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Hostile behavior as a function of strength of need, degree of insight, and need-relevance of the stimulus.

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HOSTILE BEHAVIOR AS A FUNCTION OF
STRENGTH OF NEED, DEGREE OF INSIGHT
AND NEED-RELEVANCE OF THE STIMULUS

DAVID J. SANDS

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David J. Sands

Hostile Behavior as a Function of
Strength of Need, Degree of Insight,
and Need-Relevance of the Stimulus

by

David J. Sands

Submitted in Partial Fulfillment of
the Requirements for the Ph.D Degree
in Psychology at the University of
Massachusetts

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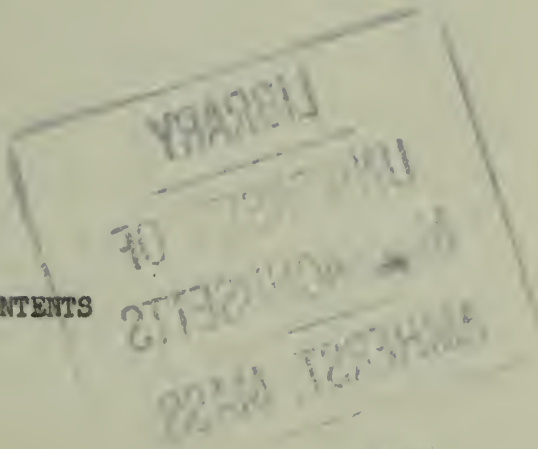


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INTRODUCTION AND HISTORICAL BACKGROUND

The present study investigated hostile behavior as a function of the interaction of three factors: the strength of the hostile need¹, the degree of insight into the need, and the hostility (i.e., need-relevance) of the stimulus-content. Other studies have investigated one or two of these factors, but the results have often been inconsistent. A failure to consider the interaction of all three factors may have been one reason for the contradictory findings. In addition, results obtained from one behavior modality have often been generalized without adequate grounds to other behavior modalities. This has been true especially with perceptual, apperceptive, and "everyday" measures of behavior. Therefore, the present study employed three such measures in order to compare their results.

The remainder of the present chapter will review studies which deal with the three factors: strength of need (including the hostile need), degree of insight, and need-relevance of the stimulus-content. Both the individual effects of these factors and their interactions will be examined. The question of generality of results for different response modalities will be discussed and specific hypotheses for the present study will be indicated.

¹
In the present study, the term "need" is used in the broad sense that Murray (26) employs. It involves underlying tendencies toward selective behavior, and includes both the physiological drives (such as hunger) and social attitudes (such as hostility, achievement, etc.)

Strength of Need

Two general techniques have been employed in manipulating the strength of need: (a) inferring the presence and strength of the need from need-related responses on projective tests or from characteristics of the subject such as his socioeconomic status, and (b) directly inducing the need by specific operations (e.g., deprivation of food) or by taking advantage of such established processes as the eating cycle. Thus, one may speak of "inferred need" and "induced need".

Perception

Many studies have been concerned with the effects of strength of need upon perceptual behavior. These studies have largely been of the "induced need" type. Sanford (32) found that more food responses were given to an ambiguous picture-interpretation test just before a meal than just after it. Levine, Chein, and Murphy (21) obtained similar results. McClelland and Atkinson (23) instructed subjects to report observations of "faint images" which supposedly were projected on a screen. Although no images were actually projected, it was found that increasing periods of food deprivation resulted in an increasing number of food-related responses. Lazarus, Yousem, and Arenberg (19) exposed pictures of food and non-food objects by means of a tachistoscope. They found that differential thresholds of recognition for the food vs. the non-food objects varied significantly with degree of food deprivation and subjective hunger. Murray (25) found that a group of eleven-year-old girls rated a group of faces more "malicious" after playing games of "murder" in the dark than after ordinary activity in the sunshine. In

a study of the "inferred need" type, Bruner and Goodman (6) found that poor children overestimated the size of coins to a greater degree than did rich children. Thus, there seems to be a tendency for the strength of a perceptual response, as inferred from threshold or magnitude scores, to be related to the strength of the relevant need.

Apperception

The studies of apperception have also been largely concerned with "induced need". Atkinson and McClelland (1) found that hungry subjects tended to include in their stories more activity associated with getting food than did non-hungry subjects. McClelland, Clark, Roby, and Atkinson (24) induced different levels of the achievement need and found that mean need-achievement scores in the stories the subjects told increased significantly in accordance with the presumed increase in need. Bellak (4) showed ten TAT cards to seven subjects. These cards had been found by previous investigation to elicit hostile stories. He administered the first five stories without comment, but beginning with card six he criticized severely the stories which the subjects told. The purpose of the criticism was to induce hostile feelings in the subjects. The results indicated that stories contained more hostility (as measured by a count of hostile words and by the ratings of two judges) when the subjects were criticized than when the experimenter made no adverse comments. In general, therefore, the studies of apperception suggest that the strength of the apperceptive response is directly related to the strength of the relevant need.

"Everyday" Behavior

In contrast to the perceptual and apperceptive studies, the investigations of "everyday" behavior have been concerned with "inferred need". Sanford, et. al. (33) correlated underlying needs as inferred from TAT stories with ratings of overt behavior. An overall mean correlation of $.11$ was obtained, with a range of $.41$ to $-.44$. Hostile fantasy correlated only $.15$ with hostile overt behavior. In a similar study, Murray (26) also failed to find a relationship between TAT fantasy hostility and overt hostility. Mussen and Naylor (27) controlled the factor of "fear of punishment". This step was taken because Dollard, Deob, et. al. (8) postulated a direct relationship between fear of punishment and the degree of inhibition of hostile behavior. Mussen and Naylor found that the strength of hostility in TAT stories was significantly related to rated overt hostile behavior provided the factor of fear of punishment, as inferred from intropunitive hostility in the stories, was low. Generally, therefore, most of the studies of "everyday" behavior do not agree on a direct relationship between strength of response and strength of the relevant need.

In conclusion, the relevant literature suggests a direct relationship between strength of response and strength of relevant need in the case of perceptual and apperceptive behavior, but not for "everyday" behavior. However the existence of such a direct relationship is posited in the following hypothesis, more as a guide for evaluating data than because of a predominance of affirmative evidence.

All other factors being equal, the stronger the hostile need, the more hostile the response.

Degree of Insight

Insight, as it is used in the present study, refers to an individual's verbal awareness of a particular trait, need, or other characteristic which he possesses. This self-awareness has been termed "symbolization" by Shaw (35) and "labelling" by Dollard and Miller (9). The latter consider the label to be a response and therefore to be subject to the laws and phenomena of learning. One of these phenomena is inhibition; that is, the simultaneous production of competing responses. These competing responses are motivated by anxiety; the anxiety arises from the fact that overt responses relevant to the labelled need have been punished in the past. If the competing responses are strong enough, the labelling response may be blocked. In that case, insight is said to be absent. In clinical terms this process is referred to as "repression".

Sears (34) studied the combined effect of strength of need and degree of insight on the perception of personality traits. He asked the members of three fraternities to rate themselves and their fraternity brothers on a group of character traits such as "stinginess" and "obstinacy". From these two sets of ratings the following information was derived: (a) the degree to which each subject possessed a given trait as determined by the combined ratings assigned to him on that trait by his fraternity brothers, (b) the amount of a given trait attributed to others by a subject as determined by the ratings for a particular trait which a subject assigned to his fraternity brothers, and (c) the presence or absence of insight for a trait, which was determined by whether a subject rated himself in the same half of the distribution as his fraternity

brothers rated him or in the other half of the distribution. On the basis of these descriptions, the subjects were formed into four groups: Group I, above average in a trait, with insight; Group II, above average in a trait, without insight; Group III, below average in a trait, without insight; Group IV, below average in a trait, with insight. When the ratings of Groups I and II were compared, it was found that the non-insightful group attributed a greater degree of a trait to others than did the insightful group. This was taken to confirm the hypothesis that lack of insight leads to "projection", i.e., the ascribing of characteristics to others which one denies in oneself. In the case of Groups III and IV, however, the results were in the opposite direction: subjects without insight attributed less of a trait to others than did insightful subjects. Sears referred to this phenomenon as "contrast-formation".

In an experiment of somewhat similar design to Sears' study, Lehman and Solomon (20) were unable to reproduce his findings. Frenkel-Brunswik (16), using a list of needs devised by Murray (26), found no simple relationship between insight and accuracy in judging others. Norman (28), however, did find results somewhat comparable with Sears'. He computed insight by comparing the self-ratings of subjects with the ratings of peers and experienced clinicians. The accuracy of judgment of others was obtained by comparing subjects' ratings of others with the ratings of peers and experienced clinicians. The results showed a significant positive relationship between insight and the accurate judgment of others. Chodorkoff (7) found that the more distorted the subject's perception of threatening words, the more distorted was his self-perception as measured by the discrepancy between the subject's Q-sort of self-descriptive statements and

an interpretation by clinical psychologists of the subject's projective tests. Similar results were found by Goodman (17).

In another group of studies, a lack of insight for certain needs may reasonable be inferred from the fact that the needs were considered "unacceptable to the ego". Eriksen (12), employing a group of alcoholics and paranoid schizophrenics, administered a word-association test composed of "hostile", "succorant", "homosexual", and "neutral" words. The rationale was that alcoholics and paranoid schizophrenics have strong hostile, succorant, and homosexual needs. Long association times or unusual responses were taken to indicate that the corresponding needs were unacceptable to the ego. Sixteen black and white drawings were then exposed by means of a tachistoscope; two drawings were relevant to each need and ten were neutral. The results disclosed significant positive relationships between disturbance scores on the word-association test and degree of threshold elevation on the corresponding need drawings. Eriksen and Lazarus (14) used the word-association test method for determining the existence of unacceptable hostile, succorant, and homosexual needs in groups of hospital and clinic patients and in college students. They then administered a Rorschach Concept Choice Test in order to discover whether the subjects were able to respond appropriately to those areas of the blots which were assumed to bear hostile, succorant, or homosexual connotations. It was found that disturbance scores on the word-association test items for hostility and succorance were significantly related to the tendency to reject corresponding types of percepts on the Rorschach Concept Choice Test.

In general, the relevant literature suggests that a lack of insight is associated with two contrasting phenomena. In certain cases it is associated with a decrease in the strength of the response, and in other cases it is associated with an increase in the strength of the response. The factors determining which phenomena occurs will be discussed in the section on the interaction of strength of need, degree of insight, and need-relevance of the stimulus.

Need-Relevance of the Stimulus

The need-relevance of a stimulus refers to the degree to which that stimulus pertains to the need in question. It is self-evident that the strength of a response is a function of the strength of the stimulus. For the present study, the relationship may be stated as follows:

All other factors being equal, the stronger the content hostility of the stimulus, the more hostile the response.

In the present study, the need-relevance of the stimulus is important mainly because of the fact that it is presumed to interact with strength of need and degree of insight in determining behavior. For that reason, the role of the stimulus will be treated in the section dealing with the interaction of the three experimental variables.

Generality of Response

A direct relationship between two response modalities has been demonstrated in many studies. Eriksen (13) exposed two hostile and eight neutral TAT cards to a group of subjects and obtained tachistoscopic thresholds. He then divided the subjects into "sensitizers" and "defenders" on the basis of these thresholds. Two to four weeks later he administered the cards in the standard manner. When the stories were scored

for hostility, it was found that the two groups of subjects exhibited analogous apperceptive behavior, i.e., the "sensitizers" told more hostile stories and the "defenders" told fewer hostile stories. Thus, perceptual and apperceptive measures gave similar results. Among the studies cited previously, Mussen and Naylor (27) obtained consistent findings for apperceptive and "everyday" hostile behavior. However, Sanford (33) and Murray (26) did not find a significant relationship between fantasy and overt hostile behavior. In the only study employing three response measures, Borgatta (5) found little agreement between the hostility measured by the Rosenzweig Picture - Frustration Test (a paper-and-pencil test), by role-playing situations adapted from the Rosenzweig Test, and by estimates of "everyday" behavior.

In general, the greatest concurrence seems to be between perceptual threshold and apperceptive measures. There is less agreement when "everyday" behavior is concerned.

The Interaction of Strength of Need,
Degree of Insight, and Need-Relevance
of the Stimulus

There have been many studies indicating that two of the variables may interact in determining behavior in a different manner than either alone. Epstein and Smith (11) presented three kinds of pictures to students: pictures showing persons eating, pictures which were suggestive of eating, and pictures showing persons engaging in non-food-related activity. The pictures were presented both before and after the subjects had eaten, i.e., during hunger and during satiation periods. They found a significant interaction between strength of need and need-relevance of

the stimulus. Pictures depicting persons eating elicited fewer hunger-related stories from hungry subjects than from satiated subjects, while pictures showing other activities elicited more hunger-related stories from hungry subjects than from satiated ones. Among the studies already cited, those by Sears (34), Eriksen (12), and Eriksen and Lazarus (14) indicated an interaction between strength of need and degree of insight. Thus far, however, no one has investigated the effects upon behavior of the interaction of all three variables. In many cases, failure to consider such an interaction may have been the reason for the lack of consistency between different studies. For example, there is reason to believe that when insight is absent due to repression one of two types of defensive reactions will occur, depending upon the need-relevance of the stimulus: (a) If the content of the external stimulus is highly need-relevant, the need-relevant response to it is apt to be reduced in strength. It was this finding which Postman, Bruner, and McGinnies (30) referred to as "perceptual defense". In the remainder of the present study, "defense" refers to reduction in strength of both the response which labels the need and the need-relevant response to an external stimulus of highly need-relevant content, regardless of the response modality in which it occurs. (Note: "defense" as used in the present study is to be distinguished from its more general meaning of "defense-mechanism"); (b) However, if the content of the external stimulus is low in need-relevance, the need-relevant response is apt to be increased in strength. Presumably this is what occurs in "projection", namely, there is an overestimation of the need in reference to other people together with an underestimation of the need in reference to the self. In the remainder study, inhibition of the

response which labels the need and exaggeration of the need-relevant response to an external stimulus of low need-relevant content is referred to as "pre-jection" regardless of the response modality. Thus, failure to take into account the need-relevance of the external stimulus-content may lead to contradictory findings.

On the basis of the preceding considerations, the following hypotheses are indicated for the present study:

a. An external stimulus of high content hostility will elicit a less hostile response when awareness of hostile impulses has been repressed than when awareness has not been repressed.

b. An external stimulus of low content hostility will elicit a more hostile response when awareness of hostile impulses has been repressed than when awareness has not been repressed.

Summary of Hypotheses

Hypothesis I: "All other things being equal, the stronger the hostile need the more hostile the response."

Hypothesis II: "All other things being equal, the stronger the content hostility of the stimulus, the more hostile the response."

Hypothesis III: "An interaction will occur between strength of the hostile need, degree of insight, and strength of the content hostility of the stimulus." This general hypothesis was implied in the section dealing with the interaction of the three experimental variables. In the same section, the following sub-hypotheses about the interaction were stated:

Hypothesis IV: "An external stimulus of high content hostility will elicit a less hostile response when awareness of hostile impulses has been repressed than when awareness has not been repressed."

Hypothesis V: "An external stimulus of low content hostility will elicit a more hostile response when awareness of hostile impulses has been repressed than when awareness has not been repressed."

EXPERIMENTAL METHOD

Subjects

Two-hundred male undergraduate students from introductory psychology courses were tested. Their participation was part of the course requirements. However, only 90 of these subjects were included in the experimental groups.

Measures of Hostility

Measurement of Strength of Hostile Impulses

Studies by Elizur (10), Finney (15), and others have successfully related Rorschach content to underlying hostility. Therefore, the Rorschach test (31) was employed in the present study as a means of estimating the strength of hostile impulses. In order to increase test reliability, the ten Behn (3) inkblots were added to the ten Rorschach inkblots. A Kodachrome transparency of each blot was exposed for 60 seconds by means of an overhead projector. The order of presentation was Behn I, Rorschach I, Behn II, Rorschach II, etc. The subjects were asked to write down whatever the blots suggested to them, but no attempt was made to ascertain the locations or determinants of the responses.

(See Appendix A for exact instructions to the subjects). After practicing upon ten protocols obtained from Beck (2) and other outside sources, two judges, working independently, scored a random sample of 80 of the 200 test protocols by means of the Elizur Content Score (10). The interscorer reliability coefficient was $.95$. The test-reliability was estimated by comparing the hostility scores on the Behn blots with the hostility scores on the Rorschach blots. The reliability coefficient, based upon the 200 test protocols and corrected for attenuation, was $.74$. The sum of the weights assigned to a subject's responses to the 20 inkblots comprised his inkblot-hostility score.

