56	N.S.
	O	14	12.21	
Picture IX	+	4	18.75	N.S.
	O	16	15.12	

*Indicates a one-tailed test.

The vigilance hypothesis is therefore confirmed, in that comparisons on all six pictures are in the predicted direction, and significant differences are achieved on three of the six.

There are two possible rationales as to why perceptual vigilance effects are not found on pictures VI (Castration Anxiety) and VIII (Sibling Rivalry). One is psychological, based on the possibility that these two dimensions on the Blacky are not tapping as strong conflicts as are the other dimensions. Therefore, the difference between high and low conflict subjects on the psychosexual dimensions represented by these pictures may not be great enough to be shown in differences in perceptual vigilance.

However, as there is no reliable evidence to support the first explanation, a second rationale, based on the physical qualities of the pictures, seems somewhat more tenable. An examination of the total mean calls for each picture, including both high and low conflict subjects, does not indicate that these pictures were called less than the other four. Therefore in general it cannot be argued that pictures VI and VIII stood out less. However, it may be that the nature of the pictures made them harder to discriminate. Comparing these two pictures with the other four, it is apparent that the figure of Blacky is at its smallest on VI and VIII. The other figures (Tippy about to lose his tail on VI and Mama and Papa petting Tippy on VIII) are also farther in the background than in other pictures where additional characters appear. The two pictures are, in general, somewhat more complex than the others. Picture VIII is also similar in appearance to picture IV (Oedipal Intensity), so that the two may have been confused. This possibility is supported by evidence from the perceptual defense procedure, where picture IV was called ten times, although it was not one of the six pictures shown to the subjects prior to the series.

Therefore, it seems likely that while pictures VI and VIII were responded to as often as the others, the difficulty all subjects had in discriminating them may have made differential vigilance effects for high and low conflict groups impossible.

Exploration of Defense Mechanisms in the Vigilance Series

Although the vigilance task was designed to minimize the necessity for defenses to operate, it was decided to explore empirically the effect of each defense mechanism.

TABLE 6

VIGILANCE SERIES: MEAN CALLS FOR EACH DEFENSE MECHANISM VS. REST OF GROUP

	N	Mean Calls	P
Avoidance	24	12.37	N.S.
Others	152	11.94	
Projection	24	12.62	N.S.
Others	121	12.14	
Regression	29	13.79	N.S.
Others	147	11.64	
Intellectualization	11	10.00	N.S.
Others	97	11.69	
Reaction Formation	17	11.23	N.S.
Others	159	12.08	
Forgetting	23	11.26	N.S.
Others	153	12.11	

The makeup of Table 6 will be explained in some detail, as it illustrates the procedure by which defense mechanisms were analyzed in both the perceptual vigilance and the perceptual defense sections of the study.

The N of the defense mechanism under study and the "Others" N were made up by combining across dimensions. For example, in the avoidance group each entry is a picture-person combination. There are 23 subjects contributing the 24 avoidance entries, with one of the subjects contributing two entries. As the entries are combined across conflict dimensions, some of the avoidance entries are contributed by subjects who prefer avoidance on picture I, some by subjects who prefer

it on picture II, etc. It should be kept in mind, however, that in each case the preferred defense for a psychosexual dimension is always paired with the picture for that dimension. The mean number of vigilance calls for the avoidance group was therefore derived by totalling the calls for all picture-person combinations where avoidance was the preferred mechanism and then dividing by the number of avoidance entries.

The "Others" category is composed in the same way as the defense mechanism category, except that the calls are totalled for all picture-person combinations on the five remaining mechanisms, in addition to the "No Defense" category. In a few cases the defense mechanism under study is not represented on a dimension. In these cases, the calls for the "Others" category on that dimension are also omitted.

The entries for the other defense mechanisms are contributed by the following number of individuals: projection, 24 entries from 23 subjects; regression, 29 entries from 22 subjects; intellectualization, 11 entries from 11 subjects; reaction formation, 17 entries from 17 subjects; and forgetting, 23 entries from 20 subjects. It can be seen that in some of the defense mechanism categories, a few of the subjects contribute more than one entry, as they have the mechanism on more than one conflict dimension. This raises the question of the independence of the data from dimension to dimension. While there are isolated relationships between dimensions on the same defense mechanism, the occurence of these can easily be explained by chance (see page 35 and Table 4).

Table 6 shows that defense mechanisms taken alone, irrespective of high or low conflict, have no effect in the vigilance series. These findings support one of the assumptions in setting up the vigilance

task; namely, that the conditions are such that defenses are not likely to be called into play.

Defense Mechanisms in Conjunction with Conflict

Having found on the previous exploration that defense mechanisms taken alone have no effect, a further investigation was conducted on the possible effects of a given defense mechanism in conjunction with conflict.

TABLE 7

VIGILANCE SERIES: MEAN CALLS FOR EACH DEFENSE MECHANISM IN CONJUNCTION WITH HIGH CONFLICT (+) AND LOW CONFLICT (O)

		N	Mean Calls	P
Avoidance	+	13	12.61	N.S.
	O	11	12.09	
Projection	+	17	11.70	N.S.
	O	7	14.85	
Regression	+	14	16.21	$< .05^{2*}$
	O	15	11.53	
Intellectualization	+	6	12.83	$< .05^{2}$
	O	5	6.60	
Reaction Formation	+	6	10.66	N.S.
	O	11	11.54	
Forgetting	+	10	12.30	N.S.
	O	13	10.46	

*Indicates a two-tailed test.

In Table 7 the total defense mechanism groups in Table 6 are divided into two groups on the basis of whether high or low conflict occurs with the defense preferred by a given subject. The mean vigilance calls of these two groups on each defense mechanism are then compared.

The lack of significant differences between the mean c alls of the high and low conflict groups on the mechanisms of avoidance, projection, reaction formation and forgetting shows that the factor of intensity of conflict in conjunction with these defenses has no discernible effect on perceptual vigilance. These defenses do not operate in the vigilance series, either on a general basis, irrespective of high or low conflict, as seen in Table 6, or in conjunction with high or low conflict.

However, significant differences are obtained in the high vs. low conflict comparisons for regression and intellectualization. In comparing the means of the high and low conflict groups on regression (Table 7) with the total regression mean (see Table 6) it becomes apparent that the significant difference reflects the tendency of regressors with high conflict to overcall. A check was made on the incidence of regression defense preferences on the pictures where a significant difference was found between high and low conflict groups and on its incidence on the pictures without significant differences. If there were a disproportionately high loading of regressors on the pictures where a significant difference is found between high and low conflict groups in general, the significant difference might be explained away as an artifact. It is not possible to account on that basis for the tendency of regressors with high conflict to overcall, however, as there is no disproportionate representation. Likewise, theory does not provide us with a ready explanation. On a purely speculative basis, we might wonder whether regression extends farther back into unconscious areas than do the other defense mechanisms, or possibly whether subjects with high conflict who prefer regression are more

conflicted than subjects who prefer other mechanisms. Regression is different from the other defense mechanisms in that it does not imply as restrictive a control of the impulses as do the others. The regressor tends to revert to earlier psychosexual levels, and there is a tendency toward more primitive, infantile and undifferentiated behavior. It may be that adults, or young adults, as in the population of this study, who have high conflict and tend to use regression, have not come even as close to a satisfactory defense against their impulses as have highly conflicted people with other defense mechanisms. This may be due to the fact that the regressor with high conflict has to live in an adult, responsible society which makes demands on him that he cannot fulfill. The somewhat greater resulting degree of conflict in these people, coupled with the fact that regression is a defense which permits or encourages more expression of the impulse, may account for the higher vigilance of the highly conflicted person who utilizes regression.

The means of the high and low conflict groups on intellectualization, when compared with the total intellectualization group mean given in Table 6, show that the significant difference is a result of the fact that intellectualizers with low conflict greatly undercall. As with regression, a check was made for the incidence of this defense mechanism on significant difference vs. non-significant difference pictures. Again, it is impossible to explain the difference in terms of a disproportionately high incidence of the mechanism on significant difference, rather than non-significant pictures. While no basis is available in theory, a speculation can be offered. It is conceivable that low conflict indicates that the defense is functioning adequately.

The intellectualizer relies perhaps on verbal areas for the use of his mechanism to a greater degree than do other types of defenders. Since the perceptual task is not suitable for the use of intellectualization, it results in the tendency of low conflict intellectualizers to undercall.

CHAPTER VII

RESULTS: DEFENSE SERIES

The defense hypothesis is stated as follows: Perceptually defensive behavior will be evoked in subjects predisposed to avoid or repress certain psychosexual stimuli when those stimuli are presented below the threshold of clear conscious recognition under conditions at which ego defense mechanisms are likely to operate.

Unlike the vigilance series, where the subject had only to call the position of a picture which stood out most, the "conditions at which ego defense mechanisms are likely to operate" consist in requiring the subject to identify Blacky pictures in response to positions requested by the experimenter after each flash.

The mechanism of avoidance and the forgetting of Blacky pictures (tapped by the recall technique) provide two operational measures of repression for this hypothesis.

The prediction for perceptual defense is that subjects who prefer the defense mechanism of avoidance on a dimension, and subjects who tend to deal with a psychosexual dimension by forgetting it, will show higher perceptual defense in the form of significantly fewer calls for the Blacky picture associated with that dimension.

