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A COMPARISON OF HAND TEST RESPONSES OF AGGRESSIVE
AND NON-AGGRESSIVE BLACK ADOLESCENTS

A DISSERTATION
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Norman, Oklahoma

1973

A COMPARISON OF HAND TEST RESPONSES OF AGGRESSIVE
AND NON-AGGRESSIVE BLACK ADOLESCENTS

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A COMPARISON OF HAND TEST RESPONSES OF AGGRESSIVE
AND NON-AGGRESSIVE BLACK ADOLESCENTS

CHAPTER I

INTRODUCTION

Behavioral scientists are constantly striving to perfect instruments with which to assess an individual's mental health or psychological adjustment. A number of these instruments are classified as projective techniques. The distinguishing feature of a projective personality test is that it presents to the subject (S) stimuli which are vague or ambiguous. The underlying hypothesis is that the way in which the individual perceives and interprets the test material, or "structures" the situation, will reflect fundamental aspects of his psychological functioning. In other words, it is expected that the test materials will serve as a sort of screen on which the S "projects" his characteristic thought process, needs, anxieties and conflicts (Anastasi, 1971).

If a projective technique is extremely vague or ambiguous, it may elicit a great variety of responses from the Ss. However, the responses to such a test may be very difficult to interpret because of the arduous task of establishing norms.

On the other hand, a very "structured" projective technique may elicit responses which are easy to interpret, but the test may be so highly structured that it will not elicit a wide enough variety of responses to allow the examiner (E) to make meaningful distinctions among the individual Ss.

The Minnesota Multiphasic Personality Inventory (MMPI), the Thematic Apperception Test (TAT) and the Rorschach are three projective techniques which are currently very popular with clinicians (Rabin, 1968). Other projective techniques include the Word Association Test, the Rosenzweig Picture-Frustration Study, the Rotter Incomplete Sentence Blank, the Machover Draw-a-Person Test (DAP), and the House-Tree-Person Projective Technique (HTP) (Anastasi, 1971).

One of the newer projective techniques is the Hand Test (Wagner, 1961). Wagner believed that drawings of human hands would make very good stimulus items for a projective technique since our hands are so much a part of our daily lives, even a part of our communication processes. Wagner further believed that if the drawings of the hands in various positions were made ambiguous enough the S would have ample opportunity for making individualized interpretations. He published his first study using the Hand Test in 1961. Bricklin, Piotrowski, and Wagner (1962) provided the rationale and original scoring system for the hand test in a monograph entitled The Hand Test: A New Projective Test With Special Reference to the Prediction of Overt Aggressive Behavior. Later that year, Wagner published

the first manual with a slightly modified scoring system. A revision of the 1962 Hand Test was published in 1969, by the Western Psychological Services. The Hand Test, a book by Bricklin, Piotrowski, and Wagner (1970) clarified the scoring system and discussed the predictive value of the test.

One of the claims made for this test is that it can "predict"¹ overt aggressive behavior. Wagner and other researchers, who are cited in the review of the literature in the following chapter, have found significant differences between the Hand Test responses of aggressive and non-aggressive Ss; however, none of these studies provides any data about the Hand Test responses on black adolescents.

This study is concerned with finding out whether or not there are significant differences between the Hand Test responses of aggressive vs. non-aggressive black adolescents. The significance of this study is the addition of a very important reference group (i.e. black adolescents) to the existing data concerning the Hand Test.

¹Shaw and Linden (1964) have pointed out that the term "predict" is incorrect, and one would be on safer ground to substitute "identify" for "predict." According to Shaw and Linden, Wagner fails to differentiate between predictive and concurrent validity. For a complete discussion of this point the reader is referred to Shaw, D., and Linden, J. A critique of the Hand Test. Educational and Psychological Measurement, 1964, 24, 284-284.

CHAPTER II

REVIEW OF THE LITERATURE

Although it is a relatively new test, considerable research has been done with the Hand Test. Much of the research was done in an attempt to classify or diagnose schizophrenics on the basis of their responses to the Hand Test stimuli. Wagner (1961, 1962, 1966, 1970), Wagner and Medvedeff (1963) and Hodge and Wagner (1964) have published studies indicating that basic personality attributes are identified by the Hand Test and that the Hand Test successfully discriminated aggressive and non-aggressive patients from among a population of undifferentiated schizophrenics. Wagner (1963) conducted a study using the Hand Test which attempted to identify male neurotics with marked overt psychosexual problems. His conclusion was that the psychosexually aberrant Ss produced significantly ($p < .02$) more content indicators of sexual maladjustment than a control group of neurotics without pronounced sexual aberration.