Measurement of Awareness of Hostile Impulses

Hostile impulses may appear in awareness in the form of hostile feelings, daydreams, wishes, or thoughts. Therefore, in order to measure awareness of hostility, a self-rating questionnaire involving such feelings, daydreams, etc. was constructed. Statements of hostile behavior and sentiments were taken from Murray (26) and modified to express feelings, wishes, etc.; other statements of this kind were adapted from an inventory of fantasy developed by Page and Epstein (29). Some statements also were composed by the writer of the present study. In all, there were 34 hostile statements. These hostile statements were mixed with 36 statements of non-hostile feelings, wishes, etc. All the statements were then administered to 89 male undergraduate students. The instructions required the subjects to rate the personal appropriateness of each statement. A five-point scale was provided: "I wish, feel, daydream, think this way.... (1) Never, (2) Rarely, (3) Occasionally, (4) Often, (5) Very Often." An

item analysis was performed on the 34 hostile statements by correlating the score on each statement with the total score for all hostile statements. For thirty-two hostile statements, phi-coefficients were obtained which were significant at the .05 level or better. Twenty of these hostile statements were taken at random, and the first ten correlated with the second ten; the correlation coefficient was $r = .80$, which indicated significant reliability at better than the .01 level. Nineteen of these statements were correlated with the remaining statement which was considered to be a most direct and overt statement of hostile impulses: "I notice myself to have hostile and aggressive feelings against people and things." Fourteen correlations significant beyond the .05 level were obtained. The split-half reliability of these 14 statements, estimated by correlating the first seven statements with the second seven, was $r = .86$ when corrected for attenuation. These 14 hostile statements (see appendix B), mixed randomly with 68 statements of other kinds of feelings, wishes, etc., composed the self-rating questionnaire. The questionnaire was presented to the subjects in the study proper with instructions to rate the personal appropriateness of each statement. (See Appendixes B and A for questionnaire and exact instructions to subjects respectively) A five-point scale was provided: "I wish, feel, daydream, think this way....(1) Never, (2) Rarely, (3) Occasionally, (4) Often, (5) Very Often." The sum of the weighted self-ratings on the 14 hostile statements comprised a subject's questionnaire-hostility score.

Behavioral Tasks

Perceptual Task

The perceptual stimuli employed in the present study consisted

of a collection of individual faces. In order to obtain two levels of stimulus-hostility, five graduate students in psychology were first shown 72 pictures of criminals. These pictures had been obtained from newspapers, magazines, and FBI identification notices. The graduate students were asked to estimate the degree of hostility in each picture, using their knowledge of the cultural stereotypes of hostile appearance as a basis for judgment. A five-point scale was provided: "The hostility of this picture may be described as....(1) None, (2) Little, (3) Moderate, (4) Much, (5) Very much." Of the 72 pictures, 14 received only ratings of "1" or "2", and 14 received only ratings of "4" or "5" from at least four of the five raters. The former group of pictures were thereafter selected as the "non-hostile" pictures and the latter group as the "hostile" pictures. These 28 pictures were shown one at a time to the subjects, the hostile pictures alternating with the non-hostile. (See Appendix A for exact instructions to subjects) The subjects were told that the pictures were of criminals and that their task was to judge the faces by means of the following five-point scale: "This person is likely to hurt some one physically....(1)Never, (2)Rarely, (3) Occasionally, (4) Often, (5) Very Often." A subject's perceptual hostility score consisted of the sum of his ratings of the pictures. Separate perceptual hostility scores were computed for the hostile and nonhostile themes.

Apperceptive Task

The apperceptive stimuli employed in the present study consisted of a group of "themes". A "theme" was defined as a sentence which was suggestive of a behavioral incident. Some of these themes were composed by the writer of the present study and others were adapted from the Rosenzweig Picture-Frstration Test. In order to obtain two levels of stimulus-hostility, five graduate students in psychology had first

been shown 32 themes. The graduate students rated the hostility of each theme by means of the following five-point scale: "The hostility of this theme may be described as...(1) None, (2) low, (3) Moderate, (4) High, (5) Very High." Seven themes received only ratings of "1" or "2", and seven received only ratings of "4" or "5", from at least four of the five raters. The former group of themes was selected as the "nonhostile" themes and the latter group as the "hostile" themes. These 14 themes were presented to the subjects on a sheet of paper with instructions to write stories about the behavior incident suggested by each theme. (See Appendix C for themes and Appendix A for exact instructions to subjects). The stories were later scored for hostility by two judges who worked independently. (See Appendix D for scoring criteria). An interscorer reliability coefficient of $.89$, based upon an N of 90, was obtained. A subject's apperceptive hostility score consisted of the sum of the weights assigned to his stories by the two judges. Separate apperceptive hostility scores were computed for the hostile and nonhostile themes.

"Everyday" Behavior

An indirect measure of hostile "everyday" behavior was employed in the present study. Each subject was asked to list the names and addresses of five men with whom he was acquainted and who knew him fairly well. Preference was to be given to men in his dormitory or fraternity, and relatives were to be excluded. (See Appendix A for exact instructions to subjects). These persons are hereafter referred to as "acquaintances". Each acquaintance was later sent a mimeographed form (see Appendix E) which contained: (a) A request for his aid, (b) Ten hostile and ten non-hostile behavior incidents or situations, (these incidents were drawn in part from the themes used in the apperceptive part of the study), and

(c) Three possible reactions to each incident. One alternative was relatively low, one moderate, and one relatively high in hostility. In the case of the ten hostile incidents, an attempt was made to have "moderate" hostility represent an appropriate reaction to the incident. However, in order not to limit the acquaintances' choice to three alternatives, each incident was also followed by a seven-point scale on which low, moderate, and high hostility were represented by points 1, 4, and 7 respectively. Each acquaintance was asked to check the point which signified the degree of hostility of the subject's probable reaction. An attempt was made to control rater-reliability of the estimates by including with each incident the following confidence scale: "My confidence in the above rating is.....(1) Very Low, (2) Low, (3) Moderate, (4) High, (5) Very High." An acquaintance's estimations were used only if moderate confidence or better was indicated for at least 80% of the behavior incidents. This figure was taken to indicate that the acquaintance had a fairly comprehensive understanding of the subject's "everyday" behavior. A subject's "everyday" behavior score consisted of the sum of the acquaintances' estimates. Separate scores were computed for the hostile and nonhostile situations.

Essentially, the above procedure consisted of estimating from the judgments of acquaintances how the subject typically reacted in hostile and nonhostile situations. Although the names of five acquaintances were obtained from each subject, only four acquaintances responded in most cases. Since follow-up letters were rarely effective, it was decided to use the available data, even though the reliability of the estimates may have been adversely affected. In those cases in which five acquaintances replied, the data was prorated in order to be comparable with the

estimates from four acquaintances.

Experimental Order

The subjects were seen in groups varying in size from 5 to 15 persons. Approximately two hours were required for each subject to complete the experiment. They were initially given no information other than that the experiment concerned the relationship between feelings, wishes, etc. on the one hand and overt behavior on the other. (See Appendix A for exact explanations to subjects). At the start of the experiment the subjects were presumably naive of the fact that the investigation dealt with hostility. Since the matter of hostility was introduced to them in the instructions for the perceptual task, it was necessary to present the inkblot test and the apperceptive task first. In this way any defensive attitudes toward hostility which might have been aroused by the instructions for the perceptual task could not affect the responses to the less structured stimuli of the inkblot test and the apperceptive task. The order of tasks was: inkblot test, apperceptive task, perceptual task, self-awareness questionnaire, and naming of acquaintances.

Selection of Experimental Groups

After the 200 subjects had participated in all parts of the experiment, distributions were made of the inkblot and questionnaire data. The range of inkblot scores was 0 to 25. In order to have three levels of inkblot-hostility, 0 to 3 was designated the low level, 5 to 6 the medium level and 8 to 25 the high level. The range of questionnaire scores was 15 to 48. In order to have three levels of questionnaire-hostility, 15 to 24 was designated the low level, 26 to 29 the medium level, and 31 to 48 the high level. From these three levels

of inkblot-hostility and three levels of questionnaire-hostility, nine groups of ten subjects each were formed (See Figure 1) These groups included three types of subjects with regard to accuracy in judging their hostile impulses: (a) Insightful subjects, or those subjects whose level of questionnaire-hostility was relatively the same as their level of inkblot-hostility. Thus, they accurately assessed their hostile impulses. These subjects formed groups MH, MM, and LL; (b) Non-insightful repressed subjects, or those subjects with a lower level of questionnaire-hostility than of inkblot-hostility. Thus, they underestimated their hostile impulses. These subjects formed groups HM, HL, and ML. Since the high level of inkblot-hostility included two repressed groups, HM was designated as the "moderately repressed" group and HL as the "highly repressed" group. At the medium level of inkblot-hostility, repressed group ML was also designated as "moderately repressed"; (c) Non-insightful overestimating subjects, or those subjects with a higher level of questionnaire-hostility than of inkblot-hostility. Thus, they overestimated their hostile impulses. These subjects formed groups LH, IH, and LM. Since the low inkblot-hostility level included two overestimating groups, LM was designated as the "moderately overestimating" group and IH as the "highly overestimating" group. At the medium level of inkblot-hostility, overestimating group MI was also designated as "moderately overestimating".

Statistical Procedure

The main statistical procedure consisted of a three-dimensional analysis of variance for each response modality. The dimensions were: inkblot-hostility, questionnaire-hostility, and hostility of the stimulus-content. This procedure permitted the determination of individual and joint effects of the experimental factors. Since each subject experienced two levels in the stimulus dimension, Lindquist's (22) Type III design was used. This permitted the separation from other sources of variance of that portion arising from the difference between each subject's responses to hostile and nonhostile stimuli.

INKBLOT - HOSTILITY	HIGH (8-25)	HH n=10	HM	HL
	MEDIUM (5-6)	MH	MM	ML
	LOW (0-3)	LH	LM	LL
		(31-48) HIGH	(26-29) MEDIUM	(15-24) LOW
		QUESTIONNAIRE - HOSTILITY		

FIGURE 1. Nine experimental groups formed from three levels of inkblot and three levels of questionnaire-hostility. Letters within cells identify experimental groups. The first letter refers to the level of inkblot-hostility, and the second letter to the level of questionnaire-hostility. e.g. HL has high inkblot-hostility and low questionnaire-hostility.

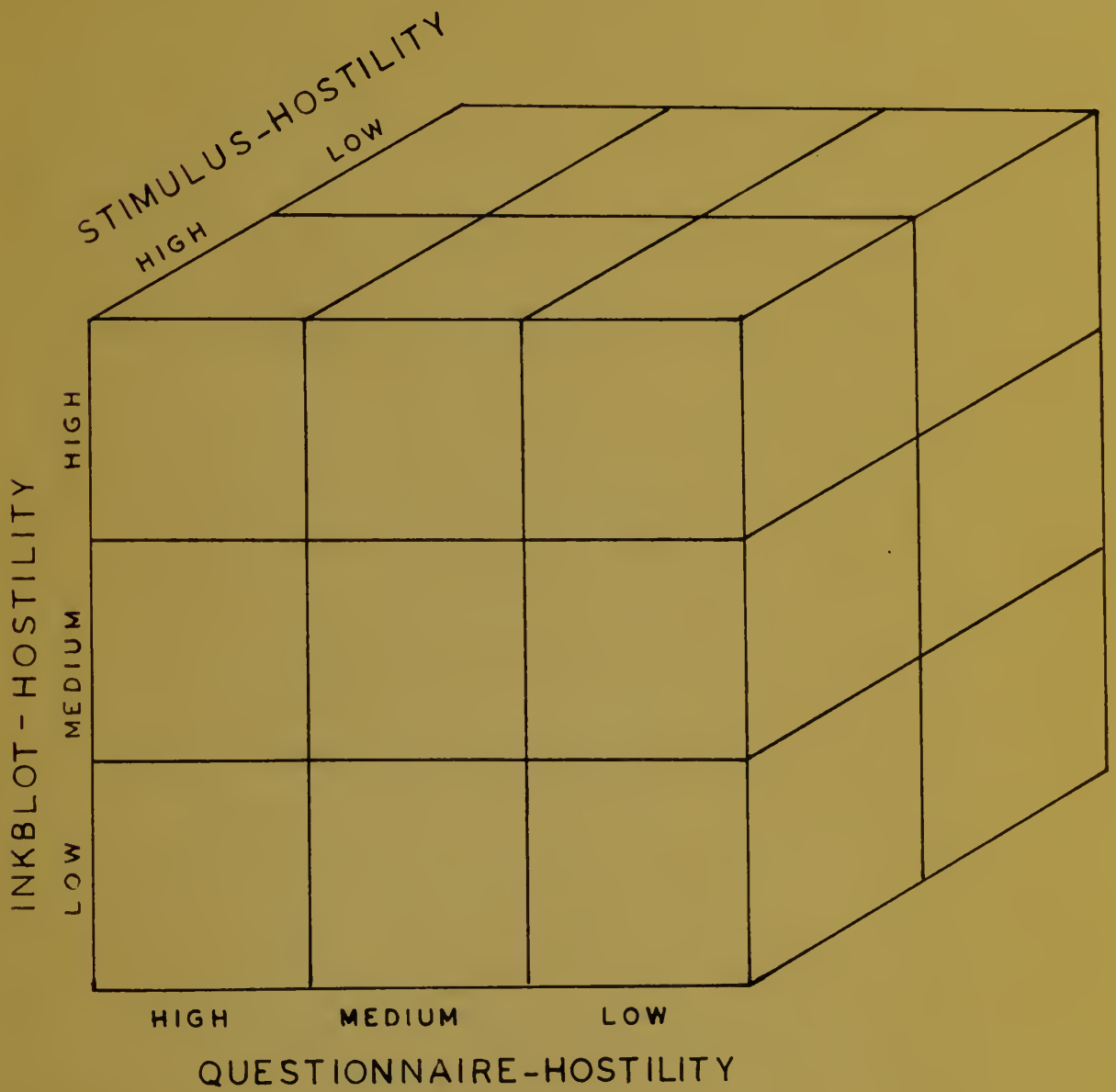


FIGURE 2. Experimental Design

RESULTS AND DISCUSSION

The following is a presentation and discussion of those results which are pertinent to the hypotheses indicated in Chapter 2. In addition, salient findings which were not covered specifically by the hypotheses are described and some general conclusions are presented:

Hypothesis 1: All other Factors being Equal,
the Stronger the Hostile Need the More
Hostile the Response

The analysis of variance described in the previous chapter included "inkblot-hostility" as one of the dimensions. Since the inkblot test was used as the measure of the strength of hostile need, significant F ratios for "inkblot-hostility" would constitute evidence in favor of the above hypothesis.

Perceptual Measure

It may be seen in Table 1 that the F ratio for inkblot-hostility was 1.09. Since this ratio does not approach significance, the hypothesis is not supported by the perceptual data.

TABLE I

Analysis of Variance of
Ratings of Hostile and
Nonhostile Faces

SOURCE OF VARIATION	DF	SS	MS	F
Between Subjects	89	6,828.9		
Inkblot-Hostility	2	172.7	86.3	1.09
Questionnaire - Hostility	2	105.1	52.5	< 1.00
Inkblot x questionnaire hostility	4	77.0	19.2	< 1.00
Error (b)	81	6,474.1	79.9	
Within Subjects	90	9,296.5		
Stimulus-hostility	1	8,806.0	8,806.0	2,516.0 *
Stimulus-hostility x Inkblot-hostility	2	48.1	24.0	1.25
Stimulus-hostility x Questionnaire-hostility	2	80.3	40.2	2.11
Stimulus-hostility x Inkblot-hostility x Questionnaire-hostility	4	76.5	19.1	5.46 *
Error (w)	81	285.6	3.5	
Total	179	16,125.4		

NOTE: A Bartlett's test produced a chi-square of 23.6205; $p = .15$ at 17 degrees of freedom. This suggested a trend toward heterogeneity of variance. However, the starred F ratios were still significant when degrees of freedom were halved in order to compensate for the heterogeneity. * $p = .001$

Apperceptive Measure

It may be seen in Table 2 that the F ratio for inkblot-hostility was 4.50. This ratio is significant at the .025 level. The means for the high, medium, and low levels of inkblot-hostility were 11.49, 10.53, and 9.72 respectively. The order of these means indicates that there was a direct relationship between strength of hostile need and hostility of response. Thus, the hypothesis is supported by the apperceptive data.

"Everyday" Measure

It may be seen in Table 3 that the F ratio for inkblot-hostility was less than 1.00. Since this ratio does not approach significance, the hypothesis is not supported by the "everyday" data.