It will be recalled that an important control of the factor of selective verbal report was set into the design of the perceptual defense procedure. Each subject was allowed to infer, from the

instructions on the perceptual defense procedure, that he would be seeing any or all of the six Blacky pictures used for the total group. He was then shown repeatedly only four pictures, which are referred to as present pictures, in contrast to the other two, which are designated as absent pictures. However, each subject called both present and absent pictures during his series of exposures. The four present pictures and the two absent pictures differed from subject to subject, although all were selected from pictures I (Oral Eroticism), II (Oral Sadism), V (Masturbation Guilt), VI (Castration Anxiety), VIII (Sibling Rivalry), and IX (Guilt Feelings).

In the analysis, calls made to absent pictures are treated in the same way as calls to present pictures. A group for each defense mechanism, as well as an "Others" group, was made up by combining across dimensions, as described in detail in the defense section of the vigilance series (see page 49). For each defense mechanism vs. "Others" comparison, there is a corresponding comparison for the absent pictures. If a significant difference is found between a defense mechanism under study and the "Others" group, a corresponding significant difference in the absent pictures would be strongly indicative that selective verbal report was operating, rather than a perceptual vigilance process. However, if the significant difference on the present pictures is not found on the corresponding absent picture comparison, the weight of evidence would favor the perceptual defense process, as the difference occurred only for pictures actually shown to the subject, and not for pictures which were not being flashed.

The makeup of the N's in Tables 8, 9 and 10, which follow, is identical with that described in the defense section of the vigilance

results. The entries are made up from the same subjects on the same picture-person combinations. On these tables, of course, the absent pictures are also included.

Table 8 gives the means for total calls (first and second responses of the subjects combined) for each defense mechanism vs. the rest of the group. The hypothesis that subjects who prefer the defense mechanism of repression will show perceptual defense behavior is confirmed, as both measures of repression--avoidance and forgetting--show a significant tendency to undercall. Projectors show a tendency to overcall. It is important to note that for absent pictures none of the corresponding defense mechanism comparisons is significant. This lends strong support to the position that the undercall tendencies of the avoiders and the forgetters, and the overcalls of the projectors, are perceptual phenomena rather than functions of selective verbal report. There are no significant undercall or overcall tendencies for these mechanisms when the pictures were not actually shown to the subject.

TABLE 8

DEFENSE SERIES: MEAN TOTAL CALLS FOR EACH DEFENSE MECHANISM VS. REST OF GROUP

	Present Pictures			Absent Pictures		
	N	Mean Calls	P	N	Mean Calls	P
Avoidance	24	13.66	$<.005^1$	17	15.58	N.S.
Others	152	17.15		58	14.68	
Projection	24	18.79	$<.10^2$	11	15.18	N.S.
Others	121	16.46		64	14.75	
Regression	29	17.44	N.S.	14	14.21	N.S.
Others	147	16.52		27	13.00	
Intellectualization	11	16.72	N.S.	11	12.00	N.S.
Others	97	16.31		77	14.89	
Reaction Formation	17	17.70	N.S.	5	15.80	N.S.
Others	159	16.56		57	15.26	
Forgetting	23	14.60	$<.05^1$	26	14.46	N.S.
Others	153	16.98		62	14.56	

The subjects' responses are further examined to study possible effects of: (a) the order in which the subject responded to the two positions which the experimenter called out after each flash; and (b) the order in which the experimenter called out the two positions.

In Table 9 the total calls have been split into halves consisting of the subjects' first and second responses. It will be recalled that while the experimenter called out two positions after each flash to which the subject responded with pictures, the subject did not have to answer the positions in the same order in which they were called. He was given his choice of answering the first query first, or the second.

In general, the subject's first response is more productive of perceptually defensive behavior, while the second response is not. This supports the view that the response the subject chose to give first was probably closer to the perceptual process than his second choice of a response. It is likely that the subject chose to make his first response to the position of which he felt more certain visually.

The forgetting group is an exception to the trend of greater perceptual defense on the first response choice, as it seems that the significant undercall which forgetters show on the total calls is a product of both first and second response choices. This may be due to the fact that forgetting is facilitated by the sequence of requests. The picture called as the second response choice, being farther away in time from the flash than the first, is likely to be forgotten (and consequently undercalled) by those who have already shown a predisposition to forget.

TABLE 9

DEFENSE SERIES: MEAN CALLS ON SUBJECTS' RESPONSE CHOICES
FOR EACH DEFENSE MECHANISM VS. REST OF GROUP

	Present Pictures						Absent Pictures					
	First Calls			Second Calls			First Calls			Second Calls		
	N	Mean	P	N	Mean	P	N	Mean	P	N	Mean	P
Avoidance	24	6.16	<.005[1]	24	7.50	N.S.	17	6.29	N.S.	17	9.29	N.S.
Others	152	9.24		152	7.90		58	6.74		58	7.94	
Projection	24	10.41	<.05[2]	24	8.37	N.S.	11	6.90	N.S.	11	8.27	N.S.
Others	121	8.39		121	8.06		64	6.04		64	8.70	
Regression	29	9.06	N.S.	29	8.37	N.S.	14	6.92	N.S.	14	7.28	N.S.
Others	147	8.77		147	7.74		27	5.03		27	7.96	
Intellectualization	11	10.90	N.S.	11	6.36	N.S.	11	5.81	N.S.	11	6.18	N.S.
Others	97	9.06		97	7.19		77	6.35		77	8.54	
Reaction Formation	17	8.82	N.S.	17	8.88	N.S.	5	7.40	N.S.	5	8.40	N.S.
Others	159	8.82		159	7.74		57	6.50		57	8.75	
Forgetting	23	7.69	<.15[1]	23	6.91	<.15[1]	26	6.73	N.S.	26	7.73	N.S.
Others	153	8.99		153	7.99		62	6.09		62	8.46	

In Table 10 the total calls have been split into halves on the basis of the subjects' responses to the experimenter's first and second queries. Here the order of the subjects' responses is not considered, but rather their responses in terms of the order of the experimenter's queries. It should be kept in mind that there is a good deal of overlap between the first and second choice breakdown and the first and second query breakdown. In general, in comparing the two types of breakdown, it seems that the response which the subject chose to make first is a more important factor than the experimenter's first query. Only the forgetting group shows a significant difference on the first query, and again this may be a function of the nature of this defense mode.

It should also be noted that there are again no significant differences in any of the absent picture comparisons which correspond to the present picture comparisons in the two types of response breakdown.

To recapitulate the results on defense mechanisms and perceptual defense: The hypothesis that subjects predisposed to avoid or repress psychosexual stimuli would show perceptual defense is confirmed. Subjects who prefer one or the other of the two measures of repression--avoidance or forgetting--on a psychosexual conflict dimension show a significant tendency to undercall Blacky pictures associated with that dimension. The undercall is shown only to present pictures, however, and is not found on absent pictures, which supports a perceptual defense rather than a selective verbal report interpretation. No significant effect on perceptual defense behavior is found for the regression, intellectualization and reaction formation mechanisms. The projectors, however, show a significant tendency to overcall on perceptual defense.

TABLE 10

DEFENSE SERIES: MEAN CALLS TO EXPERIMENTER'S QUERIES
FOR EACH DEFENSE MECHANISM VS. REST OF GROUP

	Present Pictures						Absent Pictures					
	First Calls			Second Calls			First Calls			Second Calls		
	N	Mean	P	N	Mean	P	N	Mean	P	N	Mean	P
Avoidance	24	7.33	$<.10^1$	24	6.33	$<.005^1$	17	7.76	N.S.	17	7.94	N.S.
Others	152	8.59		152	8.55		58	7.34		58	7.34	
Projection	24	9.04	N.S.	24	9.75	$<.10^2$	11	7.54	N.S.	11	7.63	N.S.
Others	121	8.14		121	8.32		64	7.07		64	7.67	
Regression	29	9.13	N.S.	29	8.31	N.S.	14	6.78	N.S.	14	7.42	N.S.
Others	147	8.28		147	8.23		27	5.81		27	7.18	
Intellectualization	11	8.72	N.S.	11	7.45	N.S.	11	5.81	N.S.	11	6.18	N.S.
Others	97	8.34		97	8.04		77	7.23		77	7.66	
Reaction Formation	17	8.29	N.S.	17	9.41	N.S.	5	8.40	N.S.	5	7.40	N.S.
Others	159	8.44		159	8.12		57	7.56		57	7.70	
Forgetting	23	6.69	$<.01^1$	23	7.91	N.S.	26	6.92	N.S.	26	7.53	N.S.
Others	153	8.68		153	8.30		62	7.11		62	7.45	

By and large, perceptual defense behavior has come to mean in experimentation a raised threshold for threatening stimuli, or a not perceiving, rather than the increased alertness or sensitivity which has been postulated largely for perceptual vigilance. This definition of the process, however, results from the fact that most research in the perceptual defense area has been done on stimuli presumed to have a threatening character for all members of a group, irrespective of individual personality dynamics. Research in terms of individual dynamics has been largely restricted to the defense mechanism of repression, where theory postulates a high threshold for, or a not seeing of, the threatening stimulus. There is no restriction in the theory on postulations of differential behavior in the perceptual defense situation in terms of differing ego defense mechanisms. On the contrary, a theoretical basis can be found which supports the view that projectors will overcall, or be more alert, to threatening stimuli. The projector has the mode of dealing with unacceptable impulses by projecting them from himself onto others. Behaviorally, this may take the form of being more alert for evidences in others of impulses unacceptable to the projector. The perceptual defense of the projector might therefore take quite the opposite direction from that of the undercall of the repressor, and it is manifested here in the tendency to overcall psychosexual stimuli.