Several researchers have conducted studies in order to establish norms for dull normal and mentally retarded children on the Hand Test. Capotosto (Wagner, 1971) established means on imbeciles and morons; Gloss (Wagner, 1971) assembled means

on nine age groups of students (seven through fifteen years) in the Tallmadage, Ohio, School District; Loftus (Wagner, 1971) reported means on a stratified sample of boys (mean age = 14.6) from a technical high school in Adelaide, Australia; a study comparing the Hand Test responses of normal and dyslectic children was reported by Daugherty (Wagner, 1971). Children for these groups were selected from fourth, fifth, and sixth grades. Roberts (1971) found the Hand Test responses of bright children to be quite different from the Hand Test responses of mentally retarded children. Her study revealed significant differences between mentally retarded and bright children in their attitudes towards others, in strivings for distant goals, higher status, and more power.

Norms for 197 children from kindergarten through the third grade were amassed by Viers (Wagner, 1971). Thetford (1972) established Hand Test norms for deaf school children. The responses of the deaf children were quite similar to those of the normal children in Viers' study. No statistical procedures were attempted by Thetford because of the smallness in variations between the responses of the normal and deaf children.

There have been attempts to utilize the Hand Test as a predictive instrument for "good workers." Wagner and Cooper (1963) hypothesized that the active (ACT)¹ score would differ-

¹See discussion of the scoring categories of the Hand Test in Chapter IV.

entiate between satisfactory and unsatisfactory workers. The experiment was conducted at Goodwill Industries in Akron, Ohio. Evaluations by the worker's immediate supervisors and the personnel director were used as the criterion measure of the worker's efficiency. The Hand Test correctly differentiated forty-five out of fifty workers which was statistically significant ($p < .001$). In an attempt to cross-validate the findings Huberman (1964) reported on a study in a large Douglas Fir plywood mill on the Canadian West Coast. Huberman's study was not supportive of the findings of Wagner and Cooper.

Wagner and Hawver (1965) implemented the active (ACT) scores of the Hand Test along with seven other tests, in a battery to develop predictors of workshop success for severely retarded adults. The results were highly significant for the predictive value of each of the eight tests. They urged caution in interpretation of the results because of no opportunity for cross-validation, the sample used was small and, conceivably, the test may simply have measured present performance rather than skills which existed prior to admittance to the workshop.

Further attempts at validation were made by Wagner and Capotosto (1966). At the Lincoln State School in Illinois, successful discrimination was obtained between a group of poor workers who required too much supervision to be occupationally productive and a group of good workers who required only occasional supervision and who were occupationally productive. The Hand Test was able to correctly differentiate seventy-four

per cent of the Ss. This was significant at the .01 level of confidence.

A number of Hand Test studies have been done using Ss from foreign countries. Seig (1965) reported on the Hand Test in German-speaking areas. Bonk (Seig, 1965) undertook to experiment with four to six year old boys and girls in order to ascertain the age at which sensible answers could be obtained. Seven year olds generally reacted adequately and gave action to the hands, but younger children did not relate as well. The answers of the younger children were generally only descriptive (DES). Neuber's (Wagner, 1971) study presented data on samples of natives from the island of Guam. These samples (elementary school children, high school students, college students, and Guamanian adults) consistently produced more responses than United States samples. Wagner (1971) stated:

It is difficult to ascribe a definite interpretation to this unexpected finding, but it does seem relevant to note that the Hand Test can reflect, in an objective way, intercultural differences (p. 67).

Putoff (1972) established norms on the Hand Test for rural first, second and third grade bilingual children in west Texas. A total of 312 bilingual children were individually administered the Hand Test and the Peabody Picture Vocabulary Test (PPVT). Only two statistically significant negative correlation coefficients were obtained between PPVT raw scores and responses on the Hand Test. Putoff concluded:

This study suggested that the children who employed English as a second language responded with the least amount of responses to each category (p. 36).

More relevant to the present study; however, is the Hand Test research which has been done with delinquent and aggressive Ss. In a speech to the Eastern Psychological Association in 1962, Wagner reported on the Hand Test as an indicator of anti-social, inflexible and inter-personal aggression among delinquents. Wagner and Hawkins (1964) hypothesized that the Hand Test scores would differentiate between assaultive and non-assaultive delinquents. The Hand Test successfully differentiated 47 out of the 60 subjects (78 per cent). These results were statistically significant ($p < .001$). Westel, Shapiro and Wagner (1967) initiated a study to predict recidivism among juvenile delinquents using the Hand Test.¹

The researchers reported:

In the predictive validity of the Hand Test, the acting-out score² significantly differentiated delinquent recidivists from non-recidivists correctly categorizing 66 per cent of the Ss. The AGG (Aggression) scores also significantly differentiated the two groups (p. 69).

Drummond (1966) attempted to cross-validate Wagner's experiments in the discrimination of aggressive from non-aggressive behavior on the basis of the acting-out score (AOS) and the withdrawal (WITH) score of the Hand Test. Her subjects

¹This study was in direct reply to the criticism of Shaw and Linden (1964) concerning the predictive validity of the Hand Test.

²See discussion of scoring categories of Hand Test in Chapter IV.