Discussion

The above results indicate that only apperceptive hostility correlated significantly with inkblot-hostility. The failure to find a significant direct relationship between inkblot-hostility and "everyday" hostility was not surprising in view of similar results by others (26, 33). However, it was surprising that hostility as measured by one perceptual task (responding to inkblots) did not correlate significantly with hostility as measured by another perceptual task (rating faces), but did correlate significantly with hostility as measured by an apperceptive task. Apparently the content of inkblot-responses has more in common with thematic responses than with ratings of faces. It may be that tasks such as rating people, rating faces, associating to inkblots, estimating the size of discs, reporting on tachistoscopic exposures, etc. are too heterogeneous to be grouped in one category (i.e., "perception"). In that case, certain behavioral phenomena, such as that described by Hypothesis 1, may really be functions in part of certain measurement operations and not of others, apart from whether perception or apperception

TABLE 2

Analysis of Variance of Hostility Scores
for Stories Written about Hostile and
Nonhostile Themes

SOURCE OF VARIATION	df	SS	MS	F
Between Subjects	89	994.9		
Inkblot-hostility	2	93.8	46.9	4.50 **
Questionnaire-hostility	2	14.1	7.0	< 1.00
Inkblot x questionnaire- Hostility	4	56.2	14.0	1.34
Error (b)	81	830.8	10.3	
Within Subjects	90	945.0		
Stimulus-hostility	1	613.2	613.2	61.23 ***
Stimulus-hostility x Hostility Inkblot	2	2.5	1.3	< 1.00
Stimulus-hostility x Questionnaire-hostility x Inkblot-hostility	4	37.7	9.4	2.69 *
Error (w)	81	281.1	3.5	
Total	179	1,939.9		

NOTE: A Bartlett's test produced a chi-square of 11.5821; $p = .85$ at 17 degrees of freedom. Thus, heterogeneity of variance was not indicated.

* $p = .05$
 ** $p = .025$
 *** $p = .005$

TABLE 3

Analysis of Variance of Hostility
Scores of Estimated Reactions to
Hostile and Nonhostile "Everyday"
Situations

SOURCE OF VARIATION	<u>df</u>	SS	MS	F
Between Subjects	89	30,815.8		
Inkblot-hostility	2	979.6	489.8	< 1.00
Questionnaire-hostility	2	1,951.3	975.6	1.16
Inkblot x Questionnaire- Hostility	4	3,319.0	829.7	2.73 *
Error (b)	81	24,565.9	303.3	
Within Subjects	90	76,585.0		
Stimulus-hostility	1	66,010.1	66,010.1	638.6 **
Stimulus-hostility x Inkblot-hostility	2	72.4	36.2	< 1.00
Stimulus-hostility x Questionnaire-hostility	2	318.1	159.0	< 1.00
Stimulus-hostility x Inkblot-hostility x Questionnaire-hostility	4	905.8	226.4	1.98
Error (w)	81	9,277.6	114.5	
Total	179	107,399.8		

NOTE: A Bartlett's test produced a chi-square of 5.1354; $p = .99$ at 17 degrees of freedom. Thus, heterogeneity of variance was not indicated. * $p = .05$ ** $p = .001$

is involved. Another factor which might have caused the negative perceptual results is the meaning of the task for the subject; this factor will be discussed under Hypothesis 3.

Hypothesis 2: All Other Factors Being Equal, the Stronger the Content-Hostility of the Stimulus the More Hostile the Response

The analysis of variance described in the previous chapter included "stimulus-hostility" as one of the dimensions. Therefore, significant F ratios for that factor would constitute evidence in favor of the above hypothesis.

Perceptual Measure

It may be seen in Table 1 that the F ratio for content-hostility of the stimulus was 2516.0, which is significant at the .001 level. The means for responses to hostile and nonhostile faces were 47.79 and 33.80 respectively, which indicates that the subjects attributed greater hostility to faces presumed to represent hostile stimuli than they did to the other faces. Thus, the hypothesis is supported by the perceptual data.

Apperceptive Measure

It may be seen in Table 2 that the F ratio for content-hostility of the stimulus was 61.23, which is significant at the .001 level. The means for responses to hostile and nonhostile themes were 12.42 and 8.73 respectively, which indicates that the subjects wrote more hostile stories to hostile themes than they did to nonhostile themes. Thus, the hypothesis is supported by the apperceptive data.

"Everyday" Measure

It may be seen in Table 3 that the F ratio for content-hostility of the stimulus was 638.6, which is significant at the .001 level. The means for responses to hostile and nonhostile situations were 101.73

and 63.43 respectively, which indicates that the subjects were judged to manifest more hostility when faced with hostile situations than when faced with nonhostile situations. Thus, the hypothesis is supported by the "everyday" data.

Discussion

The above results verify the selection of different levels of stimulus content-hostility. Consequently, the following hypotheses involving the interaction of the stimulus with other factors can be tested:

Hypothesis 3: An Interaction will Occur between Strength of Hostile Need, Degree of Insight, and Content-Hostility of the Stimulus

Significant F ratios for the second-order interaction in the analyses of variance which were described in the previous chapter would constitute evidence in favor of the above hypothesis.

Perceptual Measure

It may be seen in Table 1 that the F ratio for the second-order interaction was 5.46, which is significant at the .001 level. Thus, the hypothesis is supported by the perceptual data.

Apperceptive Measure

It may be seen in Table 2 that the F ratio for the second-order interaction was 2.69, which is significant at the .05 level. Thus, the hypothesis is supported by the apperceptive data.

"Everyday" Measure

It may be seen in Table 3 that the F ratio for the second-order interaction was 1.98, which does not approach significance. Thus, the hypothesis is not supported by the "everyday" data. However, Table 3 does

indicate an F ratio of 2.73 for the first-order interaction of inkblot-hostility and questionnaire-hostility; at four degrees of freedom, this interaction is significant at the .05 level.

Discussion

Although Hypothesis 3, concerning the second-order interaction, was supported by the perceptual and apperceptive data, there were certain marked differences between the two sets of data in the direction in which the interaction functioned. One difference was indicated by the stimulus-difference scores¹, which were computed in order to clarify the role of stimulus hostility in the interaction. As indicated in Figure 3, which graphically presents the stimulus-difference scores for the perceptual measure, the smallest mean stimulus-difference score was obtained by group HH ($M = 10.2$), an insightful group with strong hostile needs. Table 4, which presents comparisons of mean stimulus-difference scores, indicates that the discrepancies between the mean stimulus-difference scores of group HH ($M = 10.2$) on the one hand and groups LL ($M = 17.1$), HM ($M = 15.7$), and HL ($M = 14.5$) on the other, attained or approached significance. However, Figure 4, which presents graphically the stimulus-difference scores for the apperceptive measure, indicates that the smallest mean stimulus-difference score was obtained by group HL ($M = 1.9$), a highly repressed group with strong hostile needs. As indicated in Table 5, which presents comparisons of mean stimulus difference scores for the apperceptive measure,

¹ The term "stimulus-difference score" refers to the difference between the scores of responses to stimuli of hostile vs. nonhostile content. These scores indicate the manner in which varying levels of inkblot and questionnaire-hostility affect the difference between responses to stimuli of hostile, as opposed to nonhostile content.

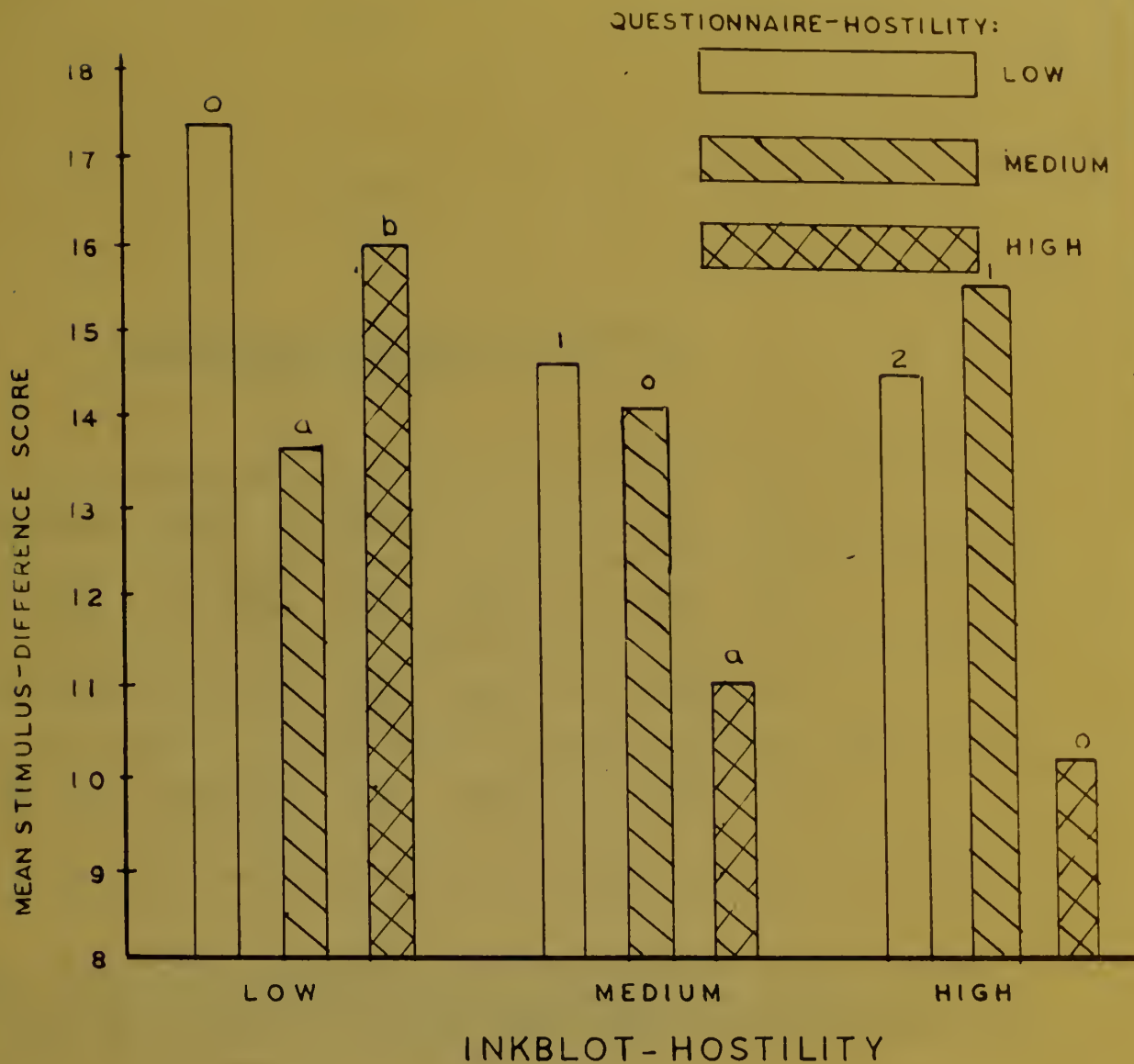


FIGURE 3. Stimulus-Difference Scores for Ratings of Faces

DEGREES OF REPRESSION:

0 = NONE ("insightful")

1 = 1ST DEGREE ("moderate")

2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

a = 1ST DEGREE ("moderate")

b = 2ND DEGREE ("high")

TABLE 4

Comparisons of Mean Stimulus-Difference
Scores: Faces

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
D_{LL} vs D_{HH}	$M_1 = 17.1$	6.9	2.86	18	2.41	.05
D_{HM} vs D_{HH}	$M_1 = 15.7$	5.5	2.68	18	2.13	.05
D_{HL} vs D_{HH}	$M_1 = 14.5$ $M_2 = 10.2$	4.3	2.11	18	2.04	.06

NOTE: All possible comparisons of stimulus-difference scores were made, the order of comparison being from the largest to the smallest discrepancy between scores. The above table reports only those discrepancies which were significant at the .10 level or better.

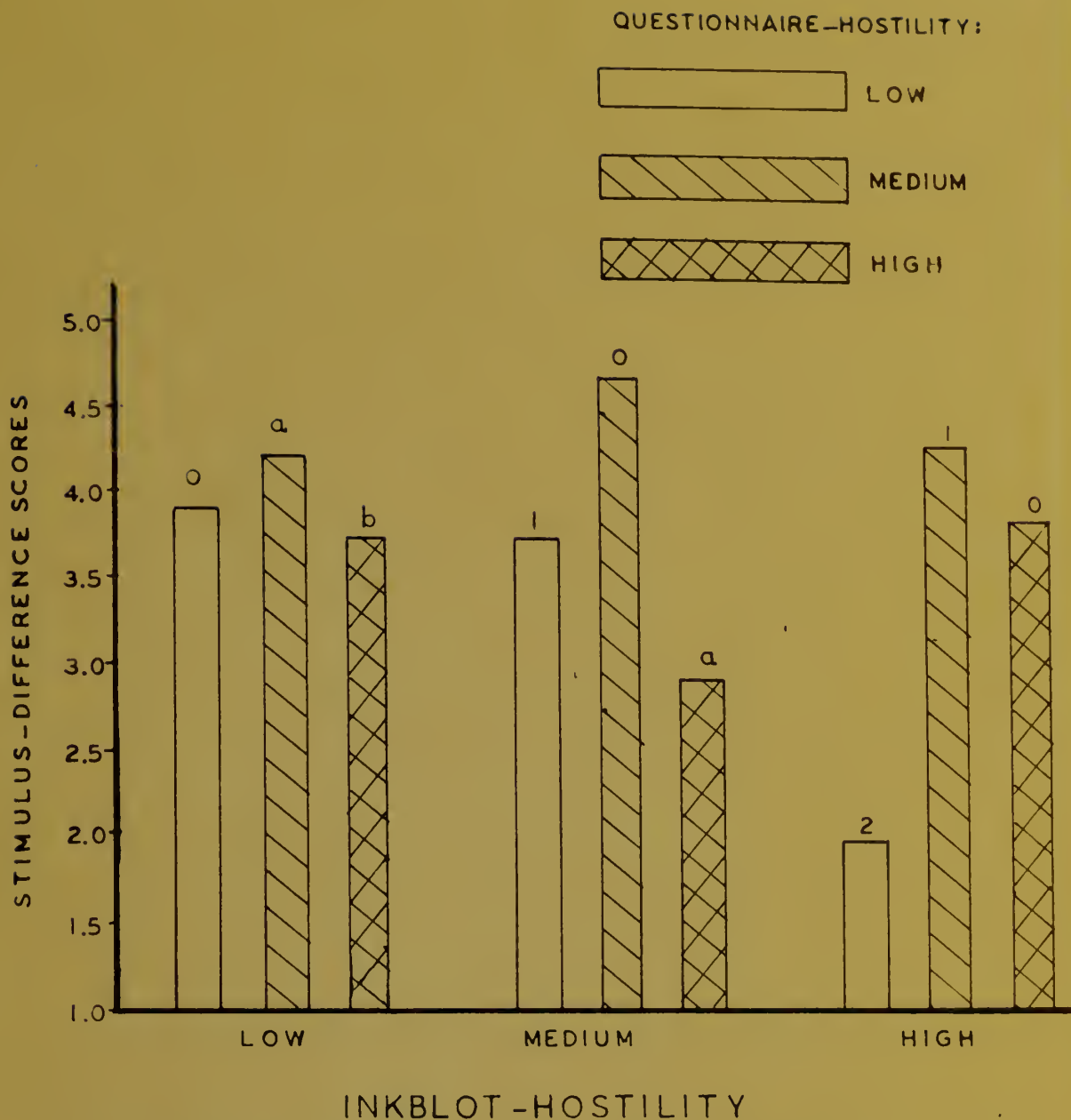


FIGURE 4. Stimulus-Difference Scores for Themes

DEGREES OF REPRESSION:

0 = NONE ("insightful")

1 = 1ST DEGREE ("moderate")

2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

a = 1ST DEGREE ("moderate")

b = 2ND DEGREE ("high")

TABLE 5

Comparisons of Mean Stimulus-Difference
Scores: Themes

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
D_{MM} vs D_{HL}	$M_1 = 4.7$ $M_2 = 1.9$	2.8	1.05	18	2.67	.02
D_{HM} vs D_{HL}	$M_1 = 4.3$ $M_2 = 1.9$	2.4	1.26	18	1.91	.08
D_{LM} vs D_{HL}	$M_1 = 4.1$ $M_2 = 1.9$	2.2	1.11	18	1.99	.07
D_{LL} vs D_{HL}	$M_1 = 3.9$ $M_2 = 1.9$	2.0	.98	18	2.05	.06
D_{ML} vs D_{HL}	$M_1 = 3.7$	1.8	.97	18	1.86	.09

NOTE: All possible comparisons of stimulus-difference scores were made, the order of comparison being from the largest to the smallest discrepancy between scores. The above table reports only those discrepancies which were significant at the .10 level or better.

the discrepancies between the mean stimulus-difference scores of group HL ($M = 1.9$) on the one hand and groups LM ($M = 4.7$), HM ($M = 4.3$), IM ($M = 4.1$), LL ($M = 3.9$), and ML ($M = 3.7$) on the other, attained or approached significance. Since stimulus-difference scores reflect the ability of the subjects to respond differentially to hostile and non-hostile stimulus-content, the apperceptive results would seem to support the view that repressed persons are unrealistic in that they are apt to respond more in terms of their needs than to the stimulus situation. However, the opposite trend evinced by the perceptual results is not consistent with such an interpretation. Apparently, therefore, some other factors were involved whose effects upon the results were not foreseen. One factor might have been the meaning of the task for the participants, i.e., the significance of facial stereotypy for the insightful subjects. Considering that they were aware of their hostile impulses, they may have made a deliberate effort not to respond in a stereotyped manner. This effort would have represented an attempt to prevent an overt expression of hostile needs which they recognized as inappropriate for the stimulus situation. One would expect that, had some perceptual measure been employed which did not involve the factor of facial stereotypy, such as a tachistoscopic presentation of hostile and nonhostile words, the smallest mean stimulus-difference scores would have been obtained by group HL, rather than group HM, in a manner analogous to the results on the apperceptive measure. The factor of stereotypy may also have been one reason for the negative perceptual results obtained in the test of Hypothesis 1. If, as speculated above, insightful subjects made a deliberate effort not to

respond in a stereotyped manner, it would not be unreasonable to assume that the greatest effort of this kind would be exerted by those subjects who had the strongest hostile impulses, i.e., insightful group HH. In that case, the effect would be to reduce the mean rating of faces of the high inkblot-hostility level, thereby preventing the results from indicating the hypothesized direct relationship between strength of hostile need and strength of hostile perceptual response.