Exploration of Conflict in the Defense Series

In general, it was not expected that the sole factor of intensity of conflict, with defense mechanisms held constant, would have any discernible effect on perceptual defense. This is due to the fact that the defense series was designed to tap areas where ego defense

mechanisms are likely to operate and therefore to be dominant over conflict.

The means of the high and low conflict groups, irrespective of defense mechanisms, are compared on each of the six Blacky pictures in Table 11. The expectation that conflict would have no discernible effect on the perceptual defense process is confirmed in the lack of significant differences between high and low conflict means.

TABLE 11

DEFENSE SERIES: HIGH CONFLICT (+) VS. LOW CONFLICT (O)
(MEAN CALLS, PRESENT PICTURES ONLY)

		N	Mean Calls	P
Picture I	+	7	18.42	N.S.
	O	21	14.14	
Picture II	+	18	17.27	N.S.
	O	16	16.81	
Picture V	+	15	15.46	N.S.
	O	10	14.50	
Picture VI	+	17	15.52	N.S.
	O	10	14.80	
Picture VIII	+	16	17.31	N.S.
	O	14	17.42	
Picture IX	+	4	18.25	N.S.
	O	16	21.37	

Conflict in Conjunction with Defense Mechanisms

It was found that subjects predisposed to repress show perceptual defense by a significant tendency to undercall threatening stimuli, and that subjects who prefer projection manifest their perceptually defensive behavior in overcalling, or showing increased sensitivity to the stimuli. The next step is to explore the effect on perceptual defense of defense mechanisms when high conflict is also present.

In Table 12 the mean calls on the defense procedure of the high and low conflict subjects on a given defense mechanism are compared. The lack of significant differences leads to the conclusion that the major determinant of perceptual defense behavior in this study was the specific defense mechanism employed by the subject, irrespective of the intensity of accompanying psychosexual conflict.

TABLE 12

DEFENSE SERIES: MEAN CALLS FOR EACH DEFENSE MECHANISM IN CONJUNCTION WITH HIGH CONFLICT (+) AND LOW CONFLICT (O) (PRESENT PICTURES ONLY)

		N	Mean Calls	P
Avoidance	+	13	13.69	N.S.
	O	11	13.63	
Projection	+	17	17.70	N.S.
	O	7	21.40	
Regression	+	14	19.50	N.S.
	O	15	15.53	
Intellectualization	+	6	17.50	N.S.
	O	5	15.80	
Reaction Formation	+	6	19.83	N.S.
	O	11	16.54	
Forgetting	+	10	13.70	N.S.
	O	13	15.30	

CHAPTER VIII

ACCURACY OF DISCRIMINATION

A study was made of the accuracy with which subjects discriminated the pictures. This investigation had two main purposes: (a) to determine how well the total group was discriminating present pictures; and (b) to determine possible relationships between different levels of discrimination in the group and the perceptual vigilance and defense findings. The analysis of accuracy of discrimination is necessarily based on the perceptual defense series, where the subject identified the pictures rather than the positions, as in the vigilance series.

The mean of the total calls for all subjects on the present pictures is 16.67, as compared to 14.53 ($P < .01$) on the absent ones. This difference, indicating that the present pictures were responded to somewhat more often than absent ones, suggests that some degree of discrimination was taking place.

The possible effects of different levels of discrimination accuracy in the subject group are explored in the following way:

The accuracy percentage of each subject on the defense procedure is obtained by dividing the total calls ($N = 96$) given by each subject into the number of that subject's correct calls, i. e., where the subject named pictures correctly in their positions after a flash.

Chance accuracy for a subject should lie somewhere between .166 and .250. The .166 figure is based on the fact that the subject was encouraged to infer from the instructions that he might be seeing all six pictures during the series of flashes. This would give him one chance out of six of calling any given picture correctly on any one flash. The .250 figure is based on the fact that four pictures were then actually shown to the subject and thus his chances of calling any given picture correctly on a flash would be one out of four. The group ranges in accuracy from .125, or below chance, to .500, where a subject called half of the pictures correctly. The median for the group is .286, or slightly better than chance discrimination. The accuracy percentage for each subject is shown in Appendix E.

All of the preceding findings indicate that, as hoped for, the subjects were making low level perceptual discriminations of the seemingly subliminal stimuli.

Using each subject's accuracy percentage, the group was next split into three parts on accuracy: the upper 25%, middle 50% and lower 25%. The upper group, then, is composed of "good," the lower group of "poor" and the middle group of "average" discriminators.

In Table 13 the difference between the conflict and non-conflict mean calls of each of the three accuracy groups is presented for all of the six Blacky pictures in the vigilance series. The + or - signifies whether or not the difference is in the direction of the hypothesis that psychosexual conflict will result in greater perceptual vigilance than non-conflict.

In general, by far the greater part of the perceptually vigilant behavior is found in the upper and middle groups, or "good" and

TABLE 13

VIGILANCE EFFECTS BROKEN DOWN BY ACCURACY OF DISCRIMINATION
(MEAN CALLS, HIGH CONFLICT MINUS LOW CONFLICT)

Accuracy of Discrimination	Picture I	Picture II	Picture V	Picture VI	Picture VIII	Picture IX
"Good" Discrim. (Top 25%)	*+8.83	+1.40	-1.00	+3.00	-1.67	+1.00
"Average" Discrim. (Middle 50%)	+2.56	+2.39	+8.10	-2.09	+1.22	+6.00
"Poor" Discrim. (Bottom 25%)	-5.40	+1.42	+0.17	+0.35	-0.25	-17.60**

*+ indicates that difference is in the direction of the vigilance effect.

**No cases with +'s appear here.

"average" discriminators. The low, or "poor," group of discriminators is lowest in perceptual vigilance, with mean calls on three of the six pictures higher on non-conflict pictures, and very small differences between high conflict and low conflict means for the three pictures where calls are in the direction of the hypothesis. It appears that the "poor" discrimination group was not seeing the pictures well enough for perceptual vigilance to occur. In other words, the desired low level perceptual discrimination was lacking, so that psychological effects were precluded.

Table 14 gives the mean calls on the perceptual defense procedure by a breakdown of the three accuracy groups on the three defense mechanisms on which perceptual defense is achieved. There are no significant differences between groups on defense. In view of the fact that there are differential effects on the vigilance procedure on this accuracy breakdown, the lack of significant differences on perceptual defense may

possibly be due to an increased practice effect which raised the pictures to a discriminable level for all three groups.

TABLE 14

DEFENSE EFFECTS BROKEN DOWN BY ACCURACY OF DISCRIMINATION FOR AVOIDANCE, PROJECTION AND FORGETTING (PRESENT PICTURES ONLY)

	Accuracy of Discrimination	N	Mean Calls
Avoidance	"Good" Discrim. (Top 25%)	5	13.40
	"Average" Discrim. (Middle 50%)	14	14.28
	"Poor" Discrim. (Bottom 25%)	5	12.20
	Total Group	24	13.66
Projection	"Good" Discrim. (Top 25%)	7	18.00
	"Average" Discrim. (Middle 50%)	11	18.81
	"Poor" Discrim. (Bottom 25%)	6	19.66
	Total Group	24	18.79
Forgetting	"Good" Discrim. (Top 25%)	3	13.33
	"Average" Discrim. (Middle 50%)	13	12.69
	"Poor" Discrim. (Bottom 25%)	7	18.71
	Total Group	23	14.60

CHAPTER IX

DISCUSSION

Implications for Theory of Personality and Perception

While the study has provided additional confirmation of the perceptual processes of vigilance and defense, its major value lies in its demonstration that these processes can be related to the specific personality dynamics of the individual. Perceptual vigilance occurred as a function of high psychosexual conflict in the individual. Perceptual defense was shown by those who preferred the ego defenses of repression and projection, though the defensiveness of the latter is manifested in over-responsiveness to the stimuli.

The study provides a general replication of the antecedent studies of Clapp (8) and Blum (3,4). All of the studies elicited perceptual vigilance or defense with the same stimuli, the Blacky Pictures; and the theoretical postulates were found in psychoanalytic theory of the operation of unconscious processes. It is especially interesting to note that two of the three pictures which showed the strongest vigilance effect in the present study, II (Oral Sadism) and V (Masturbation Guilt), were also used by Clapp and Blum.

Blum's second study (4) was the first approach to individual personality dynamics using the Blacky Pictures, since his and Clapp's preceding research had been concerned with what might be termed "generalized dynamic tendencies," which were found to operate for men, women or mixed subject groups. In the second study he found higher perceptual

defense for subjects with high conflict who were predisposed to use repression, which was the only defense mechanism studied. In the present study, perceptually defensive behavior was found for repressors in general, with intensity of conflict not a factor. However, the differences between the two studies should be noted. First, in Blum's study there were no low conflict subjects with repression, and second, there is a rather wide difference in the techniques used to assess conflicts in the two studies. As Blum's subjects were graduate students in clinical psychology, he measured conflict by a series of techniques related to and relying on the subjects' prior knowledge of the Blacky Pictures. In the present study, where naive subjects were used, it was possible to base much of the conflict and defense assessment on the conventional group Blacky test and the DPI. It should be noted that the one defense measure that Blum's study and the present study had in common was forgetting as a measure of repression. In Blum's study, repression was not considered operative unless the subject had both conflict and a tendency to forget on the same psychosexual dimension. Thus all of Blum's forgetters were people with high conflict. In the present study, both high and low conflict subjects with a forgetting predisposition were studied, and a general perceptual defense tendency was found for the whole forgetting group. Therefore, since the forgetting groups in Blum's study and the present study were similar, at least in the measurement of the defense, the utility of forgetting as a measure of repression has been enhanced.