(66 undifferentiated schizophrenics) were rated aggressive or non-aggressive according to certain definite criteria. The results of her study were notably similar for both groups.

She concluded:

Since it is the very nature of their disorder for schizophrenics to be unpredictable in their behavior, it is perhaps not surprising that the results of the present study have not proved significant (p. 27).

Steinmetz (Seig, 1965) implemented the aggression (AGG) scores of the Hand Test along with five other tests in the diagnosis of aggressiveness. Her study was based on 16 youths with a mean age of 10.9 years from four elementary schools. A combination teacher and peer rating served as external criterion for the establishment of two extreme groups (aggressive, non-aggressive) of eight children each. A questionnaire, the Rorschach, and the Color Pyramid Test were not able to discriminate between these contrasted groups; in contrast, the Dis-figures Test, the TAT, and the Hand Test proved discriminatory. Azcarate and Gutierrez (1969) furnished means obtained on 100 boys at the National Training School in Virginia. They felt MAL (malajustive) and acting-out scores could be used to predict overt, aggressive behavior.

Gleser (1965) stated that the Hand Test appears to have possibilities as a multidimensional clinical test relevant to the overt behavior of individuals. However, additional stimuli should be added in order to obtain a reliable sample of an individual's response tendencies with respect to the fifteen scoring categories. Stone (1962) believes it might have been

useful to have included some additonal cards in which two hands were pictured in some form of relationship.

CHAPTER III

STATEMENT OF THE PROBLEM

The specific problem to be investigated in this study may be stated very simply as: Are the responses of "aggressive" black adolescents to the Hand Test stimuli significantly different from the responses of "non-aggressive" black adolescents to the Hand Test stimuli? This will be accomplished by administering Hand Tests, using standard procedures (as per Wagner, 1971) to (a) one group of male black adolescents who have been identified by school teachers, administrators and/or the juvenile courts, as exhibiting overt "hostile" and "aggressive" anti-social behavior and (b) another group of black male adolescents who are making a satisfactory adjustment to the traditional school setting and are not known to have had any history of "disruptive" behavior.

The scoring categories of primary importance in this study are: (1) the acting-out score (AOS), (2) affection (AFF) responses and (3) withdrawal (WITH) responses.¹ These are the categories which have been suggested by Wagner and other researchers as being the most efficacious for the identification of aggressive behavior.

¹The reader is referred to the discussion of the scoring categories of the Hand Test in the following chapter.

Significance of the Study

The significance of the study is twofold:

1. This study will serve as an attempt at cross-validation of the studies by Wagner which have shown the Hand Test to be a valid instrument for the prediction and identification of overt aggression.

2. This study provides the addition of a very important reference group, black adolescents, to the data concerning the Hand Test.

Hypotheses Tested

Hypothesis 1: No difference exists between the median acting-out score of the "aggressive" black adolescents and the median acting-out score of the "normal" black adolescents to the Hand Test stimuli.

Hypothesis 2: No difference exists between the median number of AFF responses given by the "aggressive" black adolescents and the median number of AFF responses given by the "normal" black adolescents to the Hand Test stimuli.

Hypothesis 3: No difference exists between the median number of WITH responses given by the "normal" black adolescents to the Hand Test stimuli.

CHAPTER IV

METHODOLOGY

The Instrument

The Hand Test is a projective technique developed by Wagner, Bricklin and Piotrowski (1962). The Hand Test consists of ten 3" x 5" stimulus cards, nine of which contain drawings of human hands (the tenth card is blank). Appendix A shows the drawings of the hands that appear on the stimulus cards. The S responds to each of the stimulus cards by telling the E what he thinks the hand is doing.

Wagner (1969) reported Spearman-Brown, split-half reliability coefficients on his original sample (N = 1,020). The reliability coefficients were computed independently by each of three scorers, with the following results: scorer A, .85; scorer B, .84; scorer C, .85. Concurrent validity was established by comparing the results obtained in the normative groups to results of "known" reference groups, I.e., "normal" adults, inmates of a state penitentiary, psychiatric patients, indigents, and normal children and teenagers.

Responses to the Hand Test may fall into one of fifteen scoring categories. These categories are as follows:

- (1) Affection (AFF)
 - (2) Dependence (DEP)
 - (3) Communication (COM)
 - (4) Exhibitionism (EXH)
 - (5) Direction (DIR)
 - (6) Aggression (AGG)
 - (7) Acquisition (ACQ)
 - (8) Active Impersonal (ACT)
 - (9) Passive (PAS)
 - (10) Tension (TEN)
 - (11) Crippled (CRIP)
 - (12) Fear (FEAR)
 - (13) Description (DES)
 - (14) Failure (FAIL)
 - (15) Bizarre (BIZ)
 - (16) Acting-out score (AOS)
- $$AOS + \sum (DIR + AGG) - \sum (AFF + DEP + COM)$$

In addition, there are four summation symbols which represent combinations of the symbols defined above. These are:

Interpersonal, INT: AFF, DEP, COM, EXH, DIR and AGG are combined for the INT responses. That is, those responses involving relations with other people . . . an absence or dearth of INT always has a negative connotation.