Another difference between the perceptual and apperceptive measures in the functioning of the second-order interaction is indicated by separate analyses of variance for the two levels of stimulus content-hostility. As indicated by Tables 6 and 7, which present summaries of such analyses for the apperceptive data, there were significant interactions of inkblot and questionnaire-hostility in the cases of both hostile themes ($F = 2.70$, $df = 4$) and nonhostile themes ($F = 5.28$, $df = 4$). On the other hand Tables 8 and 9, which present the summaries of the same analyses for the perceptual data, do not indicate significant interactions of inkblot and questionnaire-hostility either in the case of hostile faces ($F = 1.59$, $df = 4$) or in the case of nonhostile faces ($F = 1.94$, $df = 4$). The perceptual results signify that inkblot and questionnaire-hostility enter the second-order interaction in the perceptual data by virtue of the fact that the trend indicated by the F ratio for the interaction of inkblot and questionnaire-hostility in the case of hostile faces diverges significantly from the trend in the case of nonhostile faces, even though neither trend is statistically significant by itself. These divergent trends are illustrated by the comparisons

TABLE 6

Analysis of Variance of
Hostility Scores for
Hostile Themes

SOURCE OF VARIATION	<u>df</u>	SS	MS	F
Inkblot-hostility	2	33.8	16.9	< 1.00
Questionnaire-hostility	2	17.7	8.8	< 1.00
Inkblot x Questionnaire- Hostility	4	76.8	19.2	2.70 *
Within Cells	81	573.7	7.1	
Total	89	702.0		

*p = .05

TABLE 7

Analysis of Variance of
Hostility Scores for
Non-Hostile Themes

SOURCE OF VARIATION	<u>df</u>	SS	MS	F
Inkblot-hostility	2	62.5	31.2	1.09
Questionnaire-hostility	2	8.5	4.2	< 1.00
Inkblot x questionnaire - Hostility	4	114.0	28.5	5.28 *
Within Cells	81	440.6	5.4	
Total	89	625.6		

*p = .001

TABLE 8

Analysis of Variance of
Ratings of Hostile Faces

SOURCE OF VARIATION	<u>df</u>	SS	MS	F
Inkblot-hostility	2	245.4	72.7	2.15
Questionnaire-hostility	2	.9	.5	< 1.00
Inkblot x questionnaire- Hostility	4	216.1	54.0	1.59
Within Cells	81	2,752.6	33.9	
Total	89	3,115.0		

TABLE 9

Analysis of Variance of
Ratings of Nonhostile Faces

SOURCE OF VARIATION	<u>df</u>	SS	MS	F
Inkblot-hostility	2	75.5	37.7	< 1.00
Questionnaire-hostility	2	184.5	92.2	2.07
Inkblot x Questionnaire- Hostility	4	343.6	85.9	1.94
Within Cells	81	3,600.8	44.4	
Total	89	4,204.4		

of mean stimulus-difference scores which were discussed previously.

Hypothesis 4: An External Stimulus of High Content Hostility will Elicit a Less Hostile Response when Awareness of Hostile Impulses has been Repressed than when Awareness has not been Repressed

This hypothesis can be tested by comparing the responses of the insightful and repressed groups which are the same level of inkblot-hostility. The hypothesis would be supported if the repressed groups responded with significantly less hostile behavior to stimuli of hostile content than the insightful groups.

Perceptual Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 10, indicate that at the high level of inkblot-hostility neither the moderately repressed group HM ($M = 48.5$), nor the highly repressed group HL ($M = 48.6$) rated the hostile pictures significantly less hostile than did the insightful group HH ($M = 48.5$). A trend in the predicted direction is indicated at the medium level of inkblot-hostility, in that the moderately repressed group ML ($M = 45.1$) rated the pictures less hostile than did the insightful group MM ($M = 47.4$). However, the difference between the means is not significant. No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: The relationships between groups are also illustrated in Figure 5, which presents the curves for inkblot-hostility as a function of questionnaire-hostility) Thus, the hypothesis is not supported by the perceptual data.

TABLE 10

Comparisons of insightful and Non-insightful Groups: Faces

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
<u>Hostile Faces</u>						
<u>High Inkblot-hostility Level</u>						
HH ₀ vs HM ₁	M _{HH} = 48.5 M _{HM} = 48.5	0	2.79	18	---	---
HL ₂ vs HH ₀	M _{HL} = 48.6 M _{HH} = 48.5	.1	1.94	18	.05	.99
HL ₂ vs HM ₁	M _{HL} = 48.6 M _{HM} = 48.5	.1	2.51	18	.04	.99
<u>Medium Inkblot-Hostility Level</u>						
MM ₀ vs MH _a	M _{MM} = 47.4 M _{MH} = 45.5	1.9	2.95	18	.64	.55
MM ₀ vs ML ₁	M _{MM} = 47.4 M _{ML} = 45.1	2.3	3.36	18	.68	.50
MH _a vs ML ₁	M _{MH} = 45.5 M _{ML} = 45.1	.4	2.53	18	.16	.89
<u>Low Inkblot-hostility Level</u>						
IH _b vs LL ₀	M _{IH} = 49.8 M _{LL} = 49.5	.4	2.89	18	.14	.88
LL ₀ vs IM _a	M _{LL} = 49.5 M _{IM} = 47.2	2.3	2.65	18	.86	.40
IH _b vs IM _a	M _{IH} = 49.8 M _{IM} = 47.2	2.6	2.49	18	1.04	.30

TABLE 10 (Cont'd)

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
<u>Between Insightful Groups</u>						
<u>from High and Low Levels of</u>						
<u>Inkblot-Hostility</u>						
LL ₀ vs HH ₀	M _{LL} = 49.5 M _{HH} = 48.5	1.0	2.73	18	.37	.72
<u>Nonhostile Faces</u>						
<u>High Inkblot-hostility</u>						
<u>Level</u>						
HH ₀ vs HH ₁	M _{HH} = 38.3 M _{HH} = 32.8	5.5	2.93	18	1.88	.09
HH ₀ vs HL ₂	M _{HH} = 38.3 M _{HL} = 34.1	4.2	2.59	18	1.62	.12
HL ₂ vs HH ₁	M _{HL} = 34.1 M _{HH} = 32.8	1.3	1.62	18	.71	.48
<u>Medium Inkblot-hostility</u>						
<u>Level</u>						
MH _a vs MM ₀	M _{MH} = 34.8 M _{MM} = 33.3	1.5	2.92	18	.52	.60
MM ₀ vs ML ₁	M _{MM} = 33.3 M _{ML} = 30.7	2.6	3.53	18	.73	.47
MH _a vs ML ₁	M _{MH} = 34.8 M _{ML} = 30.7	4.1	3.99	18	1.03	.30
<u>Low inkblot-hostility</u>						
<u>Level</u>						
IH _b vs LL ₀	M _{IH} = 34.2 M _{LL} = 32.4	1.8	3.67	18	.49	.64
IM _a vs LL ₀	M _{IM} = 33.6 M _{LL} = 32.4	1.2	3.21	18	.37	.72
IH _b vs IM _a	M _{IH} = 34.2 M _{IM} = 33.6	.6	2.47	18	.24	.82

TABLE 10 (Cont'd)

COMPARISONS	MEANS	DIFFERENCE	SD	<u>df</u>	<u>t</u>	P
<u>Between Insightful Groups</u>						
<u>From High and Low Levels</u>						
<u>of Inkblot-hostility</u>						
HH ₀ vs LL ₀	M _{HH} = 38.3 M _{LL} = 32.4	5.9	3.87	18	1.53	.15

Note: Comparisons were made between all groups on each level of inkblot-hostility. In addition, the insightful group from the high level of inkblot-hostility was compared with the insightful group from the low level of inkblot-hostility. In the symbols for the experimental groups, the first letter refers to the level of inkblot-hostility and the second letter to the level of questionnaire-hostility. In the above table, degrees of repression and overestimation are designated by following subscripts:

Degree of Repression:

0 - None ("insightful"). Includes groups HH₀, MM₀, and LL₀.

1 - First degree ("moderate"). Includes groups HM₁, and ML₁.

2 - Second degree ("high"). Group HL₂.

Degree of Overestimation:

a - First degree ("moderate"). Includes groups MH_a and LM_a.

b - Second degree ("high"). Group LH_b.

INKBLOT-HOSTILITY

————— HIGH
 - - - - - MEDIUM
 ······ LOW

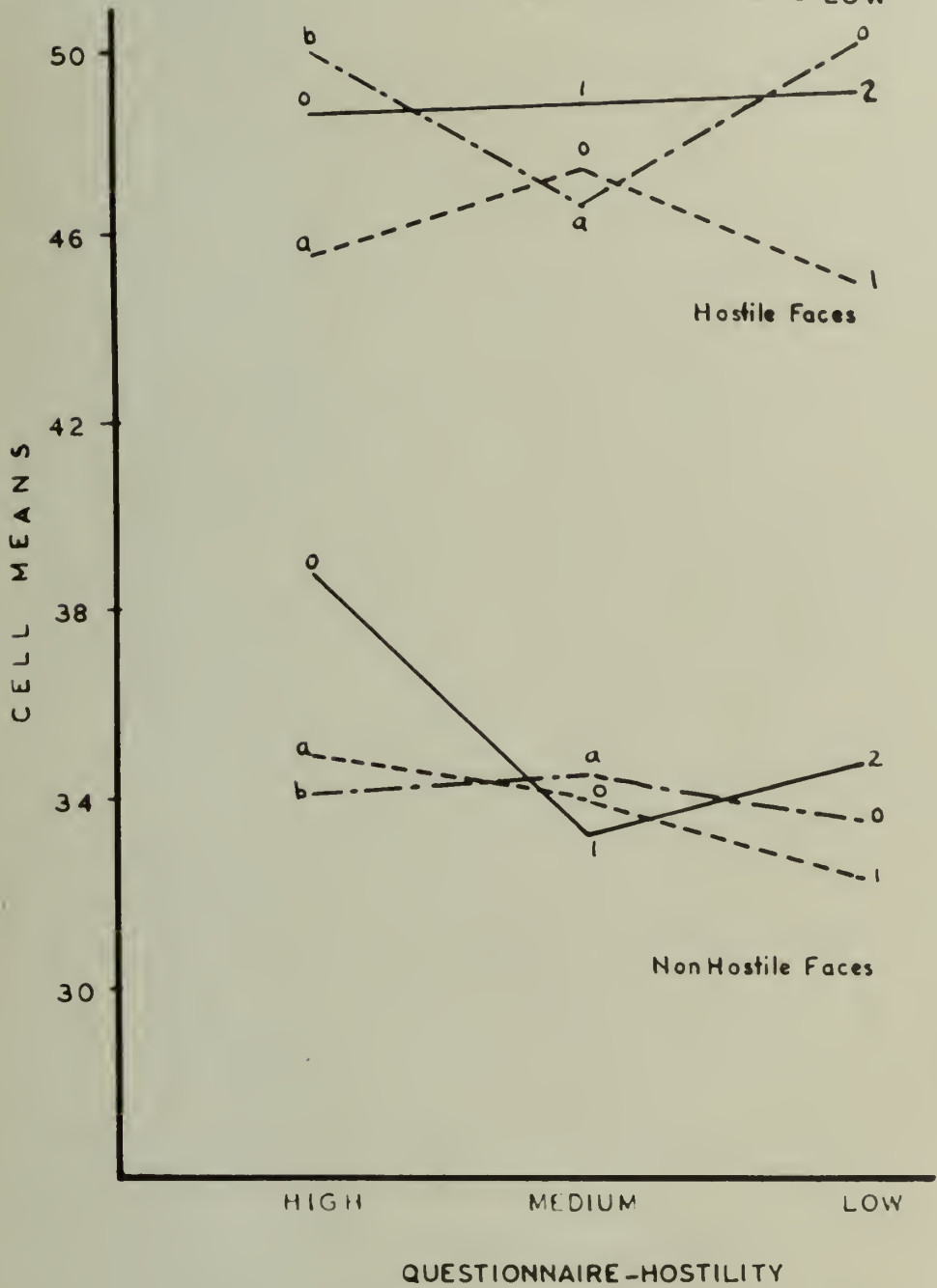


FIGURE 5. Hostility Scores of Ratings of Hostile and NonHostile Faces

DEGREES OF REPRESSION:

- 0 = NONE ("insightful")
- 1 = 1ST DEGREE ("moderate")
- 2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

- a = 1ST DEGREE ("moderate")
- b = 2ND DEGREE ("high")

Apperceptive Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 11, indicate a trend in the predicted direction for the high level of inkblot-hostility in that the moderately repressed group HM ($M = 12.9$) and highly repressed group HL ($M = 12.8$) both wrote less hostile stories about hostile themes than did the insightful group HH ($M = 13.8$). The differences between the means, however were not significant. At the medium level of inkblot-hostility, the moderately repressed group ML ($M = 11.1$) wrote significantly less hostile stories about hostile themes than did the insightful group MM ($M = 13.8$), which is in the hypothesized direction. No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: the relationships between groups are also illustrated in Figure 6, which presents the curves for inkblot-hostility as a function of questionnaire-hostility.) Thus, the hypothesis tended to be supported by the apperceptive data.

"Everyday" Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 12, indicate that at the high level of inkblot-hostility, the moderately repressed group HM ($M = 103.7$) and the highly repressed group HL ($M = 94.0$) both manifested less hostility in their reactions to hostile situations than did the insightful group HH ($M = 114.7$), which is in the predicted direction. The difference was significant in the case of the highly repressed group and approached significance in the case of the moderately repressed group. A trend in the hypothesized direction is also indicated at the medium level of

TABLE 11

Comparisons of Insightful and Non-insightful Groups: Themes

COMPARISONS	MEANS	DIFFERENCES	SD	df	t	p
<u>Hostile Themes</u>						
<u>High Inkblot-Hostility Level</u>						
HH ₀ vs HL ₂	M _{HH} = 13.8 M _{HL} = 12.8	1.0	1.19	81	.84	.40
HH ₀ vs HM ₁	M _{HH} = 13.8 M _{HM} = 12.9	.9	1.19	81	.75	.45
HM ₁ vs HL ₂	M _{HM} = 12.9 M _{HL} = 12.8	.1	1.19	81	.08	.99
<u>Medium Inkblot-hostility Level</u>						
MM ₀ vs MH _a	M _{MM} = 13.8 M _{MH} = 12.4	1.4	1.19	81	1.19	.25
MM ₀ vs ML ₁	M _{MM} = 13.8 M _{ML} = 11.1	2.7	1.19	81	2.28	.05
MH _a vs ML ₁	M _{MH} = 12.4 M _{ML} = 11.1	1.3	1.19	81	1.09	.28
<u>Low Inkblot-hostility Level</u>						
IH ₀ vs LL ₀	M _{IH} = 11.8 M _{LL} = 11.5	.3	1.19	81	.25	.80
IM _a vs LL ₀	M _{IM} = 11.7 M _{LL} = 11.5	.2	1.19	81	.17	.86
IH ₀ vs IM _a	M _{IH} = 11.8 M _{IM} = 11.7	.1	1.19	81	.08	.99
<u>Between Insightful Groups From High and Low Levels of Inkblot-hostility</u>						
HH ₀ vs LL ₀	M _{HH} = 13.8 M _{LL} = 11.5	2.3	1.19	81	1.93	.06

TABLE 11 (Cont'd)