The present study broadened the area of investigation of perceptual vigilance and defense to include individual psychosexual conflicts, a wide variety of ego defense mechanisms,and conflicts and ego defenses in combination. The individual dynamics of a number of

individuals were studied thoroughly, over a considerable period of time, before the perception procedures were run. In addition, the methodology points up that a change from perceptual vigilance to perceptual defense, or from conditions conducive to the operation of conflict to conditions conducive to ego defense functioning, is not necessarily a function of exposure time. While earlier studies have utilized the method of slowing exposure time from vigilance runs to defense runs, Blum's second study, which was on perceptual defense alone, elicited the behavior at the same speed he had utilized for the vigilance series in an earlier study. The task was that of verbalizing Blacky pictures, and this led to a triggering off of repression mechanisms in conflicted persons. Similarly in the present study, with speed held constant, vigilance was shown to a task designed to tap levels far removed from consciousness, and defense was manifested when the task was changed to one calculated to tap levels of awareness closer to consciousness. It has therefore been shown that both types of behavior can be elicited in the same group, as a result of the subject's set, rather than as a function of the time of exposure of the stimuli.

Further experimental evidence has been found to support psychoanalytic theory. A controversy has raged hard and long over research in this area. The non-analytically oriented researcher applies various techniques to testing psychoanalytic postulates, and often concludes from his findings that the theory is invalid, or to be more charitable, not amenable to test. However, in the case of perceptual vigilance and perceptual defense, two behavioral phenomena were available on which a considerable body of research had been done. Much of the earlier research confined itself to a study of general tendencies toward perceptual

vigilance and defense which were elicited by what might be called "immediate laboratory variables," e. g., shock, or by generalized predispositions toward certain types of stimuli, e. g., taboo words. It remained for psychoanalytic theory to provide the basis for research on vigilance and defense in terms of personality dynamics. In a sense, the relationship of the two perceptual processes with Freudian theory results in a profitable exchange. The perceptual processes gain a theoretical base to explain individual differences, and psychoanalytic theory benefits by a further measure of confirmation based on controlled experimentation. Exchanges of this nature may do much to allay the attitude of mutual distrust with which Freudian protagonists and experimental psychologists too often regard each other.

Implications for Research Linking Personality and Perception

The present research has pointed up the complexity of individual personality dynamics as they manifest themselves in perceptual vigilance and defense. The position that a person will perceive in an undifferentiated, unitary manner appears untenable, in view of the results. When a number of personality dimensions are assessed, as psychoanalytic theory demands, a many-faceted picture emerges for the individual. He is highly conflicted on some psychosexual dimensions and much less conflicted on others. On a given dimension he prefers the ego defense mechanism of repression, in another, projection. These differentials in dynamics are also seen in perceptual vigilance and defense behavior.

It should be stressed that the highly conflicted subject who shows perceptual vigilance to the picture associated with a given psychosexual dimension is often the low conflict subject on another dimension,

where vigilance was not the subject's mode of dealing with the stimulus. Similarly, the repressor on a dimension who defends against the associated stimulus by undercalling it may be the projector on another dimension where he shows a heightened alertness or sensitivity to the relevant stimulus.

The finding that subjects who prefer the defense mechanism of projection tend to overcall the relevant stimuli may necessitate a revision in viewpoints on the process of perceptual defense and personality variables. Perceptual defense, in general, has been regarded up to now as an avoidance, or a tendency to defend against seeing threatening stimuli. In the present study projectors showed a significant tendency to be more alert, or sensitive, to the stimuli in the defense series. Psychoanalytic theory offers support for this finding, as the projector may be more alert or sensitive to clues in others which suggest that they have the impulses which the projector cannot accept in himself. It is not surprising therefore to find the projector carrying this defense over into the defense series. The projector overcalls stimuli where he is predisposed to use his mechanism, because the tachistoscopic presentation is in a sense an experimental analogy to his performance in everyday behavior. The repressor has to avoid, or put up barriers to seeing threatening stimuli, as he does not project away from himself the impulses associated with the stimuli. It is emphasized that the over-alertness, or heightened tendency to overcall the stimuli on the part of the projector is a perceptual defense mechanism, however, as surely as the avoidance or undercall of the repressor. The finding on the perceptually defensive behavior of projectors points up further the complexity of perceptual processes, when the specific

dynamics of the individual are taken into account in terms of the postulates of psychoanalytic theory.

It was pointed out in the background chapter that research in the area of perceptual vigilance and defense has been criticized for lacking, in many instances, a rigorous enough control of the variables of the structural qualities of the stimuli, familiarity with the stimuli and selective verbal report. The variable of differential structural qualities of the stimuli was controlled by ascertaining the stimulus appeal of the pictures by pre-test, and a resulting toning down of certain pictures and an accentuation (without altering the composition) of other pictures. A further control was set into the analysis so that obtained differences between the dynamic variables (high vs. low conflict, or one defense mechanism vs. the rest of the group) cannot be viewed as occurring as a result of differential "pull" or stimulus prominence in the pictures. The opportunity for familiarity with the stimuli was identical for all subjects, in both the assessment and perceptual procedures. Selective verbal report was eliminated as a contaminating factor by the present vs. absent picture aspect of the design, where it was demonstrated that perceptual defense effects were not obtained on stimuli which were not actually being shown to the subject.

Postman has held that "what appears to be perceptual defense results from the dominance of strong alternative hypotheses rather than from active repression of the inimical or dangerous" (16, p. 300), and takes the position that the phenomena are better subsumed under the Bruner-Postman hypothesis theory. In the present study, subjects with the two measures of repression--avoidance and forgetting--showed a tendency to undercall. Applying the Bruner-Postman theory to these

results, we would say that individuals who prefer avoidance, or who tend to forget on the psychosexual dimension associated with a picture, have a weaker hypothesis than subjects without these defense preferences. This might hold if only present pictures are considered. However, when absent pictures are taken into account, the Bruner-Postman rationale becomes more difficult to apply. No significant differences were found between avoidance vs. others comparisons and forgetting vs. others comparisons on the absent pictures. Comparing avoiders on present pictures, for example, with avoiders on absent pictures, we are dealing with cases of equal hypothesis strength, as there are repression preferences in both cases. If hypotheses in both cases are <u>weak</u>, the fact that a stimulus is actually flashed in the present pictures comparison would strengthen the hypothesis in that case. We would therefore expect the avoiders on the present pictures to make more calls, which would result in a lack of a significant difference between avoiders and others on present pictures. The avoiders on the absent pictures, on the other hand, having no pictures actually shown to them, should undercall in relation to the rest of the group on absent pictures, as their repression hypothesis was weaker than subjects without this defense preference. Actually the reverse occurred, as avoiders undercalled to present pictures, but not to absent pictures. If a <u>strong</u> hypothesis were postulated for avoiders on both present and absent pictures, a considerable overcall would be expected for the avoiders on present pictures, as Postman has stated that when hypotheses related to negative stimuli are strong, the opposite of perceptual defense operates. This of course was not found in the results.

Blum (4) has held that "about the only even remote way we can try to reconcile the hypothesis theory with our data is to say that the individual (in this study, the avoider or forgetter) has a strong hypothesis not to perceive the negative stimulus, and the response of not perceiving is tripped off by the actual appearance of that stimulus in the tachistoscope." He goes on to ask if this position is accepted, "Why does the individual develop a hypothesis not to perceive?" and refers us to psychoanalytic theory for the answer.

The value of the Blacky Pictures as stimuli in studies relating personality to perception has been established. There can be few better demonstrations of their dynamic relevance to the subject than the results of the present study. The perceptual series were run some months after the subjects had last seen the pictures. Yet with only a very brief refamiliarization procedure, the emotional qualities of the pictures were revived sufficiently to trigger off perceptually vigilant and defensive behavior in accordance with prediction. A point to be stressed is that the pictures are ideally suited for studying the complexity of perception as mediated by personality variables. A detailed dynamic picture of the subject can be obtained prior to perceptual experimentation. The individual dynamic picture can then be tested for its manifestations in perception by stimuli which relate directly to various aspects of the individual's dynamics.

Suggested Areas for Future Investigation

The lack of discernible effects on perceptual defense for the defense mechanisms of regression, intellectualization and reaction formation leaves two alternatives. First, these mechanisms may actually

have no effect on perceptual defense. The defense against the impulses which these mechanisms afford may not depend either on a raised threshold for inimical stimuli, as in repression, or on a lowered threshold, as with the projectors. The three mechanisms may go into operation after perception has occurred; intellectualization as a verbal rationalization of impulses aroused by the stimuli, reaction formation as behavior contrary to aroused impulses, and regression as a reversion to earlier, less responsible levels of development. The second alternative is that these mechanisms do have an effect on perceptual defense which the present design and apparatus was not effective in measuring. Further research on the mechanisms of intellectualization, regression and reaction formation is needed either to confirm their lack of effects on perceptual defense or to specify their effects with more precision.