Environmental, ENV: ACQ, ACT and PAS are combined for ENV responses. They are assumed to represent generalized attitudes toward the impersonal world, i.e. a readiness to respond to or come to grips with the environment in a characteristic fashion.

Malajustive, MAL: TEN, CRIP and FEAR are combined for MAL responses. They represent difficulty of which the individual is at least partially aware in successfully carrying out various action tendencies and failure to achieve need satisfactions.

Withdrawal, WITH: DES, FAIL and BIZ are combined for WITH responses. They represent those who have found realistic interaction with people, objects and ideas so traumatic, difficult and non-reinforcing that meaningful, effective life roles have been partially or completely abandoned.

In addition to these scoring categories and summation symbols, a S's responses may be adjudged by the scorer to be of sexual content (SEX), immature content (IM), inanimate content (INAN), hiding content (HID), sensual content (SEN), internalization content (IN), denial content (DEN), and movement content (MOV).

The Subjects

1. "Aggressive" Ss: The "aggressive" Ss (N = 52) were black male adolescents who were attending Washington Center¹ or the Oklahoma State School for Delinquent Minors at Boley, Oklahoma. The distinguishing characteristic of the group is that each S had been identified by school teachers, administrators and/or the juvenile courts, as exhibiting overt "hostile" and "aggressive" anti-social behavior. Many of the Ss who were tested at Boley had previously attended Washington Center and vice versa. The mean age for the group was 14-4

¹Washington Center was conceived (by the Oklahoma City Public School System in 1969) with a dual purpose in mind. One purpose was to relieve some of the strain put on teachers in the other schools by removing the "trouble makers" or "disruptive students." The other purpose was to do the best that could be done for this small proportion of students who could not adjust to a traditional school environment. The students enrolled at Washington are boys (no girls) between the ages of thirteen and seventeen (inclusive). Each Washington Center student will fall into one of the following categories:

- a. a student who has been expelled from school for disciplinary reasons;
- b. a student who has been placed on probation by the juvenile courts;
- c. a student who has just returned from a state training school for juvenile delinquents.

and the mean IQ was 71. (Appendix B lists demographic data on these "aggressive" Ss.)

2. "Non-Aggressive" Ss: The "non-aggressive" Ss (N = 52) were black male adolescents who were attending the public schools of Oklahoma City, Oklahoma (i.e. Harding Junior High School, Kennedy Junior High School and Star-Spencer Senior High School). These Ss were students who were making a satisfactory adjustment to the traditional school setting. These Ss were not reported to have had any history of "disruptive" behavior. The E conferred with teachers and counselors in order to select Ss with the desired characteristics, and to find a group of "non-aggressive" Ss which was comparable to the group of "aggressive" Ss with respect to IQ and age. The mean age for the "normal" Ss was 14-11 and the mean IQ was 72.6 (Appendix C lists demographic data on these "non-aggressive" Ss.)

In order to comply with the wishes of the Oklahoma City Public School System, no children were removed from classes for the purpose of taking an IQ test. Thus, IQ scores were taken from tests which had previously been administered to the Ss by counselors and psychometrists in the Oklahoma City Public School System.

The mean IQ scores of 71.0 and 72.6 for the "aggressive" and "non-aggressive" Ss respectively are seemingly quite low when compared to the norms for white children. However, Kennedy (1963) administered the Stanford-Binet Intelligence Scale to

1800 black school children, and found the mean IQ to be 80.7 with a SD of 12.4. When these scores (71.0 and 72.6) are converted to Z-scores (Downie and Heath, 1965) using the formula $Z = \frac{X - \bar{X}}{SD}$, and these Z scores are then converted to IQs using the mean and standard deviation appropriate for white children (Terman and Merrill, 1960) it is found that the scores of 71.0 and 72.6 are equivalent (in terms of norms for Negro children) to white children's IQ scores of 88.3 and 90.3 respectively. Thus, it is considered propitious to interpret these scores in terms of the norms established for Negro children. Such an interpretation would place these Ss in the "dull normal" range of Negro children, rather than the "retarded" range if the norms for white children were applied.

Administration of Hand Tests

All Hand Tests were administered individually to each S. The Hand Tests were given by this E and one other graduate student. Both Es have had considerable experience in the administration of individual tests, and both are currently employed as counselors at Oscar Rose Junior College, Midwest City, Oklahoma.

Standard procedures (as per Wagner, 1971) were followed in the administration of each test. The administrator and testee were comfortably seated facing one another with the cards lying face down on an interposed table. The administrator began by saying, "I have here a number of cards on which pictures of hands are drawn. I'm going to show you the cards, one at a

time, and I want you to tell me what it looks like the hand might be doing." The first card was turned up and the examiner said, "For example, what might this hand be doing?" On the last card the examiner said, "This card is blank. I would like you to imagine a hand, and tell me what it might be doing."