COMPARISONS	MEANS	DIFFERENCES	SD	df	t	p
<u>Nonhostile Themes</u>						
<u>High Inkblot-Hostility Level</u>						
HH ₀ vs HM ₁	M _{EH} = 9.9 M _{HM} = 8.6	1.3	1.04	81	1.25	.20
HL ₂ vs EH ₀	M _{HL} = 10.9 M _{HH} = 9.9	1.0	1.04	81	.96	.35
HL ₂ vs HM ₁	M _{HL} = 10.9 M _{HM} = 8.6	2.3	1.04	81	2.21	.05
<u>Medium Inkblot-hostility Level</u>						
MH _a vs MM ₀	M _{EH} = 9.4 M _{MY} = 9.1	.3	1.04	81	.29	.75
MM ₀ vs ML ₁	M _{MM} = 9.1 M _{ML} = 7.4	1.7	1.04	81	1.63	.11
MH _a vs ML ₁	M _{EH} = 9.4 M _{ML} = 7.4	2.0	1.04	81	1.92	.06
<u>Low Inkblot-hostility Level</u>						
IH _b vs LL ₀	M _{IH} = 8.1 M _{IJ} = 7.6	.5	1.04	81	.48	.65
LM _a vs LL ₀	M _{LM} = 7.6 M _{LL} = 7.6	0	1.04	81	---	---
IH _b vs LM _a	M _{IH} = 8.1 M _{LM} = 7.6	.5	1.04	81	.48	.65

TABLE 11 (Cont'd)

COMPARISONS	MEANS	DIFFERENCES	SD	df	t	p
<u>Between Insightful Groups</u> <u>from High and Low Levels of</u> <u>Inkblot-hostility</u>						
HH ₀ vs LL ₀	M _{HH} = 9.9 M _{LL} = 7.6	2.3	1.04	81	2.21	.05

Note: Comparisons were made between all groups on each level of inkblot-hostility. In addition, the insightful group from the high level of inkblot-hostility was compared with the insightful group from the low level of inkblot-hostility. In the symbols for the experimental groups, the first letter refers to the level of inkblot-hostility and the second letter to the level of questionnaire-hostility. In the above table, degrees of repression and overestimation are designated by the following subscripts:

Degree of Repression:

- 0 - None ("insightful"). Includes groups HH₀, MM₀, and LL₀.
- 1 - First degree ("moderate"). Includes groups HM₁ and ML₁.
- 2 - Second degree ("high"). Group HL₂

Degree of Overestimation:

- a - First degree ("moderate"). Includes groups MH_a and LM_a.
- b - Second degree ("high"). Group LH_b

————— HIGH
 - - - - - MEDIUM
 ······ LOW

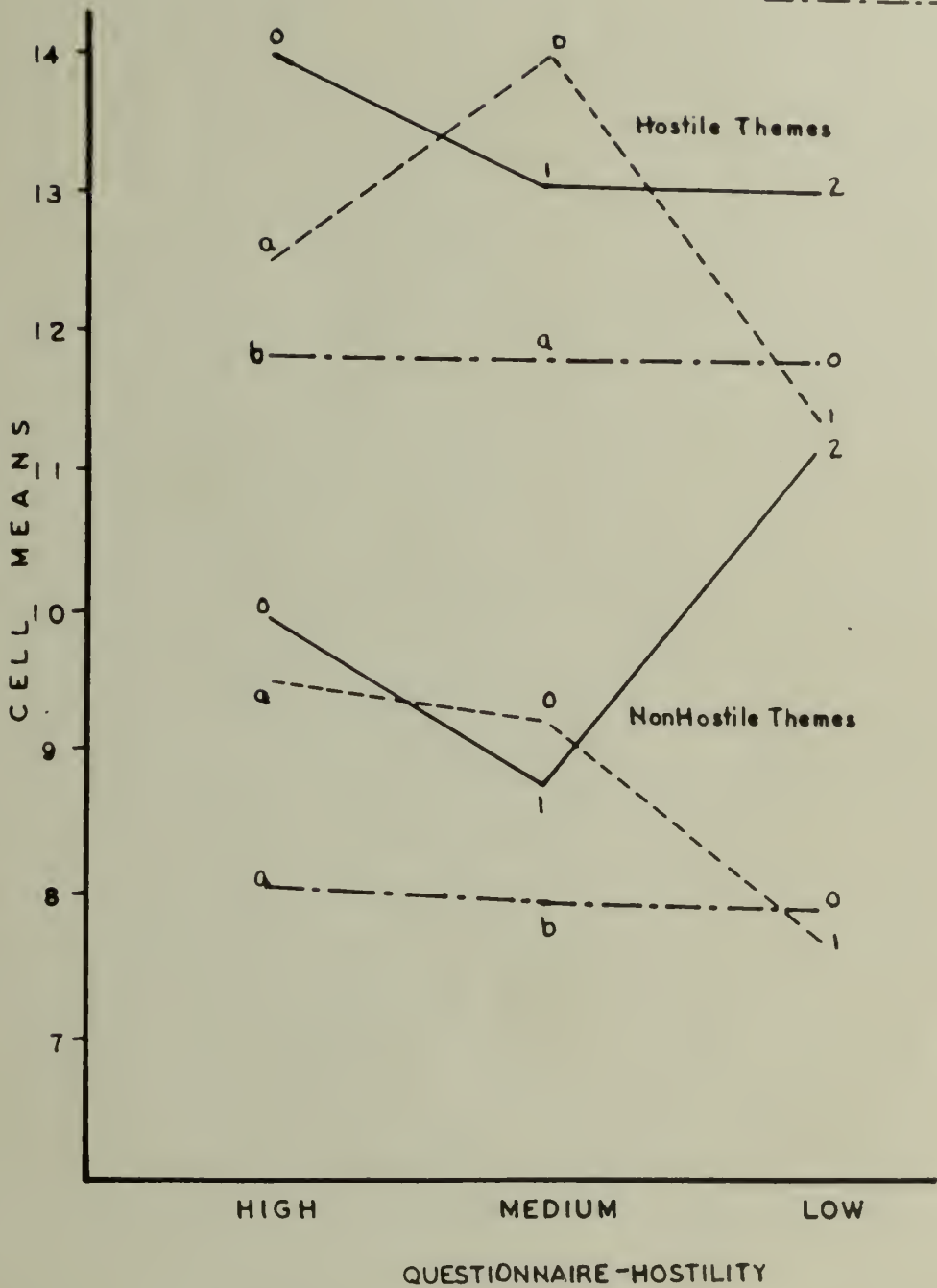


FIGURE 6. Hostility Scores for Stories Written about Hostile and NonHostile Themes

DEGREES OF REPRESSION:

0 = NONE ("insightful")

1 = 1ST DEGREE ("moderate")

2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

a = 1ST DEGREE ("moderate")

b = 2ND DEGREE ("high")

TABLE 12

Comparisons of Insightful and Non-Insightful Groups: "Everyday" Situations

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	P
<u>Disregarding Hostility of Situation</u>						
<u>High Inkblot-Hostility Level</u>						
HH ₀ vs HL ₂	M _{HH} = 93.8 M _{HL} = 80.5	13.3	5.49	81	2.42	.02
HH ₀ vs HM ₁	M _{HH} = 93.8 M _{HM} = 83.1	10.7	5.49	81	1.89	.07
HM ₁ vs HL ₂	M _{HM} = 83.1 M _{HL} = 80.5	2.6	5.59	81	.46	.65
<u>Medium Inkblot-Hostility Level</u>						
MH _a vs MM ₀	M _{MH} = 86.7 M _{MM} = 81.6	5.1	5.49	81	.93	.35
MM ₀ vs ML ₁	M _{MM} = 81.6 M _{ML} = 75.6	6.0	5.49	81	1.09	.30
MH _a vs ML ₁	M _{MH} = 86.7 M _{ML} = 75.6	11.1	5.49	81	2.02	.05
<u>Low Inkblot-Hostility Level</u>						
IM _a vs IH ₀	M _{IM} = 88.7 M _{IH} = 75.3	13.4	5.49	81	2.44	.02
LL ₀ vs IH ₀	M _{LL} = 77.6 M _{IH} = 75.3	2.3	5.49	81	.42	.68
IM _a vs LL ₀	M _{IM} = 88.7 M _{LL} = 77.6	11.1	5.49	81	2.02	.05
<u>Between Insightful Groups From High and Low Levels Of Inkblot-Hostility</u>						
HH ₀ vs LL ₀	M _{HH} = 93.8 M _{LL} = 77.6	16.2	5.49	81	2.95	.01

TABLE 12 (Cont'd)

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
<u>Hostile Situations</u>						
<u>High Inkblot-Hostility</u>						
<u>Level</u>						
HH ₀ vs HM ₁	M _{HH} = 114.7 M _{HM} = 103.7	11.0	6.66	81	1.66	.08
NH ₀ vs HL ₂	M _{NH} = 114.7 M _{HL} = 94.0	20.7	6.66	81	3.11	.01
HM ₁ vs HL ₂	M _{HM} = 103.7 M _{HL} = 94.0	9.7	6.66	81	1.46	.16
<u>Medium Inkblot-Hostility</u>						
<u>Level</u>						
MH ₂ vs MM ₀	M _{MH} = 107.5 M _{MM} = 101.9	5.6	6.66	81	.84	.40
MM ₀ vs ML ₁	M _{MM} = 101.9 M _{ML} = 94.0	7.9	6.66	81	1.19	.25
MH ₂ vs ML ₁	M _{MH} = 107.5 M _{ML} = 94.0	13.5	6.66	81	2.03	.05
<u>Low Inkblot-Hostility</u>						
<u>Level</u>						
LM ₂ vs LH ₀	M _{LM} = 110.4 M _{LH} = 90.8	19.6	6.66	81	2.94	.01
LM ₂ vs LL ₀	M _{LM} = 110.4 M _{LL} = 98.6	11.8	6.66	81	1.87	.07
LL ₀ vs LH ₀	M _{LL} = 98.6 M _{LH} = 90.8	8.6	6.66	81	1.30	.19
<u>Between Insightful Groups</u>						
<u>From High and Low Levels of</u>						
<u>Inkblot-Hostility</u>						
NH ₀ vs LL ₀	M _{NH} = 114.7 M _{LL} = 98.6	16.1	6.66	81	2.42	.02
<u>Nonhostile Situations</u>						
<u>High Inkblot-Hostility</u>						
<u>Level</u>						
NH ₀ vs HM ₁	M _{NH} = 73.0 M _{HM} = 62.6	10.4	5.59	81	1.89	.07

TABLE 12 (Cont'd)

COMPARISONS	MEANS	DIFFERENCE	SD	df	t	p
HH ₀ vs HL ₂	M _{HH} = 73.0 M _{HL} = 67.1	5.9	5.59	81	1.05	.32
HL ₂ vs HM ₁	M _{HL} = 67.1 M _{HM} = 62.6	4.5	5.59	81	.79	.45
<u>Medium Inkblot-Hostility Level</u>						
MH _a vs MM ₀	M _{MH} = 66.0 M _{MM} = 61.4	4.6	5.59	81	.82	.42
MM ₀ vs ML ₁	M _{MM} = 61.4 M _{ML} = 57.3	4.1	5.59	81	.73	.47
MH _a vs ML ₁	M _{MH} = 66.0 M _{ML} = 57.3	8.7	5.59	81	1.56	.15
<u>Low Inkblot-Hostility Level</u>						
IM _a vs IH _b	M _{IM} = 67.0 M _{IH} = 59.8	7.2	5.59	81	1.29	.22
IM _a vs LL ₀	M _{IM} = 67.0 M _{LL} = 56.7	10.3	5.59	81	1.84	.07
IH _b vs LL ₀	M _{IH} = 59.8 M _{LL} = 56.7	3.1	5.59	81	.56	.58
<u>Between Insightful Groups From High and Low Levels Of Inkblot-Hostility</u>						
HH ₀ vs LL ₀	M _{HH} = 73.0 M _{LL} = 56.7	16.3	5.59	81	2.91	.01

Note: Comparisons were made between all groups on each level of inkblot-hostility. In addition, the insightful group from the high level of inkblot-hostility was compared with the insightful group from the low level of inkblot-hostility. In the symbols for the experimental groups, the first letter refers to the level of inkblot-hostility and the second letter to the level of questionnaire-hostility. In the above table, degrees of repression and overestimation are designated by the following subscripts:

Degree of Repression:

- 0 - None ("insightful"). Includes groups HH₀, MM₀, and LL₀.
- 1 - First degree ("moderate"). Includes groups HM₁ and ML₁.
- 2 - Second degree ("high"). Group HL₂.

Degree of Overestimation:

- a - First degree ("moderate"). Includes groups MH_a and IM_a.
- b - Second degree ("high"). Group IH_b.

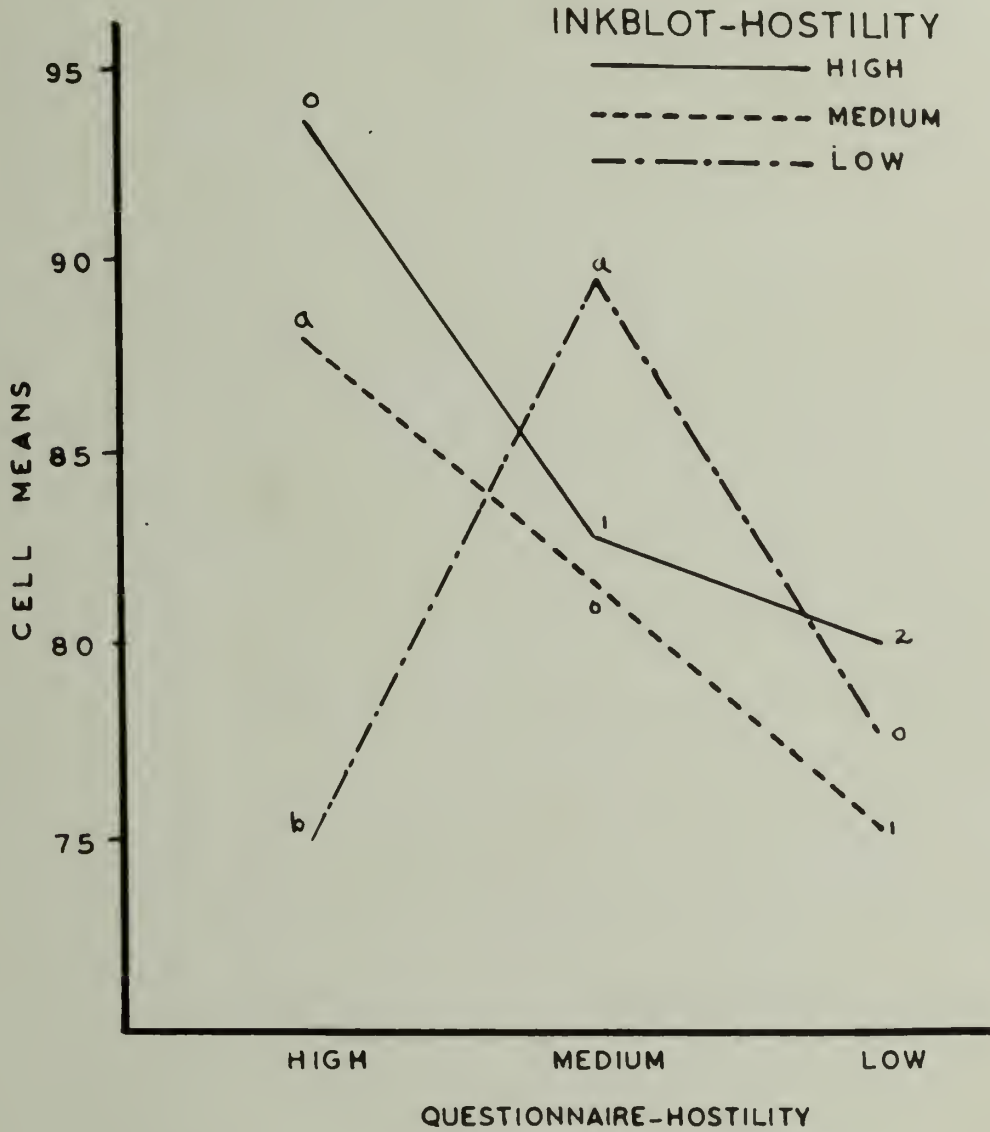


FIGURE 7. Hostility Scores for "Everyday" Situations
(Disregarding Hostility of Situation)

DEGREES OF REPRESSION:

- 0 = NONE ("insightful")
- 1 = 1ST DEGREE ("moderate")
- 2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

- d = 1ST DEGREE ("moderate")
- b = 2ND DEGREE ("high")