The tendency of regressors with high conflict to overcall on perceptual vigilance, and for intellectualizers with low conflict to undercall on the same series, poses a problem of the interaction of specific ego defenses with conflict on which further investigation is needed.

The extension of subsequent research in this area to other types of subject groups would greatly broaden our general knowledge of personality as it operates in perception. The question of sex differences in perceptually vigilant and defensive behavior is an appropriate next step. While previous research has shown that female subjects show vigilance and defense behavior, we have no information on possible sex differences in the intensity with which it is shown. Do women who show vigilance show more or less vigilance as a group than men? Similarly, do women who repress show perceptual defense to the same

degree as men who prefer the same mechanism? The basic features of the present study should be replicated on female subjects who are matched with the present subject group in terms of age, educational level and social background.

Having found perceptual vigilance and defense behavior in adults to be a function of personality dynamics which we can assume are relatively well fixed, another exploration could be made on the development of the phenomena in the life span. This would entail work with children and adolescents. A series of studies on various age levels would provide us with information on the origin and development of vigilance and defense tendencies. It would be interesting to ascertain how the individual at a certain psychosexual growth level would express his conflict and his early tentative choices of ego defense mechanisms in perceptual behavior.

Abnormal subjects also provide an extensive area for investigation. Diagnostic categories could be selected where theory postulates different types of conflict and ego defense, and predictions made to perceptual vigilance and defense behavior. We would desire to know whether the vigilance and defense tendencies found in our normal subjects are accentuated in abnormal subjects where conflict is more intense, or the ego defenses are operating at increased strengths or vastly reduced levels of adequacy. For example, it might be predicted that in conversion hysterics, where the mechanism of repression has become intensified, a generalized perceptual defense effect would be found in which there are heightened thresholds to all psychosexual stimuli. Here, however, a caution is in order. The complexity of perceptual behavior as mediated by the dynamics of normal subjects, which is seen in the present study, demands that any abnormal group be assessed

thoroughly prior to experimentation. While it might be assumed that a given diagnostic group would show a generalized vigilance or defense tendency, the findings of the present study show that any individual's personality, as expressed in perceptual processes, is a complex of many differing dynamic tendencies. The labeling of a conversion hysteric as a "repressor" or an obsessive compulsive as an "intellectualizer" may well be a gross over-simplification.

The area of socio-economic and cultural subgroups is another fertile source for a more diversified theory of personality and perception. Comparisons of various societal groups would enable us to learn how personality is expressed in perception in different environmental contexts. Do conflicts result in increased vigilance for both whites and Negroes? Do lower class repressors defend perceptually to the same degree as college students? How intense does a conflict have to become to result in perceptual vigilance in various social groups?

An ultimate aim of personality-oriented perception research is to be able to extend predictions beyond the laboratory situation to everyday behavior. While the tachistoscope and the Blacky Pictures serve us admirably in the context of controlled experimentation, research should gradually lead us to methods by which the behavior of individuals in real life contexts can serve to confirm, alter or change our theories. We are all perceptually vigilant or defensive in our contacts with others, although the reactions by which we express these tendencies are considerably more disguised and complex than the naming of a position or a picture in a tachistoscopic field. Role playing situations, with the variables of personal interaction carefully specified

and controlled, may suggest a method by which the gap between laboratory manifestations of perceptual vigilance and defense and their prototypes in everyday behavior may be bridged.

CHAPTER X

SUMMARY

Perceptual vigilance is broadly defined as a lowered threshold and perceptual defense as a raised threshold to emotionally charged stimuli. Previous work has investigated these phenomena in the visual and auditory media, using words, sentences and pictures as stimuli, and such independent variables as social prohibition, laboratory shock, personality needs and psychopathological tendencies.

Psychoanalytic theory provides a basis for the following postulates concerning these perceptual phenomena. Impulses which are unacceptable to the ego and denied conscious expression by it are continually striving to be released into consciousness. When such impulses are not subject to ego defense mechanisms a person should be more alert or sensitive to stimuli associated with the impulses (perceptual vigilance). Closer to conscious awareness, ego defense mechanisms tend to prevent recognition of stimuli related to unacceptable impulses (perceptual defense).

In studies by Clapp and Blum these psychoanalytic postulates were tested and confirmed. Vigilance and defense effects occurred to Blacky Pictures which were emotionally charged or traumatic, when they were presented tachistoscopically under differing speeds of exposure and subject set. These studies were concerned with what might be called "generalized dynamic tendencies" operating for people in general,

irrespective of specific individual dynamics. Blum, approaching the problem of individual dynamics, found in a subsequent study that subjects who had high psychosexual conflict and a predisposition to repress on that psychosexual dimension showed significant perceptual defense to the relevant Blacky picture when it was shown tachistoscopically.

The purpose of the present research was to extend the scope of these earlier contributions by studying the effects on perceptual vigilance and defense behavior of a variety of psychosexual conflicts and ego defense mechanisms specific to the individual.

The following hypotheses were tested:

1. Perceptually vigilant behavior will be evoked when stimuli associated with high psychosexual conflict are presented below the threshold of clear conscious recognition, under conditions at which ego defense mechanisms are not likely to operate.

2. Perceptually defensive behavior will be evoked in subjects predisposed to avoid or repress certain psychosexual stimuli when those stimuli are presented below the threshold of clear conscious recognition under conditions at which ego defense mechanisms are likely to operate.

In addition, the effects on perceptual vigilance of ego defense mechanisms, and of ego defense mechanisms with high or low conflict were explored. In perceptual defense an investigation was made for the effects of ego defense mechanisms other than repression, of conflict alone, and of ego defense mechanisms with high or low conflict.

The subjects were 44 undergraduate men in a fraternity at the University of Michigan.

Psychosexual conflicts for each subject were assessed by the Blacky Pictures test. Repression was measured by the subjects' forgetting or avoidance of a psychosexual dimension. Forgetting was ascertained by a recall test; and preferences for the defense mechanisms of avoidance, projection, regression, reaction formation, and intellectualization were determined by the Defense Preference Inquiry (DPI) and other techniques related to the Blacky Pictures.

The subjects were tested individually on the perceptual series at times ranging from three to four months after the personality assessment procedure was finished.

Both vigilance and defense procedures were given in the same session, and consisted of flashing four Blacky pictures simultaneously in a tachistoscope at a speed of .03 sec., with the pictures varying in position from exposure to exposure. The same four pictures were flashed repeatedly for a given subject, although the combinations of four pictures differed from subject to subject. Each subject's four pictures were selected from Blacky pictures I (Oral Eroticism), II (Oral Sadism), V (Masturbation Guilt), VI (Castration Anxiety), VIII (Sibling Rivalry), and IX (Guilt Feelings), to give a distribution of high and low conflicts and defense mechanism preferences. Throughout the tachistoscopic presentation subjects complained that they could not see anything, that none of the pictures were recognizable, and that they were only making wild guesses.

The only difference between the perceptual vigilance and perceptual defense procedures was in the response task given to the subject. In the vigilance procedure, which came first, the subject was asked only to designate after each flash the position of the picture in

the viewing field which stood out the most. This task was designed to tap unconscious processes in such a way that ego defense mechanisms were not likely to operate and therefore to allow impulse expression in terms of pictures associated with psychosexual dimensions on which the subject had high conflict. The prediction was that subjects with high conflict would call the position of the relevant Blacky picture significantly more often than subjects with low conflict on the dimension.

In the perceptual defense procedure, the task was changed to asking the subject after each flash to identify which Blacky pictures were occupying various positions in the viewing field. The necessity of bringing Blacky pictures to mind, by identifying them verbally, was intended to call ego defense mechanisms into play. The prediction was that subjects predisposed to avoid or repress stimuli associated with given psychosexual dimensions would significantly undercall Blacky pictures relevant to those dimensions.

Stimulus familiarity, which might be expected to influence perception, was controlled in that all subjects had an equal opportunity to see each picture in both the assessment and perceptual procedures. Structural qualities of the pictures were approximately equalized by masking over-prominent pictures and accentuating less prominent ones, and any remaining effects were cancelled in the methods of data analysis. The factor of selective verbal report was controlled by the instructions, which led each subject to infer that he would see any or all of six pictures during the series of flashes, although he was shown only the same four pictures repeatedly. Therefore, in view of the subjects' inability to make clear discriminations, some of each subject's calls were to absent pictures. Any tendencies to undercall or

overcall present pictures by subjects with a given defense mechanism were checked on absent pictures. If a similar tendency was not found on the absent pictures, it was concluded that selective verbal report was not operating.

The results confirm the vigilance hypothesis. On each of the six Blacky pictures the high conflict people have higher mean calls than the low conflict people. In three, the differences are significant. On a fourth picture, a sizeable difference is probably not significant because of the small number of subjects. The lack of significant difference on the two remaining pictures may have been due to the psychological or physical characteristics of the pictures.

Defense mechanisms alone were not found to have any effect on the perceptually vigilant behavior, although high conflict subjects with regression tended to be more vigilant, and low conflict subjects with intellectualization less vigilant.

The defense hypothesis was confirmed in that subjects classified as repressors significantly undercalled relevant to their defenses. A further finding was a significant tendency for subjects who preferred projection to overcall relevant pictures. Psychoanalytic theory provides a rationale in the over-sensitivity of the projector to evidences of psychosexual impulses in others which the projector cannot accept in himself. Neither the undercall tendency of the repressors nor the overcall of the projectors was found in the absent pictures, which supports a perceptual, rather than a selective verbal report, explanation of the results.