If on the first card, the S gave a short stereotyped, descriptive response such as "It's up" the administrator prompted the testee by asking, "What is it doing?"

The first time a subject "failed" on a card (i.e. he could not supply a scorable response) the tester would say, "Can you take a guess?" If the S continued to fail on that card (and subsequent cards) nothing more was said.

Scoring of the Hand Tests

In an attempt to achieve greater objectivity, all scoring was done by another graduate student who had no knowledge of the hypotheses being tested. Thus, it was assured that this E would not consciously or subconsciously interject his own personal biases into the scoring of the tests. The scorer is a Ph.D. candidate in Guidance and Counseling and has had considerable experience in the area of personality and intelligence testing in addition to having completed a practicum at Central State Hospital, Children's Division in Norman, Oklahoma.

The instructions for scoring, as outlined by Wagner (1971) were followed assiduously. (Appendix D lists the scoring categories and examples of responses as explained by Wagner)

CHAPTER V

RESULTS

Hypothesis One

H₁ (i.e. No difference exists between the median acting-out score of the "aggressive" black adolescents and the median acting-out score of the "non-aggressive" black adolescents to the Hand Test stimuli.) was tested by using a Median Test (Ferguson, 1966). Table 1 gives the results of testing this hypothesis.

Table 1

RESULTS OF TESTING H₁

	<u>AOS > 0</u>	<u>AOS ≤ -1</u>
"Aggressive"	21	31
"Non-Aggressive"	14	38

$$df = 1$$

$$\chi^2 = 2.11$$

$$p > .05$$

The median acting-out score (AOS) for the combined groups was -1. Although the results were in the expected direction (i.e. More of the "aggressive" Ss scored above the joint median than did the "non-aggressive" Ss.) the results

were not significant. The obtained X^2 value (using Yate's correction factor) was 2.11 this was not sufficient to warrant the rejection of H_1 . Figure 1 shows the AOS distributions for the two groups.

Figure 1

ACTING-OUT SCORE DISTRIBUTIONS

<u>Acting-out score</u>	<u>"Aggressive" Ss</u>	<u>"Non-Aggressive" Ss</u>
8		
7	<u>f</u>	<u>f</u>
6		
5		
4		1
3		1
2	4	0
1	8	4
0	9	8
-1	11	15
-2	14	10
-3	5	7
-4	1	5
-5		1
-6		
-7	N=52	N=52
-8		
Q ₁	-2	-3
MEDIAN	-1	-1
Q ₃	0	0

Hypothesis Two

H₂ was stated as follows:

No difference exists between the median number of affection (AFF) responses given by the "aggressive" black adolescents and the median number of AFF responses given by the "non-aggressive" black adolescents to the Hand Test stimuli. The results of testing H₂ are presented in Table 2.

Table 2
RESULTS OF TESTING H₂

	<u>AFF > 3</u>	<u>AFF ≤ 2</u>
"Aggressive"	11	41
"Non-Aggressive"	13	39

df = 1

$\chi^2 = .22$

$p > .05$

The two groups were almost identical in their frequencies of AFF responses. The "non-aggressive" Ss did not give significantly more AFF responses than did the "aggressive" Ss. A Median Test yielded a very small χ^2 value (.22 with Yates' correction for continuity). Thus, H₂ was not rejected.

Hypothesis Three

H₃ was stated as follows:

No difference exists between the median number of withdrawal (WITH) responses given by the "aggressive" black adolescents

and the median number of WITH responses given by the "non-aggressive" black adolescents to the Hand Test stimuli. The results of testing H_3 are presented in Table 3.

Table 3
RESULTS OF TESTING H_3

	<u>WITH > 2</u>	<u>WITH ≤ 1</u>
"Aggressive"	27	25
"Non-Aggressive"	11	41

$$df = 1$$

$$\chi^2 = 10.16$$

$$p < .01$$

A Median Test applied to H_3 yielded a χ^2 value of 10.61 (using Yates' correction for continuity) which was significant at the .01 level. Thus, it was concluded that the "aggressives" Ss gave significantly more WITH responses than did the "non-aggressive" Ss, and H_3 was rejected.

CHAPTER VI

DISCUSSION OF RESULTS AND CONCLUSIONS

The study revealed one marked difference between the responses of the "aggressive" and the "non-aggressive" adolescents on the Hand Test stimuli. This difference was in the number of WITH (withdrawal) responses given by the two groups. The "aggressive" Ss gave 130 per cent more WITH responses than did the "non-aggressive" Ss. (Figure 2 shows a comparison of the responses given by "aggressive" and "non-aggressive" Ss in the various scoring categories as a result of being shown the Hand Test stimuli.)

The data entered in the WITH category are derived by adding the sums of the DES (description), BIZ (bizarre) and FAIL (failure) categories. A DES response occurs when a S does no more than acknowledge the presence of the hand. A BIZ response is one which completely ignores the drawn contours of the hand and/or incorporates bizarre, idiosyncratic or morbid content. A FAIL response occurs when a S can give no scorable response to a particular stimulus card.