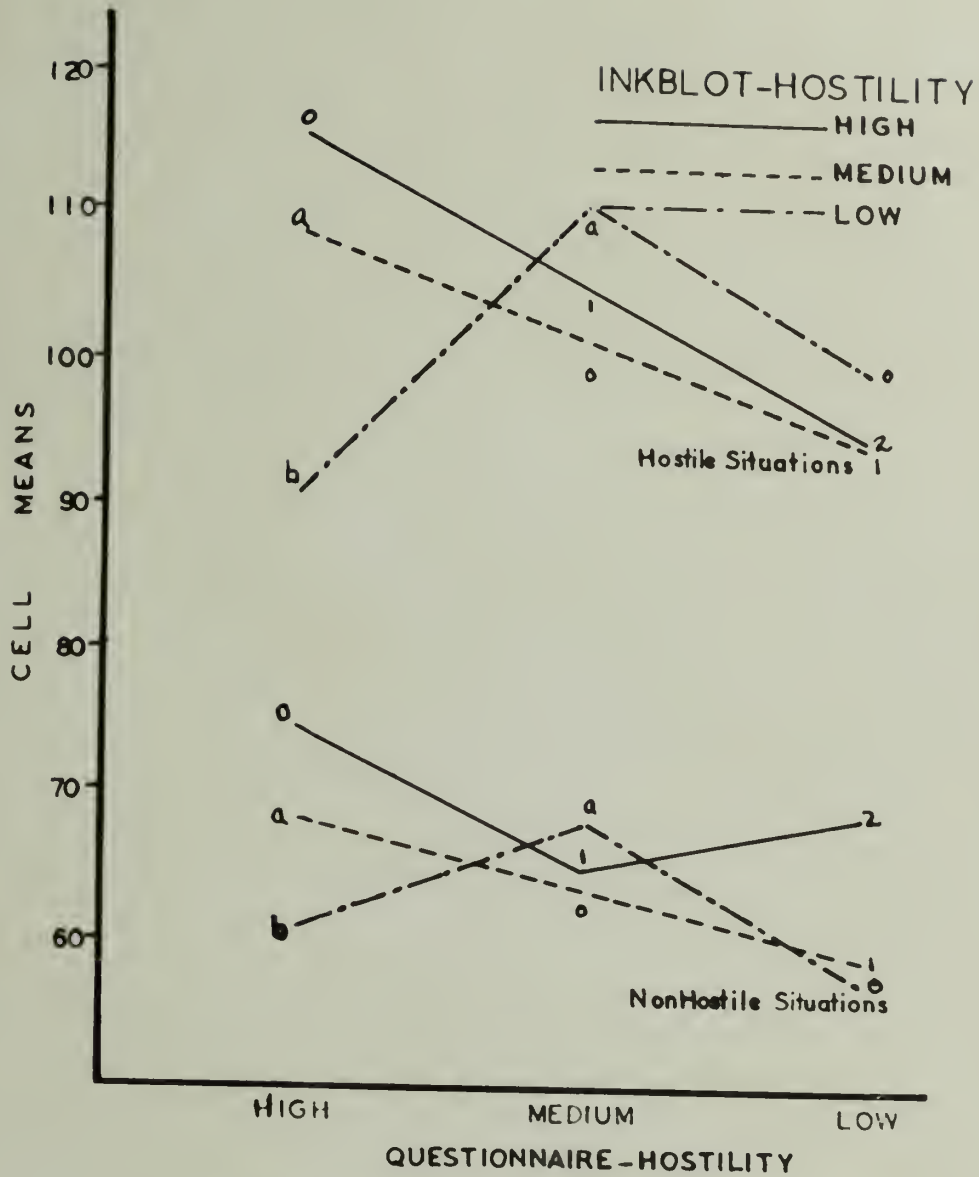


FIGURE 8. Hostility Scores for Hostile and NonHostile "Everyday" Situations

DEGREES OF REPRESSION:

- 0 = NONE ("insightful")
- 1 = 1ST DEGREE ("moderate")
- 2 = 2ND DEGREE ("high")

DEGREES OF OVERESTIMATION:

- a = 1ST DEGREE ("moderate")
- b = 2ND DEGREE ("high")

inkblot-hostility in that the moderately repressed group ML ($M = 94.0$) manifested less hostility in its reaction to hostile situations than did the insightful group MM ($M = 101.9$); however, the difference was not significant. No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: The relationships between groups are also illustrated in Figure 8, which presents the curves for inkblot-hostility as a function of questionnaire-hostility.) Thus, the hypothesis was generally supported by the "everyday" data.

Discussion

The above results indicate that the phenomenon "defense" occurred with the apperceptive and "everyday", but not the perceptual, behavior measures. In view of the positive results obtained by Eriksen (12) and Eriksen and Lazarus (14), one wonders why the hypothesis was not confirmed by the perceptual data in the present study. The answer may lie in the manner in which insightful subjects reacted to the task of judging personality characteristics such as hostility by facial appearance. If, as speculated previously, insightful subjects made a deliberate effort not to accept superficial stereotypes in judging hostility, the effect would be to reduce their mean ratings of hostility in the perceptual task. Since the same problem was not a factor in the measures of apperceptive and "everyday" behavior, the hypothesis was supported in these cases. (It is not clear, however, why the strongest evidence in favor of the hypothesis came from the medium inkblot-hostility level in the case of the apperceptive measure but from the high inkblot-hostility level in the case of the "everyday" measure). It

should also be pointed out that the perceptual tasks employed by Eriksen (tachistoscopic thresholds) and Eriksen and Lazarus (responses to selected inkblots) differed from that employed in the present study (ratings of faces). This would not be inconsistent with the possibility mentioned previously that some behavioral phenomena may be at least partially functions of particular sets of operations.

Hypothesis 5: An External Stimulus of Low Content-hostility will Elicit a More Hostile Response when Awareness of Hostile Impulses has been Repressed than when Awareness has not been Repressed

This hypothesis can be tested by comparing the responses of insightful and repressed groups which are at the same level of inkblot-hostility. The hypothesis would be supported if the repressed groups respond with significantly more hostile behavior to stimuli of non-hostile content than the insightful groups.

Perceptual Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 10, indicate that at the high level of inkblot-hostility, the moderately repressed group HM ($M = 32.8$) and the highly repressed group HL ($M = 34.1$) rated the nonhostile pictures less hostile than did the insightful group HH ($M = 38.3$). None of the differences between means were significant. The direction indicated by the means is opposite to that predicted. A similar non-significant trend in the opposite direction to that predicted is indicated at the medium level of inkblot-hostility, where the moderately repressed group ML ($M = 30.7$) rated the nonhostile pictures less hostile than did the

insightful group HH ($M = 33.3$). No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: The relationships between groups are also illustrated in Figure 5, which presents the curves for inkblot-hostility as a function of questionnaire-hostility.) Thus, the hypothesis was not supported by the perceptual data.

Apperceptive Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 11, indicate that at the high level of inkblot-hostility, the highly repressed group HL ($M = 10.9$) wrote more hostile stories about nonhostile themes than did the insightful group HH ($M = 9.9$). Although the means of these groups indicate a trend in the predicted direction, the difference between means does not attain significance. The highly repressed group HL ($M = 10.9$) wrote significantly more hostile stories about nonhostile themes than did the moderately repressed group HM ($M = 8.6$), which is consistent with the hypothesis. However, the moderately repressed group HM ($M = 8.6$) wrote less hostile stories about nonhostile themes than did the insightful group HH ($M = 9.9$), which is opposite to the direction predicted, although not significant. At the medium level of inkblot-hostility, the repressed group ML ($M = 7.4$) wrote less hostile stories about nonhostile themes than did the insightful group MM ($M = 9.1$), which is opposite to the direction predicted, although not significant. No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: the relationships between groups are also illustrated in Figure 6, which presents the curves for inkblot-hostility as a function of questionnaire-hostility.) Thus, the overall

results for the apperceptive data do not support the hypothesis.

"Everyday" Measure

The comparisons of insightful and repressed groups, summaries of which are included in Table 12, indicate that at the high level of inkblot-hostility the moderately repressed group HM ($M = 62.6$) and the highly repressed group HL ($M = 67.1$) both manifested less hostility in nonhostile situations than did the insightful group HH ($M = 73.0$), although not to a significant degree. A similar non-significant trend is indicated at the medium level of inkblot-hostility in that the moderately repressed group ML ($M = 57.3$) manifested less hostility in nonhostile situations than did the insightful group MM ($M = 61.4$). The trends at both levels of inkblot-hostility are in the opposite direction to that predicted. No relevant comparisons were possible at the low level of inkblot-hostility because that level contains no repressed groups. (Note: the relationships between groups are also illustrated graphically in figure 8, which presents the curves for inkblot-hostility as a function of questionnaire-hostility.) Thus, the hypothesis was not supported by the "everyday" data.

Discussion

The above results indicate that the hypothesis was not supported by any of the data. Therefore, the findings of the present study would appear to be at variance with those obtained by Sears (32), who found that a non-insightful group attributed more negative traits to others than did an insightful group; this was taken to confirm the idea of "projection". One may argue that Sears did not restrict projection to stimuli of low need-relevance, and that the results of the present study are therefore not comparable to Sears'. However, in the present study none of the results obtained with stimuli of high need-

relevance suggested the occurrence of "projection". Several factors might account for the difference in findings between the present and the Sears study in regard to projection: (a) There may have been some important differences between the populations sampled in the two studies; the investigations were made twenty years apart and at universities which are geographically distant from each other, (b) The stimuli were not strictly comparable: in the present study the perceptual task was that of rating faces, whereas in the Sears study the task was that of rating the "everyday" behavior of real people, (c) The variable of stereotypy in judging pictures of people entered in the present study, but probably not in the Sears study, (d) The present study measured insight in a different way than did Sears, (e) Sears' findings may have been influenced beyond expectancy by chance occurrences. The last possibility would seem supported by the inconsistent findings of other investigators (16, 20).

Additional Findings

The following section describes some aspects of the results which were not directly related to the hypotheses.

In spite of the negative findings with regard to "projection", a very interesting pattern of reactions to stimuli of low content-hostility was indicated by groups with high inkblot-hostility: as repression increased from "no repression" (group HH) to a "high degree of repression" (group HL), the hostility of behavior at first decreased and then rose (Nonhostile Faces: $M_{HH} = 38.3$, $M_{HM} = 32.8$, $M_{HL} = 34.1$; Nonhostile Themes: $M_{HH} = 9.9$, $M_{HM} = 8.6$, $M_{HL} = 10.9$; Nonhostile Situations: $M_{HH} = 73.0$, $M_{HM} = 62.6$, $M_{HL} = 67.1$). In the case of apperceptive behavior, the increase in hostility of behavior of the highly repressed group HL over

that of the moderately repressed group HM attained statistical significance. (See Table 11). Similar findings, although non-significant, occurred in the other behavior measures. One may speculate upon the meaning of this trend. One possibility is that as repression increases the ego first handles hostile impulses by inhibiting their overt expression. (The moderately repressed group HM showed less hostile behavior than did the insightful group HH), but after a certain degree of repression has been reached the hostile impulses can no longer be contained. (The highly repressed group HL showed more hostile behavior than did the moderately repressed group HM). Thus, there may be a use of two mechanisms: first "defense" and then "projection", the latter acting as a "safety-valve". If this explanation is valid, one might expect that more evidence of "projection" would have occurred in the present study had the subjects been more repressed. Perhaps a select group of highly repressed neurotics would have given positive findings in a test of the projection hypothesis.

Thus far the results and discussions have been concerned with the repressed type of non-insightful subject. Nothing has been said about the overestimating type because it did not enter into tests of the hypotheses. However, in order to determine whether there were differences among the overestimating groups, comparisons were made within all three behavior measures: (a) At the low level of inkblot-hostility, the moderately and highly overestimating groups LM and LH were compared with each other and with the insightful group LL; (b) At the medium level of inkblot-hostility, the moderately overestimating group MH was compared with the insightful group MM and the repressed group ML. Comparisons were made separately for both levels of stimulus content-hostility. Summaries of these comparisons are included in Tables

10, 11, and 12. (The relationships between groups are also illustrated graphically in Figures 5, 6, and 8, which present the curves for inkblot-hostility as a function of questionnaire-hostility.) The following results are indicated: (a) Perceptual task - in no case did any difference between groups approach significance; (b) apperceptive task - at the medium level of inkblot-hostility, the moderately overestimating group MH ($M = 9.4$) tended to write more hostile stories about nonhostile themes than did repressed group ML ($M = 7.4$). This trend approached, but did not attain, statistical significance; (c) "Everyday" behavior - at the medium level of inkblot-hostility, the moderately overestimating group MH ($M = 107.5$) manifested significantly more hostility in hostile situations than did the repressed group ML ($M = 94.0$). At the low level of inkblot-hostility, the moderately overestimating group IM ($M = 110.4$) manifested significantly more hostility in hostile situations than did the highly overestimating group IH ($M = 90.8$). The moderately overestimating group IM also manifested more hostility in both hostile and nonhostile situations than did the insightful group LL (Hostile situations: $M_{IM} = 110.4$, $M_{LL} = 98.6$; Nonhostile situations: $M_{IM} = 67.0$, $M_{LL} = 56.7$). The differences approached, but did not attain, statistical significance. Thus, the only significant differences involving overestimating groups occurred in "everyday" behavior. An explanation of these results must await further knowledge of why a subject overestimates his hostile impulses.

Another interesting trend is indicated by the comparisons of the apperceptive and "everyday" mean scores of insightful groups (HH, MM, and LL). These comparisons, summaries of which are included in Tables 11 and 12, indicate that, regardless of the hostility of the

stimulus content, insightful groups with high inkblot-hostility behaved in a more hostile manner than did insightful groups with low inkblot hostility (Hostile Themes: $M_{HH} = 13.8$, $M_{LL} = 11.5$; Nonhostile Themes: $M_{HH} = 9.9$, $M_{LL} = 7.6$; Hostile Situation: $M_{HH} = 114.7$, $M_{LL} = 98.6$; Non-hostile Situation: $M_{HH} = 73.0$, $M_{LL} = 56.7$). The difference between means either attained, or closely approached, statistical significance. Thus, the hostile behavior of insightful subjects was a direct function of the strength of their hostile need. This suggests that persons who can accurately assess their hostile impulses tend to translate these impulses into apperceptive and "everyday" behavior. Comparable results were not obtained by the perceptual measure, as indicated by the comparisons summarized in Table 10 (Hostile Faces: $M_{LL} = 49.5$, $M_{HH} = 48.5$; Nonhostile Faces: $M_{HH} = 38.3$, $M_{LL} = 32.4$). This may have been due to the inhibiting factor of stimulus-stereotypy which was mentioned previously.

Conclusions

The results of the present study may be summarized as follows:

(a) A direct relationship existed between strength of response and content-hostility of the stimulus in all behavior modalities.

(b) A direct relationship existed between strength of response and strength of hostile need in the apperceptive behavior modality only.

(c) An interaction occurred between strength of hostile need, degree of insight, and content-hostility of the stimulus in the perceptual and apperceptive, but not the "everyday" behavior modalities.

(d) Evidence in favor of the "defense" hypothesis was indicated in the apperceptive and "everyday", but not the perceptual, behavior modalities.

(e) No evidence was indicated in favor of the "projection" hypothesis in any behavior modality.

(f) In the case of stimuli of nonhostile content, a tendency was indicated in all behavior modalities for the hostility of response of groups with strong hostile impulses at first to decrease and then to rise as degree of repression increased.

(g) The hostility of the apperceptive and "everyday" responses of the insightful groups was a direct function of the strength of hostile need.

(h) There were significant differences between the behavior of overestimating groups and that of other groups only in the case of "everyday" behavior.

One may conclude from those results that the determinants of hostile behavior are extremely complex. It is probably necessary to take into account not only the interaction of strength of hostile need, degree of insight, and content-hostility of the stimulus, but also other factors such as the nature of the behavioral task and the meaning of the task to the subject. Characteristics of the stimulus other than its need-relevance may be of critical importance. For example, (Kagan (18) found that boys who had been rated as frequent initiators of fighting behavior wrote more hostile stories when they were shown TAT-like pictures involving conflict between boys than when the pictures involved conflict between adults; thus the factor of self-relevance of the stimulus---the degree to which the stimulus refers to the self--- is undoubtedly of significance. It may also be that some of the concepts in the present study, such as "defense" and "projection" may not be general to broad areas of behavior measurement but require in-

stead specific combinations of many factors. It may also be that these phenomena are peculiar to specific experimental operations.

Numerous areas for further research are indicated, some of which have been mentioned. For example, it would be interesting to see whether a perceptual task which does not involve the problem of stimulus-stereotypy will give the same results as a task of rating faces. If the factor of stereotypy operates in the direction hypothesized in the present study, one would expect the results of a "threshold" task to be more similar to the results of an apperceptive measure. The present study also indicates a need for further investigation into the problem of "projection". It was suggested that "projection" may involve a greater degree of repression than was employed in the present study. In that case, it might be fruitful to choose more repressed subjects, such as would be found among diagnosed neurotic or psychotic groups.

Degree of insight in the present study was based upon the discrepancy between the strength of a subject's hostile impulses, as inferred from his hostile responses to an inkblot-test, and the amount of hostility of which he is aware, as measured by a self-rating questionnaire. This seems like a reasonable approach to the measurement of repression, and, as indicated in Chapter 2, the inkblot test and the self-rating questionnaire were reliable instruments. However, one may question the homogeneity of the low level of inkblot-hostility with regard to strength of hostile impulses. Since strength of need was inferred from responses (to inkblots), it is conceivable that some subjects may have repressed their hostile impulses to such a degree that these impulses did not find overt expression even on an inkblot test. In that case, the low level of inkblot-hostility was composed of two types of subjects: Those with strong but highly repressed hostile impulses, and those truly low in this factor. A reliable method of avoiding this problem is not apparent at the present time.