Psychosexual conflict alone, and psychosexual conflict with a defense mechanism, were not found to have a significant effect on perceptual defense.

The study has the following implications for personality and perception:

1. Perceptual vigilance and defense are related to the specific personality dynamics of the individual.

2. Earlier research by Clapp and Blum was in general replicated, and its scope broadened to include individual psychosexual conflicts, a wide variety of ego defense mechanisms, and ego defense mechanisms and conflicts in combination.

3. Further evidence has been found to support psychoanalytic theory. The relationship of perceptual vigilance and defense with Freudian theory results in a profitable exchange. The perceptual processes gain a theoretical base to explain individual differences, and psychoanalytic theory benefits by a further measure of confirmation based on controlled experimentation.

The study has the following implications for research linking personality and perception:

1. Individual dynamics are manifested in perceptual vigilance and defense in a highly complex way. The individual does not perceive in an undifferentiated, unitary manner, but differentially, in accordance with his areas of high and low conflict and his various defense preferences on a variety of psychosexual dimensions.

2. The finding that projectors, unlike repressors, showed a significant tendency to be more alert or sensitive to relevant stimuli in the perceptual defense series may necessitate a change in the position that perceptual defense is always expressed in a heightened threshold to threatening stimuli.

3. The variables of differential structural qualities of the stimuli, familiarity with the stimuli and selective verbal report are susceptible to control.

4. The Bruner-Postman hypothesis theory is inadequate to explain the results of this study.

5. The value of the Blacky pictures as stimuli in studies relating personality to perception has been established.

It was suggested that followups of the present study might deal with the interaction of psychosexual conflict and defense preference, and further study of the mechanisms of intellectualization, regression and reaction formation. At a more general level the research should be broadened to include the study of other types of subject groups such as women, children, abnormal subjects, and socio-economic and cultural subgroups. Finally, the ultimate goal should be the extension of personality-oriented perception research beyond the laboratory to everyday behavior.

APPENDIX A

TABLE 15

ASSESSMENT SUMMARY (CONFLICTS AND DEFENSES)

Subj.	Pic. I		Pic. II		Pic. III		Pic. IV		Pic. V		Pic. VI		Pic. VIII		Pic. IX		Pic. X		Overall Conflict [a]
	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	
1	+	RF	+	Av	0	... [b]	0	RF	0	RF	0	...	+	...	0	...	0	I	0
2	0	I	+	...	0	RF	+	Av	0	...(F) [d]	+	Rg	+	...	0	RF	0	Rg	0
3	+	X [c]	0	X	+	X	0	X	+	X	0	X	0	X	0	X	+	X	0
4	+	...	0	...	+	...	+	...	0	...	0	Rg	+	...	+	...	+	...	+
5	0	RF	0	...(F)	+	P	+	...	+	...	0	I	+	P	0	...(F)	0	...	0
6	0	...	0	...	0	...	+	P	0	...	0	Av	+	...	0	...	0	...	0
7	+	Av	0	Av	0	...	+	Av	+	...	0	...	+	P	+	...	+	RF	+
8	?	Av	+	P	0	...	0	...	0	RF	+	...	+	Rg	+	...	+	RF	+
9	+	Rg	+	Rg	+	P	0	...	0	...(F)	+	Rg	0	...	0	...(F)	+	...	+
10	0	Rg	0	Rg	0	...	0	...	0	P	0	Rg	+	P	0	P	0	RF	0
11	+	Rg (F)	0	P	+	P	+	...	+	P	+	...	0	...(F)	0	Rg	0	P	+
12	0	...	0	Av	+	...	0	Av	+	Av (F)	+	Av	0	RF	0	...	0	Av	0
13	0	Av	0	Av (F)	0	...	+	Av	0	Rg (F)	0	Av	0	Rg	0	Av	0	...	0
14	0	Rg	0	...	0	RF	0	...	0	...	+	Rg	0	Av	+	...(F)	+	...	0
15	+	Rg	+	P	0	...	0	Rg	0	Av	+	...(F)	+	Rg	+	...	+	...	+

[a] + indicates more +'s than 0's across the 9 dimensions; 0 indicates more 0's than +'s.

[b] ... indicates no clear preference.

[c] X indicates no data available.

[d] (F) indicates forgetting; scored only on subjects and pictures used in this study.

(continued)

TABLE 15 (CONTINUED)

ASSESSMENT SUMMARY (CONFLICTS AND DEFENSES)

Subj.	Pic. I		Pic. II		Pic. III		Pic. IV		Pic. V		Pic. VI		Pic. VIII		Pic. IX		Pic. X		Overall Conflict
	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	
16	+	Rg	0	...	+	RF	0	P	+	P	0	...(F)	0	Rg	+	P (F)	+	RF	+
17	0	...	0	...	+	Rg	0	Rg	+	...(F)	0	RF	+	Rg	0	P (F)	+	...	0
18	+	X	0	X	+	X	0	X	+	X	0	X	+	X	0	X	+	X	+
19	+	Rg (F)	+	...(F)	+	RF	+	Av	+	RF	0	Av (F)	+	P	0	P	+	RF	+
20	0	...	0	I (F)	+	Av	0	RF	+	...	0	Av	0	RF	+	Av	0	...	0
21	0	I	+	... (F)	0	RF	0	...	+	I	+	...	+	...(F)	0	...	+	I	+
22	+	RF	0	P	+	...	0	...	+	P	+	...	+	...	+	I (F)	+	I	+
23	0	Av	+	...	0	...	+	...	0	...	+	Av	0	...	+	...	+	...	+
24	0	I	+	Rg	0	Av	0	RF	0	I	0	RF	0	Av	+	...	0	I	0
25	0	Rg	+	...	P	Rg	+	P	0	...	+	Av	0	Rg	+	...(F)	0	Av	0
26	0	Rg	+	P	0	I	+	...	+	...	+	...	0	Rg	+	...	0	I	+
27	+	I	+	...	0	RF	0	...	0	I	+	...	0	...	0	...	+	RF	0
28	0	...	0	Rg	+	Rg	0	Av	+	P	+	Av	0	P	0	Av (F)	0	Av	0
29	+	I	+	Av	+	RF	0	RF	0	...	+	...(F)	0	RF	0	...	0	I	0
30	0	Rg	+	Av	0	RF	+	P	0	Av	0	Av	+	P	0	Rg	0	I	0
31	+	...	+	P	+	I	+	...	+	...	+	I	+	I	+	...(F)	+	...	+
32	0	...	+	RF	0	...	0	Av	+	...(F)	+	Av	0	P	+	...(F)	+	Av	+
33	0	Av	0	...	0	RF	0	Av	+	P	+	...(F)	0	...	0	Av	+	...	0
34	0	...	+	Av	0	RF	+	Av	+	I	0	RF	+	...	+	I	+	...	+
35	0	Rg (F)	0	...(F)	0	Av	0	Rg	0	...(F)	0	Av (F)	+	RF	0	P (F)	0	...	0

(continued)

TABLE 15 (CONTINUED)

ASSESSMENT SUMMARY (CONFLICTS AND DEFENSES)

Subj.	Pic. I		Pic. II		Pic. III		Pic. IV		Pic. V		Pic. VI		Pic. VIII		Pic. IX		Pic. X		
	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Conflict	Defense	Overall Conflict
36	0	Rg	+	Rg	+	P	0	Rg	0	...(F)	+	Av	+	Rg	0	...	0	RF	0
37	0	...	0	Rg	0	Rg	0	...	0	...(F)	+	...(F)	+	P	0	...	0	...	0
38	0	I	+	...	+	...	+	RF	0	RF	0	RF	+	I	+	...	0	P	+
39	0	...	+	RF	+	...	+	...	+	P (F)	+	...(F)	+	Av	0	...	0	...	+
40	0	...	+	Rg	0	...	+	...	0	P (F)	+	Av	+	Rg	0	P (F)	0	...	0
41	0	...	+	P	+	...	+	P	0	P	0	Rg	+	Rg	+	...	+	P	+
42	+	Rg	0	Av	0	Av	+	Av	+	Av	+	Av	0	...	0	...	0	...	0
43	+	Rg	0	Av (F)	0	RF	0	RF	+	...	0	P	+	Rg	+	I (F)	+	...	+
44	0	Rg	0	...	0	...	+	...	+	...	+	I	0	P	0	Av (F)	+	RF	0
45	0	Av	0	RF	0	RF	+	Rg	0	RF	+	...(F)	+	Rg	0	RF	+	...	0
46	0	Rg	0	...	0	RF	+	...	+	...	+	Rg	+	...	0	...	0	...	0
47	0	I	0	RF	?	RF	0	I	+	D (F)	0	P	+	P	+	...(F)	+	...	0
48	+	I	0	...	0	RF	0	Av	+	P	0	Rg	0	RF	0	RF	+	...	0
49	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
50	+	I	+	...	0	RF	0	Av	+	I (F)	+	P	0	Av	0	I	+	I	+

APPENDIX B

THE DEFENSE PREFERENCE INQUIRY (FORM M 53)

(Note: before each inquiry item is given the mean obtained for the item on the first administration (M_1) and on the second administration (M_2), and the defense mechanism represented by each item. The defense mechanisms are abbreviated as follows: Av = Avoidance; P = Projection; R = Regression; I = Intellectualization; and RF = Reaction Formation.)