A high frequency of WITH responses is indicative of a S who seeks to avoid personal interaction. According to Wagner (1971), a S who gives several WITH responses is one who has

found realistic interaction with people, objects and ideas so traumatic, difficult and non-reinforcing that meaningful, effective life roles have been partially or completely abandoned.

However, no significant difference was found between the acting-out scores of the two groups. The median AOS for each group was -1. This was unexpectedly low in light of previous findings by other researchers. Oswald and Loftus (1967) reported median acting-out scores (AOS) of 3.7 and 4.3 for normal and adjudicated delinquent children respectively. Wagner (1970) found a mean AOS of 4.20 on a sample of "normal" adolescents. Wagner's data suggested that adolescents have higher AOS than children or adults.

One would expect a higher AOS for the groups tested in this study since there is considerable evidence to suggest that black children tend to show more aggression on personality tests than do white children. McDonald and Synther (1963) stated that blacks consistently obtain higher scores than whites on the clinical scales of the Minnesota Multiphasic Personality Inventory (MMPI). Ball (1960) also tested black Ss on the MMPI and stated that black high school students show more "maladjustment" than white students.

Palermo (1959) tested black and white children on the Children's Manifest Anxiety Scale (CMAS) and noted that the mean anxiety scores for black Ss were higher than those for the white Ss at all grade levels and for both sexes. Statistical

Figure 2

A COMPARISON OF THE RESPONSES GIVEN BY THE
 "AGGRESSIVE" VS. "NON-AGGRESSIVE" Ss
 IN THE VARIOUS SCORING CATEGORIES
 ON THE HAND TEST

Scoring Category	"Aggressives" (N=52)		"Non-Aggressives" (N=52)	
1. AFF	f=82	%=15	f=102	%=19
2. DEP	9	1.6	17	3.2
3. COM	14	2.6	23	4.3
4. EXH	0	0	12	2.3
5. DIR	16	3	32	6
6. AGG	48	8.9	34	6
7. INT	169	31	221	42
8. ACQ	27	5	34	6.4
9. ACT	146	27	174	33
10. PAS	21	3.8	16	3
11. ENV	194	36	224	42
12. TEN	6	1	9	1.6
13. CRIP	19	3.5	9	1.6
14. FEAR	2	2	2	.3
15. MAL	27	5	20	3.7
16. DES	123	23	46	8.7
17. FAIL	27	5	19	3.5
18. BIZ	2	.4	1	.2
19. WITH	152	28	66	12
20. DIR+AGG	64	12	66	12
21. AFF+DEP+COM	104	19	143	27

analysis of the overall difference between blacks and whites was significant beyond the .001 level of confidence. Another surprising result (of the present study) was that the "aggressive" Ss gave almost as many AFF (affection) responses as the "non-aggressive" children. Nineteen per cent (N=102) of all responses given by the "non-aggressive" Ss were scored as AFF responses compared to fifteen per cent (N=82) for the "aggressive" Ss (Figure 2). A Median Test (Table 2) performed on these data revealed no significant difference between the two groups in the number of AFF responses given.

Figures 4 and 5 represent intercorrelation matrices on the Hand Test scoring categories for "aggressive" and "non-aggressive" participants respectively. Most of the correlations followed expected patterns, that is, there was high positive correlation between summarized categories (such as INT) and sub-categories (such as AFF, DEP, COM, EXH, DIR and AGG) which were combined to form these summarized categories. However, there were three noticeable differences between the two groups:

1. The "non-aggressive" Ss had a high negative correlation ($r = -.38$, $p < .01$) between the DIR and AFF categories which is consistent with Wagner's (1970) discussion of the properties of the AOS. That is, Ss who give more AFF responses should give fewer DIR (directive responses). The corresponding correlation coefficient for the "aggressive" Ss was $-.07$.

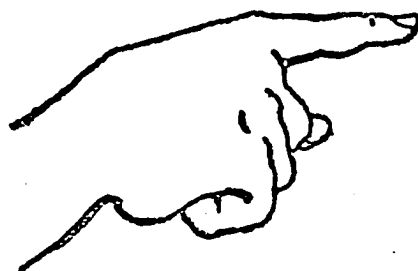
2. The "aggressive" Ss showed a high negative correlation ($r = -.38$, $p < .01$) between DIR + AGG responses and WITH (withdrawal) responses. The corresponding correlation coefficient for the "non-aggressive" Ss was $-.15$.

3. The "aggressive" Ss showed a high negative correlation ($r = -.36$, $p < .01$) between DIR + AGG responses and DES responses. The corresponding correlation coefficient for the "non-aggressive" Ss was $.05$.