SUMMARY

The purpose of the present experiment was to investigate the effects upon hostile responses of strength of hostile need, degree of insight, content-hostility of the stimulus, and the interactions of these factors. These variables were selected because there was reason to believe that inconsistencies between the results of previous studies may have been due to a failure to take such interactions into account. Three modalities of behavior, perceptual, apperceptive and "everyday", were employed because results in studies which investigated one modality have often been generalized to other modalities without adequate justification.

The subjects were 200 male undergraduate students. They were given an inkblot test in order to estimate the strength of their hostile impulses and a self-rating questionnaire in order to estimate their awareness of their hostile impulses. Nine experimental groups were formed, corresponding to the combinations of three levels of inkblot and three levels of questionnaire-hostility. In regard to insight, three types of subjects were represented among the experimental groups: insightful, non-insightful repressed, and non-insightful overestimating subjects. The behavioral tasks, corresponding to the three response modalities, were: rating the hostility of prejudged

hostile and nonhostile faces (perceptual), writing stories about hostile and nonhostile themes (apperceptive), and ratings by acquaintances of the subjects' probable reactions to hostile and nonhostile incidents ("everyday").

Five hypotheses were tested:

1. All Other Factors being Equal, the Stronger the Hostile Need the More Hostile the Response.

This hypothesis was supported only by the apperceptive measure. It was suggested that the negative perceptual results may have been due to the refusal of unsightful subjects to respond in a stereotyped manner.

2. All Other Factors being Equal, the Stronger the Content-hostility of the Stimulus the more Hostile the Response.

This hypothesis was supported by all three behavior measures.

3. An Interaction will Occur between Strength of Hostile Need, Degree of Insight, and Content-Hostility of the Stimulus.

This hypothesis was supported by the perceptual and apperceptive measures, but not by the "everyday" measure. It was noted that there were basic differences between the first two measures in the way in which the interaction functioned.

4. An External Stimulus of High Content-Hostility will Elicit a Less Hostile Response when Awareness of Hostile Impulses has been Repressed than when Awareness has not been Repressed.

This hypothesis was supported by the apperceptive and "everyday" measures but not by the perceptual measure. It was suggested that the failure to obtain favorable perceptual results may have

been due to the refusal of the insightful subjects to respond in a stereotyped manner.

5. An External Stimulus of Low Content-Hostility will Elicit a More Hostile Response when Awareness of Hostile Impulses has been Repressed than when Awareness has not been Repressed.

This hypothesis was not supported by any of the behavior measures.

In addition to the results pertaining to the above hypotheses, the following findings were noted:

(a) In the apperceptive and "everyday" data, the hostility of behavior of insightful groups was a direct function of the strength of the hostile need. This tendency attained or approached statistical significance. The perceptual data did not show a similar tendency.

(b) A tendency was indicated in all three measures for the hostility of responses to stimuli of nonhostile content at first to decrease and then to rise as the degree of repression increased. In general, however, this tendency was not statistically significant.

(c) Non-insightful overestimating groups did not differ significantly among themselves, or from other groups, in the hostility of their perceptual or apperceptive behavior. However, two significant differences involving overestimating groups were indicated in "everyday" behavior: (1) At the medium level of inkblot-hostility, the moderately overestimating group MI manifested significantly more hostility in hostile situations than did the moderately repressed group ML, and (2) at the low level of inkblot-hostility, the moderately overestimating group IM manifested significantly more hostility in hostile situations

than did the highly overestimating group IH.

It was concluded that other factors besides the interactions of the three variables investigated in the present experiment must be taken into account in predicting the type of hostile response investigated in the present study. Several possible other factors were mentioned. The degree of generality of such phenomena as "defense" and "projection" in different types of behavior modalities was questioned. The possibility was discussed that some subjects who, according to their responses to the inkblot test, possessed low hostile impulses may really have possessed strong, but highly repressed, hostile impulses.

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APPENDICES

APPENDIX A: EXPLANATIONS AND INSTRUCTIONS
TO SUBJECTS

Explanation of Experiment

"The purpose of this experiment is to find out whether there is any connection between the way people wish, feel, daydream, and think, on the one hand, and the way they act in everyday life on the other hand. What I am going to do is to take several measures of how you daydream, wish, etc. and also a measure of how you act in everyday life. Be assured that everything you write or say will be held in the highest confidence."

Instructions on the Inkblot Test

"I am going to project upon that screen a number of inkblots. What you are to do is to look at each blot and write down upon the sheets of paper which I have given you whatever these blots might suggest. There is no limitation to what a person might see; therefore, do not be hesitant about putting something down because it sounds "strange" or funny. Remember, no one will see your associations except myself and one other assistant. There will be twenty blots; in order to speed up the experiment, I will present each blot only for one minute. If, at the end of the minute you are in the middle of a sentence, say "wait a second", and I will give you a few seconds more. Most people see at least two things on each blot; that doesn't mean you are to force yourself, however. I suggest that you put a Roman numeral "I" at the left side of the page; put your associations under it, then Roman numeral "II" for the second blot, etc. Are there any questions?"

Instructions on the Self-Rating Questionnaire

"On the next few pages you will find some statements of how people have actually felt, daydreamed, wished, etc. Read each statement and decide to what extent it applies to yourself. Use the rating scale on the board in order to make your estimate. A "1" means that you have never felt, daydreamed, wished etc. that way; a "2" means that you have felt, daydreamed, wished that way, but infrequently. And so on. Put the ratings in the small boxes beside the statements. Be honest, but do not spend too much time over any one statement. As a rule, first impressions are as accurate as any others. Any questions?"

Instructions on the Behavioral Tasks

Perceptual Task

"I am going to show you some pictures of criminals. These pictures came from FBI "mug" shots or from the newspapers. They are all old and you should not recognize any of the faces. If you do, let me know at once. What I want you to do is to look at each picture and decide how likely the person is to hurt someone physically; in other words, how cruel he looks. Use the rating scale on the board in order to make your judgments. A "1" means that this person would never hurt anyone physically; a "2" means that he might hurt someone physically, but that it is unlikely. And so on. A wide range of crimes is represented. Place your ratings in the brackets besides the number of the picture on the sheet which I have given you. Do not spend too much time on any one picture. First impressions are usually as accurate as any others. Any questions?"

Apperceptive Task

"On this sheet of paper you will find 14 "themes". Each theme is a sentence which might suggest some kind of an incident or event. What I want you to do is to take each theme and the incident which it suggests and expand it into a short story. In each story, tell what led up to the event, what happened, and how it turned out. In other words, make it complete. It does not have to be a lengthy narration. As you see, the subject of each theme is "Tom". That is only for convenience sake; you do not have to use that name. Here is your chance to use your literary imagination. You may do them in any order you wish as long as you number them correctly. You may take a break if you wish. You may talk, but do not tell your ideas to your neighbor. Any questions?"

"Everyday" Task

" I told you at the beginning of the experiment that I am interested in finding out whether there is any connection between the way people wish, daydream, feel, etc. on the one hand, and the way they really act on the other hand. Now, I can't follow you around to see how you act. Therefore, I will have to use another method. What I want you to do is to write down the names and addresses of five men who know you fairly well. The best persons would be individuals in your dormitory or fraternity; next, persons you work with, if you have a job in the vicinity. No relatives, please. I am going to send these persons a form letter with a number of statements like this: "Joe was walking down the street and a car splashed dirty water on his new suit---what do you think he would do?" They will send the form back to me. Any questions?"

APPENDIX B: SELF-RATING QUESTIONNAIRE

1. I enjoy being left alone with my own thoughts.
2. I picture that a great struggle between good and evil is taking place within me.
3. I daydream instead of doing what I should.
4. I think of what people would say if I did something which they considered improper.
5. When a friend of mine annoys me, I feel like telling him what I think of him.
6. I daydream that my father dies and I take over his duties.
7. I daydream that I make a mess of my life because no one understands me.
8. I daydream about things I don't like to tell other people.
9. I daydream that I become someone important, and certain people are now sorry for the way they treated me.
10. I daydream that other people admire me and seek my attention, but I pay no attention to them.
11. I daydream that I lose control of myself and do something destructive.
12. I picture the end of the world.
13. I find myself worrying about something.
14. I wish I could be as happy as others.
15. In my daydreams I do things which people would consider immoral or against society.
16. In my daydreams the tables are turned, and I reject someone whose interest I once tried to gain.
17. When I see a good fight, I feel like pitching in.
18. I feel that other people have not counted much in my life.
19. I feel that I face so many difficulties that I cannot overcome them.
20. I daydream that I have great power which I use to punish the wicked and help the suffering.
21. I get great pleasure from something that has a long legendary past.
22. I like to daydream about driving a sleek powerful vehicle (such as an automobile, airplane, boat, etc.)

- 23. In my daydreams I am injured.
- 24. I daydream that I defeat a rival and win out in a romance.
- 25. I daydream that I am performing before a large audience.
- 26. I feel that I am going to crack up.
- 27. I feel very confident in myself.
- 28. My daydreams are unrealistic.
- 29. I daydream that I make someone I dislike suffer.
- 30. I get pleasantly exhilarated when all eyes are upon me.
- 31. I picture old times with my friends.
- 32. I picture the punishment that would follow if I did something I shouldn't.
- 33. I daydream that I am a leader of others.
- 34. I daydream that I have the ability to read hidden meanings in ordinary events or objects.
- 35. I daydream that I commit a great wrong or that I am guilty of a great sin.
- 36. My sleep is restless and disturbed.
- 37. In my daydreams it seems that I am under the control of strange forces.
- 38. I daydream I defeat an enemy soldier in hand-to-hand combat.
- 39. I enjoy myself at parties and at other social gatherings.
- 40. I daydream about unusual sexual material.
- 41. I have daydreams that do not make sense to me.
- 42. I daydream that I save a person I care for from danger.
- 43. I daydream I am captured or carried off by hostile persons.
- 44. I worry without reason about something that really did not matter.
- 45. I daydream that I make a bargain with the devil.
- 46. I daydream of doing away with someone I can't stand.
- 47. I feel that life is a strain for me.
- 48. I daydream that by some fortunate accident I become a success.

- 49. In my daydreams I imagine that the elements (wind, sun, rain, etc.) and nature have spiritual life and power.
- 50. I imagine what I would do if certain threatening situations took place, such as being attacked by a robber.
- 51. I daydream that I understand others and help them with their problems.
- 52. I feel like kicking a can or punching a wall because of something I did or did not do.
- 53. I picture what it would be like if I were the only one left on earth.
- 54. I wish I could be as happy as others.
- 55. In my daydreams I imagine that God & I talk face to face as equals.
- 56. I picture my own funeral.
- 57. In my daydreams I have an imaginary companion.
- 58. I daydream I make a fool of someone who is supposed to know more than I.
- 59. I daydream that I am very good-looking.
- 60. I picture myself holding down a position of high prestige and respect.
- 61. I daydream that others come to me seeking wise advice.
- 62. I picture myself taking revenge on someone who has hurt me.
- 63. I daydream that I receive the punishment I deserve.
- 64. I get the feeling that might makes right.
- 65. I daydream I have nothing to do but relax & take things easy.
- 66. I daydream that I win a popularity contest.
- 67. I daydream that I am run over by an automobile.
- 68. I daydream that I beat up someone I don't like.
- 69. I imagine myself participating in dangerous and exciting events.
- 70. I daydream that I am beaten up in a boxing match.
- 71. I feel that this is a dog-eat-dog world.
- 72. I daydream I have an exciting affair with a passionate member of the opposite sex.

- 73. I daydream I commit suicide.
- 74. I daydream that I have acquired a certain skill to perfection.
- 75. I daydream that I man a machine gun and mow down enemy troops.
- 76. I daydream that I perform some heroic deed to gain the interest of a person I care for.
- 77. I enjoy work as much as play.
- 78. I daydream that a famous person finds hidden talent in me.
- 79. I notice myself to have hostile and aggressive feelings against people or things.
- 80. I daydream that I am an excellent dancer.
- 81. I daydream in color.

Note: The 14 starred items are the hostile items

APPENDIX C: APPERCEPTIVE THEMES

1. A car splashed dirty water on Tom's new suit.
- * 2. Tom strongly suspected that it was one of the men in his dorm who was stealing his money.
3. Tom built himself up to the point where he had great physical strength.
- * 4. A fellow in the neighborhood started a whispering campaign against Tom.
5. Tom acted in a play before a large audience.
- * 6. Tom asked some boys not to play on his new lawn, but they started to get fresh with him.
7. Tom joined a local reform group because he thought it had noble aims.
- * 8. Tom was purposely tripped by a fellow he did not like.
9. In order to win his girl friend, Tom had to suffer hardship.
- * 10. A fellow crashed into Tom's car and tried to put the blame on him.
- * 11. Tom stayed home sick one day, but another fellow told him he was a liar.
12. Tom performed his job so well that other fellows, who had not liked him, changed their minds about him.
- * 13. A woman refused to take off her big hat in the movies, and this kept Tom from seeing the screen.
14. Tom saved all his money in order to get a sports car.

*Hostile themes

APPENDIX D: SCORING CRITERIA FOR THEMES

<u>Score</u>	<u>Criteria</u>
5	<ul style="list-style-type: none">a. Any action causing the death of one of the characters.b. Any instance of physical assault described in gory details, e.g., torture.
4	<ul style="list-style-type: none">a. Any action involving physical assault or maltreatment (except those instances corresponding to "b" above) Also, destruction of property.b. Any actions involving severe mental maltreatment, e.g., "brainwashing".
3.	Any actions involving the infliction of harm which does not rate a "5" or "4", e.g., "sue him in court", "take away his house", "get him fired".
2	Any actions which suggest hostility but which are too mild to be classified under "3", "4", or "5". Derogatory remarks, gossiping, sarcasm and the like belong here
1	Any action which is not hostile.

APPENDIX E: "EVERYDAY" BEHAVIOR INCIDENTS

Dear Mr. _____

We should like 15 or 20 minutes of your time in helping us with a scientific investigation at the University of Massachusetts in which we are attempting to develop tests which will tell us something about a person's hostile and aggressive behavior. In order to have something by which to judge our tests, we need to know how aggressive or hostile the people in our experiment are in a variety of real-life situations. That is where you come in. The person named above was a subject in our experiment and he offered your name as a person who is fairly well acquainted with him and who therefore could describe his behavior objectively.

What we wish you to do is to draw upon your knowledge of his past behavior, in so far as is possible, and to describe how you think he would react in certain situations. A standard questionnaire of 20 items is provided for this purpose. A typical item might be:

"If he went out for football, he probably would——"

After each item you will find three sentences describing ways in which he might behave. Think of them as being three points--low, medium, and high--on a scale of "aggressiveness of behavior". In the above case,

- a. Be discouraged by the hard physical contact (low)
- b. Enjoy the rough play, but not be too rough himself (med)
- c. Become skilled at rough play (high)

Following the three reactions to each item, you will find a "scale of aggressiveness". Reaction "a" (low) is always at the left end, reaction "b" (medium) is always in the middle, and reaction "c" (high) is always at the right end. For example:



If you think that one of the 3 reactions best describes your acquaintance's probable reaction to the situation, check the appropriate place in the scale: "a", "b", or "c". It is possible, however, that none of the 3 reactions describes his probable behavior. For example, in the above item his behavior might be a little more aggressive than "be discouraged by the hard physical contact"; in that case you would check the space just above "a". Or if you think his reaction would be a little less aggressive than "become skilled at rough play", you would check the space just below "c".

After each item you will also find a scale by which you can tell us how confident you feel about your rating on the item:

"My confidence on the above rating is,"

1. Very low
2. Low
3. Moderate
4. High
5. Very High

For instance, if you felt "moderately confident" that your rating on an item was an accurate one, you would circle "3" above.

Treat each item on its own merit. A person may react differently on different items. We have tried to include a wide variety of items so as to get a broad picture of your acquaintance's behavior.

You may rest assured that all replies will be treated as being confidential information. That means that NO ONE--other students, faculty or the person you rate--will ever see your replies. Your ratings can in no way affect the person you rate, nor can they affect yourself. It is important, however, for you to be as objective as possible, since the value

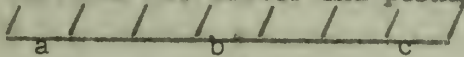
APPENDIX E (Cont'd)

of the experiment depends upon the information you and others provide.

It would be appreciated if you would return the completed questionnaire, together with this face sheet, within 3 days. A stamped and addressed envelope is provided for your convenience. Thank you very much.

David J. Sands
(Graduate Student, U. of Mass.)