Picture I. "Here is Blacky with Mama." *

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.		
2.56	3.14	I	A.	Blacky makes sure he eats heartily to facilitate the growth of healthy bodily tissues which will fortify him for activities which might lie ahead.
2.74	2.74	Rg	B.	Blacky tends to act in the same helpless infantile way as when he was first born, often stuffing himself more than is good for him.
3.49	3.35	P	C.	Blacky is busy getting his dinner here, but he thinks it is really Mama who makes him eat so much all the time.
3.07	2.84	RF	D.	As Blacky eats, he thinks to himself that it's about time he went after his own food rather than having to depend on Mama.
3.14	2.93	Av	E.	When Blacky is busy with other things, he often forgets to come to eat, but here he's making up for lost time.

*The short phrase describing each picture is followed by a half-page space for the spontaneous story.

Picture II. "Here is Blacky with Mama's collar."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.		
2.60	2.60	Rg	A.	When Blacky gets angry, he often throws a temper tantrum like he did in his earlier days.
2.88	2.81	RF	B.	Blacky tries to pretend that he's ferocious, but when Mama is around he is sure to be overly gentle, calm and well-behaved.
3.09	3.49	I	C.	Blacky is a firm believer in the idea of releasing one's aggressions, so he feels justified in ripping Mama's collar here.
2.98	2.86	Av	D.	Blacky is so intent on chewing the collar to pieces that he doesn't even realize it belongs to Mama.
3.44	3.23	P	E.	In Blacky's own way of thinking, his family has been treating him so unfairly that he feels entitled to chew up the collar.

Picture III. "Here Blacky is relieving himself."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.		
3.57	3.61	Av	A.	It may look like Blacky is relieving himself between his parents' houses, but possibly he's just digging a hole to bury a bone.
3.11	2.75	I	B.	Blacky knows Mama and Papa are not going to like the spot he chose, but to his way of thinking a dog's physical well-being is extremely important.
2.98	2.96	Rg	C.	The consequences of Blacky's relieving himself there might very well make him wish that he were a young puppy again.
2.91	3.02	P	D.	Blacky thinks his behavior here is perfectly all right because he senses that Mama and Papa have been unreasonably irritated with him, even though their actions didn't show it.
2.43	2.59	RF	E.	Blacky figures that Mama and Papa will be pleased to find him so clean and neat about covering his mess.

Picture IV. "Here are Blacky, Mama and Papa."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.		
2.61	2.59	RF	A.	Blacky is feeling irritable, but he'll cheer up when he realizes that Mama and Papa love each other so much.
3.02	3.23	P	B.	Though Blacky is the one behind the bushes, he's still upset by the thought that his parents are hiding their love-making from him in order to keep him out of the group.
2.11	1.96	Av	C.	At the moment Blacky is upset watching his parents together, but he'll soon forget his anger as he starts playing again.
3.30	3.43	Rg	D.	As Blacky watches, he works himself into a fit of anger and helpless rage which will force Mama to take care of him again.
3.95	3.80	I	E.	Blacky feels justified in getting angry here because he wants his parents to enjoy the other activities they had planned.

Picture V. "Here Blacky is discovering sex."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.		
2.84	3.25	I	A.	Blacky has come to believe that frequent explorations of this sort are necessary to learn more about the role of his sexual anatomy in the functioning of his body.
2.91	3.23	Av	B.	Though licking himself, Blacky isn't affected by sexual sensations and will soon move on to other parts of his body.
3.16	2.93	RF	C.	Blacky will soon give up this childish practice and will devote his time to more constructive activities.
2.30	2.34	P	D.	Blacky is enjoying his discovery, but he knows that others often get very upset and guilty over such actions.
3.79	3.25	Rg	E.	When Blacky gets puzzled by a strange new experience like this, he naturally thinks back to the "good old days" before such problems existed.

Picture VI. "Here Blacky is watching Tippy."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
3.23	3.00	RF	A. Blacky is intently watching this scene, waiting to see if Tippy's appearance will be improved as a result.
2.89	2.89	Rg	B. Blacky's anticipation of this happening to him will lead him to act like a puppy too young to have his tail removed.
2.91	3.11	P	C. Blacky's own reaction here is merely one of interest, but he thinks that seeing such an act would make other dogs panicky whenever they got around a knife.
3.18	3.14	I.	D. Blacky is frightened here, but he knows that experiences like this will toughen him for future trials and tribulations.
2.82	2.86	Av	E. At first Blacky is terrified by seeing the knife, but he soon decides that it must be some new kind of game.

Picture VII. "Here is Blacky with a toy dog."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
2.75	3.00	Rg	A. Blacky is so perplexed and frustrated by the toy that he may lose control of his temper the way he did when he was a pup.
3.50	3.52	P	B. Blacky wants to mind his own business but he figures the toy dog is trying to start a fight by blocking his path.
3.25	2.66	Av	C. Blacky is eagerly calling the family's attention to his new toy dog, which he is very proud of.
2.50	2.86	I	D. Blacky feels justified in this furious outburst against the toy dog because, after all, discipline is vital to the development of a well-rounded personality.
3.00	2.96	RF	E. Blacky is delighted to have this little companion to whom he can give advice, love and affection.

Picture VIII. "Here Blacky is watching the rest of the family."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
3.43	3.05	Av	A. Standing off at a distance like this, Blacky is impressed primarily by the fact that his family is such an intimate group.
3.30	3.25	RF	B. Blacky is pleased to see Mama and Papa being affectionate to Tippy, since he feels that Tippy deserves a turn at getting attention.
2.91	3.25	I	C. Blacky believes that insight into his own jealousy of Tippy will enable him to handle himself better in competitive situations later on.
2.70	2.73	Rg	D. As Blacky watches the rest of the family, he'll act like a helpless infant so they will have to treat him like a baby the way they once did.
2.59	2.73	P	E. Blacky suspects that Tippy has been trying to win over Mama and Papa because Tippy is envious of their feelings toward Blacky.

Picture IX. "Here Blacky is very upset."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
3.41	3.23	P	A. Blacky feels he wouldn't be in the spot he's in now if others hadn't led him astray.
2.34	2.11	Av	B. Blacky's unhappiness will force him to drift into other thoughts which don't bother him as much.
3.02	3.18	RF	C. After an experience like this, Blacky will become a model of virtue and scrupulously avoid any wrongdoing.
3.05	2.73	I	D. Though he's suffering now, Blacky will come to realize that his code of ethics is needlessly strict and confining.
3.18	3.66	Rg	E. This experience proves so disturbing to Blacky that it will be a long time before he is able to act his age again.

Picture X. "Here Blacky is having a dream."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
2.89	3.05	Av	A. Blacky is enjoying his dream now, but he probably won't remember it when he wakes up.
3.20	3.52	P	B. As Blacky dreams, he thinks of the gap between what his family is really like and what ideal dogs should be.
3.27	2.89	Rg	C. When Blacky wakes up to what he's really like, he'll want to run to his parents for advice and comfort.
3.00	2.96	RF	D. After Blacky awakens, he'll begin to show off and act like the big shot he dreamt about.
2.63	2.59	I	E. Blacky figures he doesn't amount to much now, but knowing where one really stands is half the battle.

Picture XI. "Here Blacky is having another dream."

Rank all of the following statements according to how well they seem to fit the situation.

1 = fits best
2 = fits second best
3 = fits third best
4 = fits fourth best
5 = fits worst

M_1	M_2	Def.	
4.11	3.78	P	A. Blacky isn't concerned about not getting a dog like this, because he figures that even beautiful females are sometimes inadequate in their dealings with males.
2.75	3.00	I	B. Blacky hasn't been very successful in his love life, but he likes to believe that fantasy often serves as a preparation for action.
3.34	3.57	RF	C. Blacky is solely concerned with adding to his long list of female conquests, and here he is dreaming of another prospect.
3.00	2.63	Av	D. Blacky's dream is becoming clearer to him, but he still can't make out who that familiar figure could be.
1.75	2.02	Rg	E. Blacky is dreaming here of a mate who will cater to his strong needs for comfort, support and protection.