There is considerable evidence to suggest that some of the stimulus items on the Hand Test are not ambiguous enough to elicit a wide variety of responses as do the stimulus items on the Rorschach Ink Blot Test and the Thematic Apperception Test. For instance, on cards III and VI of the Hand Test, Ss tended to give stereotyped responses. Every S reported card III (Figure 3) was "pointing." These responses could have been scored either DES, ACT or DIR depending upon the additional information the S supplied. Seventy per cent ($N=58$) of all the AGG responses given by both groups was given on card VI (Figure 4). (Figures 5 and 6 list the Hand Test responses, by card, of the "aggressive" and "non-aggressive" Ss respectively.) It was concluded that the concurrent validity of the Hand Test could be greatly enhanced if stimulus items III and VI were changed in order to eliminate the obviously stereotyped responses of each. In other words, cards III and VI were not discriminating between "non-aggressive" and "aggressive" Ss, since both groups of Ss gave the same responses to

these cards, thus, the cards were detracting from the concurrent validity of the test and were not supporting the claims that Wagner (1970) has made for the test (i.e. "That the Hand Test can identify Ss who exhibit overt "hostile" and aggressive" behavior"). Appendices E and F list the individual responses of the "aggressive" and "non-aggressive" Ss respectively.

Figure 3



Card III

Figure 4



Card VI

Figure 5

RESPONSES OF "AGGRESSIVE
(Ss (N=52))

Scoring Categories	<u>Hands</u>										TOTAL	
	H ₁	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇	H ₈	H ₉	H ₁₀		
AFF	24	6	0	16	1	0	20	0	5	10	82	15%
DEP	1	1	0	3	1	2	1	2	2	1	9	1.6%
COM	1	0	0	2	2	2	1	2	2	2	14	2.6%
EXH	0	0	0	0	0	0	0	0	0	0	0	.0%
DIR	7	0	3	1	0	0	3	0	0	2	16	3%
AGG	1	0	0	2	1	31	9	1	3	0	48	8.9%
INT	34	7	3	24	5	33	33	3	12	15	169	31%
ACQ	0	8	1	9	2	1	1	3	2	0	27	5%
ACT	7	19	30	11	9	6	9	32	10	13	146	27%
PAS	0	1	0	2	7	0	2	1	7	1	21	3.8%
ENV	7	28	31	22	18	7	12	36	19	14	194	36%
TEN	1	2	0	0	1	0	0	1	1	0	6	1%
CRIP	0	2	0	0	13	1	0	1	2	0	19	3.5%
FEAR	0	1	0	1	0	0	0	0	0	0	2	2%
MAL	1	5	0	1	14	1	0	2	3	0	27	5%
DES	10	13	19	6	10	13	11	8	12	21	123	23%
FAIL	2	4	0	2	6	1	1	3	6	2	27	5%
BIZ	1	0	0	0	0	0	0	0	1	0	2	.4%
WITH	13	17	19	8	16	14	12	11	19	23	152	28%
DIR+AGG	8	0	3	3	1	31	12	1	3	2	64	12%
TOTAL	55	57	53	55	53	55	57	52	53	52	542	100%

Figure 6

RESPONSES OF NON-AGRESSIVE Ss
(N=52)

Scoring Categories	<u>Hands</u>										TOTAL	
	H ₁	H ₂	H ₃	H ₄	H ₅	H ₆	H ₇	H ₈	H ₉	H ₁₀		
AFF	35	4	0	11	8	2	22	0	7	14	103	19%
DEP	0	2	0	12	0	0	0	0	1	2	17	3.2%
COM	5	1	1	1	0	2	1	1	4	7	23	4.3%
EXH	1	3	0	1	2	0	0	3	2	0	12	2.3%
DIR	12	3	5	1	1	0	6	2	1	1	32	6%
AGG	0	0	0	1	0	27	5	1	0	0	34	6%
INT	53	13	6	27	11	31	34	7	15	24	221	42%
ACQ	0	15	0	7	7	1	2	1	0	1	34	6.4%
ACT	0	14	46	12	10	19	10	32	8	23	174	33%
PAS	0	1	0	0	5	0	5	1	4	0	16	3%
ENV	0	30	46	19	22	20	17	34	12	24	224	42%
TEN	0	1	1	1	1	4	0	0	1	0	9	1.6%
CRIP	0	0	0	1	7	0	0	0	1	0	9	1.6%
FEAR	0	1	0	0	0	0	0	0	1	0	2	.3%
MAL	0	2	1	2	8	4	0	0	3	0	20	3.7%
DES	3	8	0	3	6	2	4	5	13	2	46	8.7%
FAIL	0	2	1	2	3	0	0	4	4	3	19	3.5%
BIZ	0	0	0	0	1	0	0	0	0	0	1	.2%
WITH	3	10	1	5	10	2	4	9	17	5	66	12%
DIR+AGG	12	3	5	2	1	27	11	3	1	1	66	12%
TOTAL	56	55	54	53	51	57	55	50	47	53	531	100%