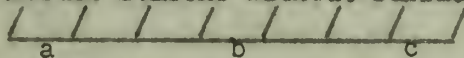
1. If he were walking down the street, and a car accidentally splashed water on his new suit, he probably would,
- a. Ignore the situation and continue on his way.
 - b. Swear at the driver under his breath.
 - c. Threaten the driver and perhaps throw something at the car.



My confidence in the above rating is,

1. Very Low 2. Low 3. Moderate 4. High 5. Very High

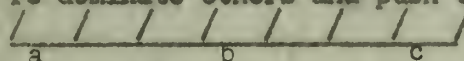
- *2. If someone stole his money and he suspected one of the men in his dormitory, he probably would,
- a. Decide to let the matter ride, rather than cause more trouble.
 - b. Take action only after he had good evidence.
 - c. Accuse someone without sufficient evidence.



My confidence in the above rating is,

1. Very Low 2. Low 3. Moderate 4. High 5. Very High

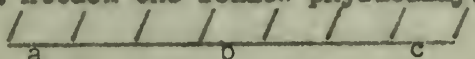
3. If he were to build himself up to great physical strength, the reason for it would most likely be,
- a. To tackle jobs which require a lot of power.
 - b. To prevent others from taking advantage of him.
 - c. To dominate others and push them around.



My confidence in the above rating is,

1. Very Low 2. Low 3. Moderate 4. High 5. Very High

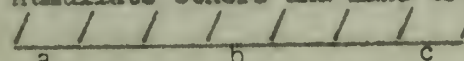
- *4. If a fellow in the neighborhood started a whispering campaign against him, he probably would,
- a. Make believe he was unaware of the rumors.
 - b. Give the fellow a piece of his mind.
 - c. Attack the fellow physically.



My confidence in the above rating is,

1. Very Low 2. Low 3. Moderate 4. High 5. Very High

5. If he acted in a play before a large audience, he probably would,
- a. Cooperate well with everyone.
 - b. Criticize others and point out their mistakes.
 - c. Humiliate others and make trouble for them.



My confidence in the above rating is,

1. Very Low 2. Low 3. Moderate 4. High 5. Very High

*6. If he asked some boys not to play on his new lawn, and they got fresh, he probably would,

- a. Forget about the matter rather than make a fuss,
- b. Call up the boys' parents and complain to them.
- c. Chase after the boys with the intention of teaching them a lesson.

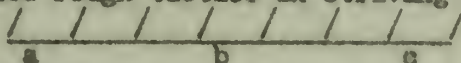


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

7. If he joined a community organization or club, he probably would,

- a. Become known as the "peace-maker" in the organization.
- b. Get into mild arguments at the meetings.
- c. Use rough tactics in striving for high office.

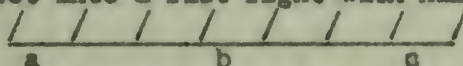


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*8. If he were purposely tripped by a fellow he did not like, he probably would,

- a. Prefer to ignore the situation, rather than let the matter develop into a fight.
- b. Give him a piece of his mind.
- c. Get into a fist fight with him.

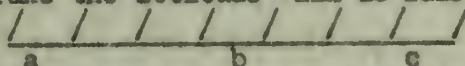


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

9. If it turned out that a rival was interested in the same girl, he probably would,

- a. Tend to give up the girl.
- b. Compete with the rival using only fair means.
- c. Take the attitude "all is fair in love and war".

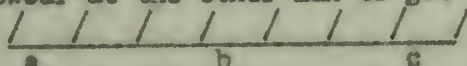


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*10. If someone crashed into his car, and tried to put the blame on him, he probably would,

- a. Forget the whole thing rather than get into a quarrel.
- b. Stand up for his rights but avoid a physical argument.
- c. Swear at the other man or get into a fight.



My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*11. If he had to stay home sick from work one day, and another fellow told him his story was a lie, he probably would,

- a. Ignore the matter rather than get into a quarrel
- b. Tell the fellow off.
- c. Threaten the other fellow or come to physical blows.

_____ / / / / / / / /
a b c

My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

12. If he performed his job so well that other fellows, who had not liked him, changed their minds about him, he probably would,

- a. Let "bygones be bygones" and accept their friendship.
- b. Be friendly on the surface but not fully trust them.
- c. Tell them off when they try to be friendly.

_____ / / / / / / / /
a b c

My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*13. If a woman refused to take off her hat in the movies when he asked her to, he probably would,

- a. Sit still and do nothing rather than cause trouble.
- b. Complain to the manager.
- c. Give her a piece of his mind.

_____ / / / / / / / /
a b c

My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

14. If he should win a sportscar in a raffle, he probably would,

- a. Spend most of his time with it in tinkering with the motor.
- b. Show it off so as to make others look like cheapskates.
- c. Beat the traffic to show up other cars and drive dangerously.

_____ / / / / / / / /
a b c

My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*15. If a policeman wrongly accused him of speeding, he probably would,

- a. Take the ticket, pay the fine, and say or do nothing.
- b. Pretest that he had been going under the speed limit.
- c. Get into an argument and threaten the policeman.

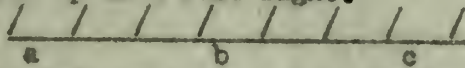
_____ / / / / / / / /
a b c

My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

16. If he went down to the local dance hall to have a good time, he probably would,

- a. Keep out of any kind of dispute.
- b. Get into some kind of verbal argument.
- c. Wind up in a fist fight.

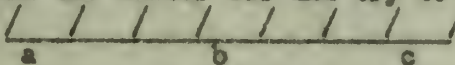


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*17. If a waiter told him he was too fussy about his food, he probably would,

- a. Not do or say anything, in order not to embarrass anyone.
- b. Complain to the management, but not try to have the waiter punished severely.
- c. Tell the waiter off and try to get him fired.

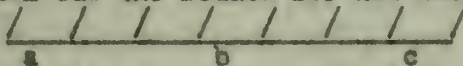


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

18. If a fellow tried to confide in him about some personal trouble, he probably would,

- a. Listen sympathetically to what the fellow had to say and try to be helpful.
- b. Become peeved at the fellow for taking up his time, but listen anyway.
- c. Bawl out the fellow for not being able to handle his own problems.

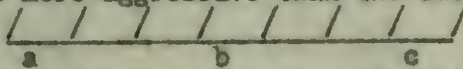


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

*19. When people act in a nasty or aggressive way to him, he is most likely to,

- a. Take the abuse without sufficiently defending himself.
- b. Stick up for his own rights but not be overaggressive.
- c. Be more aggressive than the situation calls for.

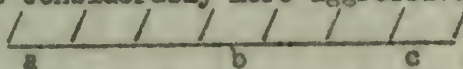


My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

20. When people act in an unaggressive and normally friendly manner to him, he is most likely to,

- a. Be equally friendly and nice to them.
- b. Be a bit more aggressive than the situation calls for.
- c. Be considerably more aggressive than is warranted.



My confidence in the above rating is,

- 1. Very Low
- 2. Low
- 3. Moderate
- 4. High
- 5. Very High

APPENDIX F: SCORES ON RATINGS OF PICTURES

Questionnaire-Hostility

High		Medium		Low	
Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.
58	48	58	34	54	35
45	41	51	40	43	29
43 T = 868	41	55 T = 813	32	51 T = 827	33
50 M = 43.40	48	42 M = 40.65	32	47 M = 41.35	34
50 SD = 8.06	38	55 SD = 9.81	31	50 SD = 7.81	39
45	25	41	24	47	32
46	34	47	35	50	33
53	39	36	28	45	36
42	27	53	41	47	34
53	42	47	31	52	36
T ₁ = 485	T ₂ = 383	T ₁ = 485	T ₂ = 328	T ₁ = 486	T ₂ = 341
M = 48.50	M = 38.30	M = 48.50	M = 32.80	M = 48.60	M = 34.10
SD = 4.88	SD = 7.35	SD = 6.79	SD = 4.83	SD = 3.20	SD = 2.55
48	44	56	37	50	53
47	44	49	32	49	37
45 T = 803	41	50 T = 807	39	50 T = 758	25
46 M = 40.15	24	47 M = 40.35	35	40 M = 37.90	29
50 SD = 7.73	28	56 SD = 9.49	32	49 SD = 11.57	31
48	38	47	28	45	22
40	38	53	40	52	40
41	23	42	35	50	22
44	33	44	23	36	24
46	35	30	32	30	24
T ₁ = 455	T ₂ = 348	T ₁ = 474	T ₂ = 333	T ₁ = 451	T ₂ = 307
M = 45.50	M = 34.80	M = 37.40	M = 33.30	M = 45.10	M = 30.70
SD = 2.98	SD = 7.31	SD = 7.29	SD = 4.86	SD = 6.98	SD = 9.48
55	43	46	35	50	37
43	41	45	36	54	45
54 T = 840	44	53 T = 808	31	57 T = 819	41
47 M = 42.00	26	54 M = 40.40	40	45 M = 40.95	28
56 SD = 9.89	35	46 SD = 8.01	34	43 SD = 10.67	21
57	28	46	27	43	22
47	32	38	36	54	44
39	30	49	33	59	36
48	37	42	28	52	22
52	26	53	36	58	28
T ₁ = 498	T ₂ = 342	T ₁ = 472	T ₂ = 336	T ₁ = 495	T ₂ = 324
M = 49.80	M = 34.20	M = 47.20	M = 33.60	M = 49.50	M = 32.40
SD = 5.68	SD = 6.51	SD = 4.87	SD = 3.77	SD = 6.56	SD = 8.69

APPENDIX G: HOSTILITY SCORES OF STORIES

Questionnaire-Hostility

<u>High</u>		<u>Medium</u>			
Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.
11	11	12	7	8	9
10	10	14	10	13	8
13 T = 237	15	13 T = 215	7	8 T = 237	5
13 M = 11.85	8	9 M = 10.75	8	19 M = 11.85	14
18 SD = 3.03	9	16 SD = 3.06	6	10 SD = 3.78	10
13	9	14	11	17	14
11	9	15	9	19	17
17	10	11	12	12	9
17	8	9	7	11	13
15	10	16	9	11	10
$T_1 = 138$	$T_2 = 99$	$T_1 = 129$	$T_2 = 86$	$T_1 = 128$	$T_2 = 109$
M = 13.80	M = 9.90	M = 12.90	M = 8.60	M = 12.80	M = 10.90
SD = 2.69	SD = 1.93	SD = 2.47	SD = 1.85	SD = 3.95	SD = 3.36
14	6	14	9	9	7
12	9	19	13	12	5
10 T = 218	11	13 T = 229	10	9 T = 185	8
15 M = 10.90	16	13 M = 11.45	11	10 M = 9.25	5
10 SD = 3.42	7	12 SD = 3.26	6	12 SD = 2.48	7
15	14	13	13	9	6
11	7	13	6	13	9
8	9	14	9	13	8
18	10	12	6	12	11
11	5	15	8	12	8
$T_1 = 124$	$T_2 = 94$	$T_1 = 138$	$T_2 = 91$	$T_1 = 111$	$T_2 = 74$
M = 12.40	M = 9.40	M = 13.80	M = 9.10	M = 11.10	M = 7.40
SD = 2.86	SD = 3.32	SD = 1.95	SD = 2.55	SD = 1.58	SD = 1.73
17	11	11	5	12	8
18	14	11	8	11	9
10 T = 199	6	10 T = 193	8	12 T = 191	7
10 M = 9.95	6	15 M = 9.65	8	14 M = 9.55	10
9 SD = 3.43	7	15 SD = 2.83	10	6 SD = 2.71	6
12	5	12	8	13	7
12	6	12	9	11	5
11	8	13	5	11	6
8	10	7	6	14	9
11	8	11	9	11	9
$T_1 = 118$	$T_2 = 81$	$T_1 = 117$	$T_2 = 76$	$T_1 = 115$	$T_2 = 76$
M = 11.80	M = 8.10	M = 11.70	M = 7.60	M = 11.50	M = 7.60
SD = 3.09	SD = 2.66	SD = 2.24	SD = 1.61	SD = 2.14	SD = 1.55

APPENDIX H: HOSTILITY SCORES FOR
EVERYDAY SITUATIONS

Questionnaire-Hostility

<u>High</u>		<u>Medium</u>			
Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.	Host. Stim.	Nonhost. Stim.
141	72	102	55	91	72
120	104	109	50	114	108
112 T = 1877	71	120 T = 1663	67	70 T = 1611	49
143 M = 93.85	64	111 M = 83.15	80	93 M = 80.55	52
71 SD = 26.74	58	82 SD = 25.28	54	89 SD = 22.94	53
112	72	125	68	68	58
108	64	120	60	119	57
101	85	95	60	121	50
121	61	81	52	94	81
118	59	92	80	81	91
T ₁ = 1147	T ₂ = 730	T ₁ = 1037	T ₂ = 626	T ₁ = 940	T ₂ = 671
M = 114.70	M = 73.00	M = 103.70	M = 62.60	M = 94.00	M = 67.10
SD = 19.31	SD = 13.63	SD = 15.10	SD = 10.32	SD = 17.91	SD = 19.24
116	64	103	76	100	75
91	65	92	40	117	58
112 T = 1735	50	95 T = 1633	51	81 T = 1513	51
112 M = 86.75	64	97 M = 81.65	50	98 M = 75.65	52
123 SD = 24.37	68	93 SD = 22.94	59	70 SD = 21.17	49
123	90	102	59	98	60
117	63	110	77	100	61
108	79	109	66	95	69
83	47	108	85	87	48
90	70	110	51	94	50
T ₁ = 1075	T ₂ = 660	T ₁ = 1019	T ₂ = 614	T ₁ = 940	T ₂ = 573
M = 107.50	M = 66.00	M = 101.90	M = 61.40	M = 94.00	M = 57.30
SD = 13.73	SD = 11.95	SD = 6.86	SD = 13.71	SD = 11.90	SD = 8.68
89	52	124	68	105	65
107	65	122	66	129	77
93 T = 1506	52	130 T = 1774	73	82 T = 1553	46
81 M = 75.30	50	70 M = 88.70	51	99 M = 77.65	61
75 SD = 21.03	59	117 SD = 25.83	78	98 SD = 23.49	51
120	86	105	65	97	62
102	76	89	56	95	56
90	60	120	75	90	52
61	41	123	78	96	42
90	57	104	60	95	55
T ₁ = 908	T ₂ = 598	T ₁ = 1104	T ₂ = 670	T ₁ = 986	T ₂ = 567
M = 90.80	M = 59.80	M = 110.40	M = 67.00	M = 98.60	M = 56.70
SD = 15.82	SD = 12.58	SD = 17.84	SD = 8.83	SD = 11.71	SD = 9.63

APPENDIX I: STIMULUS-DIFFERENCE SCORES
FOR RATINGS OF FACES

Questionnaire-Hostility

INKBLOT- HOSTILITY	High	Medium	Low
High	10	24	19
	4 T= 102	11 T= 157	14 T= 145
	2 M= 10.2	23 M= 15.7	18 M= 14.5
	2 SD= 5.60	10 SD= 5.79	13 SD= 2.98
	12	24	11
	20	17	15
	12	12	17
	14	8	9
	15	12	13
	11	16	16
Medium	4	19	- 3
	3 T= 107	17 T= 141	12 T= 144
	4 M= 10.7	11 M= 14.1	25 M= 14.4
	22 SD= 7.31	12 SD= 7.26	11 SD= 8.87
	12	24	16
	10	19	23
	2	13	12
	18	7	28
	11	21	12
	11	- 2	6
Low	12 T= 156	11 T= 136	13 T= 171
	2 M= 15.6	9 M= 13.6	9 M= 17.1
	10 SD= 7.75	22 SD= 5.31	16 SD= 6.52
	21	14	17
	21	12	22
	29	19	21
	15	2	10
	9	16	23
	11	14	30
	26	17	10

APPENDIX J: STIMULUS-DIFFERENCE SCORES
FOR THEMES

Questionnaire-Hostility

INKBLOT- HOSTILITY	High	Medium	Low
High	10	24	19
	4 T= 102	11 T= 157	14 T= 145
	2 M= 10.2	23 M= 15.7	18 M= 14.5
	2 SD= 5.60	10 SD= 5.79	13 SD= 2.98
	12	24	11
	20	17	15
	12	12	17
	14	8	9
	15	12	13
	11	16	16
	Medium	4	19
3 T= 107		17 T= 141	12 T= 144
4 M= 10.7		11 M= 14.1	25 M= 14.4
22 SD= 7.31		12 SD= 7.26	11 SD= 8.87
12		24	18
10		19	23
2		13	12
18		7	28
11		21	12
11		- 2	6
Low		12 T= 156	11 T= 136
	2 M= 15.6	9 M= 13.6	9 M= 17.1
	10 SD= 7.75	22 SD= 5.31	16 SD= 6.52
	21	14	17
	21	12	22
	29	19	21
	15	2	10
	9	16	23
	11	14	30
	26	17	10

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Oct 11, 1956