APPENDIX C

TABLE 16

CALLS ON THE PERCEPTUAL VIGILANCE SERIES

Subject	Picture I	Picture II	Picture V	Picture VI	Picture VIII	Picture IX
1	3	16	...	9	...	20
2	9	...	8	7	...	24
5	12	13	10	...	13	...
6	...	14	8	13	13	...
7	...	10	11	14	13	...
9	...	15	12	10	11	...
10	14	12	...	9	13	...
11	...	...	29	5	5	9
12	12	...	9	...	12	15
13	9	12	9	...	18	...
14	...	4	4	20	20	...
15	9	17	....	9	...	13
16	29	4	4	11	...	...
17	...	11	7	14	16	...
19	...	5	14	...	7	22
20	6	...	20	...	4	18
21	7	16	...	9	...	16
22	11	14	...	13	10	...
23	...	10	11	13	14	...
25	16	10	2	...	...	20
26	8	18	7	15	...	...
27	14	16	...	...	6	12
28	15	12	3	18	...	...
29	16	11	6	...	15	...
30	10	16	...	...	1	21
31	10	13	...	12	...	13
32	13	9	...	11	15	...
33	...	11	6	...	18	13
34	10	19	7	12	...	...
35	6	...	...	10	16	16
36	7	14	...	12	...	15
37	18	12	...	8	10	...
38	14	13	6	...	...	15
39	5	11	...	...	7	25
40	7	21	...	6	...	14
41	9	15	...	10	14	...
42	11	...	8	...	15	14
43	...	14	8	13	13	...
44	...	20	...	12	10	6
45	11	...	1	14	22	...
46	...	9	4	9	26	...
47	3	16	...	...	7	22
48	16	10	11	...	11	...
50	...	14	...	19	15	0

APPENDIX D

TABLE 17

CALLS ON THE PERCEPTUAL DEFENSE SERIES

Subject	Picture I					Picture II					Picture V					Picture VI					Picture VIII					Picture IX				
		S's Resp. Choice		Resp. to E's Query			S's Resp. Choice		Resp. to E's Query			S's Resp. Choice		Resp. to E's Query			S's Resp. Choice		Resp. to E's Query			S's Resp. Choice		Resp. to E's Query			S's Resp. Choice		Resp. to E's Query	
	Total Calls	1st calls	2nd calls	1st calls	2nd calls	Total Calls	1st calls	2nd calls	1st calls	2nd calls	Total Calls	1st calls	2nd calls	1st calls	2nd calls	Total Calls	1st calls	2nd calls	1st calls	2nd calls	Total calls	1st calls	2nd calls	1st calls	2nd calls	Total calls	1st calls	2nd calls	1st calls	2nd calls
*1	19**	12	7	11	8	16	5	11	9	7	6	4	2	2	4	17	9	8	8	9	14	3	11	7	7	19	10	9	8	11
2	13	7	6	9	4	13	6	7	5	8	9	4	5	5	4	19	14	5	8	11	15	4	11	7	8	27	13	14	14	13
5	18	8	10	11	7	19	6	13	7	12	15	7	8	7	8	13	7	6	6	7	13	12	1	8	5	18	8	10	9	9
* 6	0	0	0	0	0	30	15	15	12	18	17	8	9	10	7	0	0	0	0	0	17	5	12	9	8	31	20	11	16	15
7	15	6	9	7	8	19	7	12	8	11	15	10	5	7	8	12	7	5	7	5	19	14	5	12	7	16	4	12	7	9
9	17	10	7	12	5	13	4	9	5	8	23	13	10	11	12	9	4	5	6	3	18	11	7	7	11	16	6	10	7	9
10	20	8	12	11	9	15	6	9	10	5	6	3	3	3	3	13	7	6	4	9	14	5	9	6	8	28	19	9	14	14
* 11	15	4	11	5	10	21	8	13	13	8	16	9	7	7	9	12	6	6	5	7	16	11	5	8	8	15	10	5	9	6
12	8	6	2	3	5	27	7	20	11	16	10	3	7	7	3	16	6	10	5	11	13	9	4	6	7	22	17	5	16	6
13	25	11	14	16	9	0	0	0	0	0	12	4	8	5	7	14	7	7	9	5	23	15	8	9	14	22	11	11	9	13
14	8	5	3	2	6	12	3	9	6	6	19	8	11	8	11	18	12	6	10	8	16	7	9	10	6	23	13	10	12	11
15	24	17	7	16	8	18	4	14	5	13	10	8	2	8	2	16	6	10	5	11	0	0	0	0	0	28	13	15	14	14
16	21	14	7	8	13	24	8	16	14	10	22	11	11	9	13	12	5	7	5	7	7	4	3	4	3	10	6	4	8	2
17	0	0	0	0	0	21	11	10	16	5	19	15	4	8	11	14	2	12	4	10	28	12	16	16	12	14	8	6	4	10
19	28	18	10	11	17	0	0	0	0	0	27	13	14	15	12	10	5	5	6	4	11	4	7	6	5	20	8	12	10	10
20	8	5	3	4	4	20	9	11	12	8	12	3	9	3	9	19	7	12	11	8	17	9	8	7	10	20	15	5	11	9
21	13	11	2	7	6	19	3	16	10	9	11	5	6	6	5	14	9	5	9	5	13	8	5	5	8	26	12	14	11	15
22	14	7	7	9	5	21	12	9	7	14	11	3	8	5	6	15	3	12	6	9	17	15	2	12	5	18	8	10	9	9
23	7	3	4	5	2	19	6	13	6	13	12	7	5	4	8	12	5	7	8	4	19	15	4	7	12	27	12	15	18	9
25	15	9	6	8	7	21	10	11	11	10	15	11	4	10	5	13	1	12	6	7	11	5	6	4	7	21	12	9	9	12

*Subject 1 had 5 calls, Subject 6 had 1 call, Subject 11 had 1 call, and Subject 39 had 3 calls for Picture IV, which was included in the study.

**Underlining on total calls indicates present picture.

TABLE 17(Cont.)

Subject	Picture I: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls	Picture II: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls	Picture V: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls	Picture VI: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls	Picture VIII: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls	Picture IX: S's Resp. Choice — Total Calls	1st calls	2nd calls	Resp. to E's Query — 1st calls	2nd calls
26	0	0	0	0	0	26	19	7	16	10	17	12	5	12	5	20	9	11	9	11	19	3	16	5	14	14	5	9	6	8
27	16	6	10	7	9	10	2	8	3	7	12	4	8	6	6	17	5	12	7	10	25	18	7	14	11	16	13	3	11	5
28	16	13	3	11	5	9	6	3	7	2	16	10	6	5	11	20	10	10	11	9	16	4	12	5	11	19	5	14	9	10
29	22	16	6	14	8	17	6	11	8	9	13	3	10	5	8	12	7	5	6	6	11	8	3	3	8	21	8	13	12	9
30	6	2	4	4	2	17	5	12	9	8	10	3	7	4	6	11	3	8	3	8	29	15	14	13	16	23	20	3	15	8
31	17	12	5	11	6	26	8	18	15	11	19	2	17	8	11	14	13	1	8	6	19	13	6	5	14	1	0	1	1	0
32	21	10	11	11	10	19	13	6	12	7	2	2	0	1	1	13	2	11	2	11	16	7	9	6	10	25	14	11	16	9
33	20	10	10	12	8	17	11	6	7	10	6	2	4	2	4	11	5	6	3	8	18	9	9	9	9	24	11	13	15	9
34	20	12	8	12	8	17	7	10	9	8	18	15	3	10	8	13	5	8	6	7	14	1	13	4	10	14	8	6	7	7
35	26	9	17	12	14	0	0	0	0	0	17	5	12	7	10	16	7	9	5	11	14	7	7	6	8	23	20	3	18	5
36	24	14	10	14	10	23	11	12	10	13	5	3	2	2	3	5	0	5	1	4	12	3	9	5	7	27	17	10	16	11
37	18	16	2	13	5	11	5	6	7	4	18	5	13	7	11	19	12	7	8	11	18	8	10	10	8	12	2	10	3	9
38	24	13	11	12	12	18	9	9	10	8	14	3	11	4	10	15	6	9	7	8	6	2	4	2	4	19	15	4	13	6
*39	21	14	7	13	8	26	12	14	10	16	0	0	0	0	0	23	9	14	9	14	0	0	0	0	0	23	12	11	13	10
40	0	0	0	0	0	17	5	12	8	9	22	11	11	12	10	17	9	8	12	5	16	5	11	10	6	24	18	6	6	18
41	8	7	1	5	3	17	7	10	6	11	21	10	11	12	9	21	13	8	12	9	14	7	7	6	8	15	4	11	7	8
42	20	8	12	10	10	14	7	7	5	9	14	9	5	5	9	20	10	10	13	7	13	4	9	5	8	15	10	5	10	5
43	31	21	10	19	12	0	0	0	0	0	10	3	7	5	5	30	18	12	13	17	25	6	19	11	14	0	0	0	0	0
44	13	1	12	4	9	17	11	6	9	8	13	4	9	7	6	18	13	5	6	12	16	9	7	10	6	19	10	9	12	7
45	8	2	6	4	4	26	10	16	16	10	11	10	1	4	7	19	10	9	7	12	19	12	7	11	8	13	4	9	6	7
46	14	12	2	8	6	19	5	14	9	10	12	7	5	4	8	15	8	7	7	8	23	9	14	13	10	13	7	6	7	6
47	10	7	3	6	4	21	11	10	9	12	18	8	10	9	9	18	4	14	7	11	16	9	7	12	4	13	9	4	5	8
48	17	11	6	9	8	14	2	12	4	10	15	8	7	8	7	8	6	2	6	2	23	8	15	10	13	19	13	6	11	8
49	0	0	0	0	0	16	2	14	8	8	19	8	11	11	8	19	13	6	7	12	23	17	6	14	9	19	8	11	8	11

APPENDIX E

ACCURACY PERCENTAGES ON THE PERCEPTUAL DEFENSE SERIES

Subject	Accuracy
1	.197
2	.354
5	.260
6	.156
7	.322
9	.135
10	.145
11	.333
12	.281
13	.270
14	.260
15	.270
16	.427
17	.270
19	.156
20	.260
21	.229
22	.375
23	.208
25	.333
26	.125
27	.343
28	.406
29	.281
30	.333
31	.281
32	.250
33	.250
34	.291
35	.218
36	.354
37	.291
38	.364
39	.479
40	.197
41	.354
42	.333
43	.302
44	.500
45	.302
46	.270
47	.312
48	.385
50	.406

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