Table IV

INTERCORRELATION MATRIX ON HAND
TEST SCORING CATEGORIES FOR
"AGGRESSIVE" Ss

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. AFF	1.00																			
2. DEP	.03	1.00																		
3. COM	-.08	-.12	1.00																	
4. EXH	-.65	-.86	***	1.00																
5. DIR	-.07	.16	.50	-.05	1.00															
6. AGG	.08	.28	.19	.01	-.04	1.00														
7. INT	.55	.29	.57	-.25	.53	.25	1.00													
8. ACQ	.00	-.11	-.14	.10	-.16	.14	-.18	1.00												
9. ACT	.06	.06	.16	-.15	.05	.07	.22	.16	1.00											
10. PAS	-.12	-.12	-.15	.07	-.09	.15	-.28	.11	-.28	1.00										
11. ENV	-.01	-.06	.03	.00	-.04	.14	.00	.48	.80	.21	1.00									
12. TEN	-.10	.13	-.11	-.29	-.09	-.07	.18	-.05	.01	.03	.12	1.00								
13. CRIP	-.02	.18	.39	.02	-.05	.12	.28	-.19	.11	-.05	.01	.03	1.00							
14. FEAR	-.19	-.07	-.05	-.07	.10	-.02	-.14	-.22	.02	-.26	-.06	-.11	.09	1.00						
15. MAL	-.11	.26	.30	-.18	-.20	.04	.16	-.22	.01	.09	-.06	.43	.83	.06	1.00					
16. DES	-.46	.24	-.26	.08	-.25	-.16	-.61	-.12	.59	-.19	-.57	-.07	-.20	.29	-.13	1.00				
17. FAIL	.26	-.09	-.21	-.15	-.01	-.29	.08	.25	-.38	-.02	-.20	-.09	-.12	-.15	-.20	-.02	1.00			
18. BIZ	-.28	.07	.31	-.05	-.08	-.01	-.03	-.15	.11	-.11	-.20	-.05	.03	-.04	-.01	.10	-.15	1.00		
19. WITH	-.37	-.29	-.26	.06	-.25	.17	-.61	-.05	-.70	-.01	-.63	-.19	-.23	.32	-.18	.95	.25	.14	1.00	
20. D+A	-.01	-.07	.44	-.19	.70	.40	.72	-.18	.18	-.20	.04	-.07	.19	.14	.08	-.36	-.20	.07	-.38	1.00

* Significant at .05
 ** Significant at .01
 *** Significant at .001

Table V

INTERCORRELATION MATRIX ON HAND
TEST SCORING CATEGORIES FOR
"NON-AGGRESSIVE" Ss

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. AFF	1.00																			
2. DEP	.22	1.00																		
3. COM	-.19	-.04	1.00																	
4. EXH	-.07	.01	-.05	1.00																
5. DIR	**-.38	.21	.12	.10	1.00															
6. AGG	.12	-.16	-.22	.08	.01	1.00														
7. INT	**-.41	*.29	.17	**-.42	**-.35	**-.39	1.00													
8. ACQ	.20	-.03	-.26	-.14	-.05	-.05	-.26	1.00												
9. ACT	.00	.10	.25	-.21	-.02	-.23	-.08	-.03	1.00											
10. PAS	-.13	-.04	.05	-.06	.09	-.04	-.15	-.19	.02	1.00										
11. ENV	.02	.07	.11	-.26	-.01	-.25	-.13	**-.39	***.85	.21	1.00									
12. TEN	.19	-.08	-.26	.23	-.23	*.31	-.05	-.10	-.21	-.20	**-.39	1.00								
13. CRIP	-.07	.26	.08	.26	*.33	-.01	.32	-.03	-.01	-.10	-.13	-.05	1.00							
14. FEAR	-.07	-.12	.13	-.07	.09	-.06	-.10	-.04	.06	-.07	.06	-.07	.13	1.00						
15. MAL	-.04	.00	.11	*.33	.11	-.02	.11	-.12	-.20	-.18	-.24	**-.43	***.72	*.31	1.00					
16. DES	*.31	-.26	.03	-.03	-.23	-.01	***.52	-.13	**-.38	-.14	***.54	*.32	-.07	-.11	.13	1.00				
17. FAIL	.00	.02	-.25	-.10	.10	.06	-.08	-.01	-.25	-.05	-.25	-.16	.09	-.11	-.08	-.11	1.00			
18. BIZ	-.06	.17	-.10	.15	.06	.08	.07	-.12	-.25	-.07	-.31	-.05	-.05	-.03	-.08	.10	.14	1.00		
19. WITH	-.29	-.23	-.15	-.08	-.17	-.04	***.50	-.12	***.60	-.16	***.63	.24	-.05	-.15	.08	***.90	*.30	.23	1.00	
20. D+A	.23	.07	-.05	.02	***.79	***.59	***.51	-.05	-.14	.07	-.12	-.21	*.28	.03	.06	.05	.13	-.04	-.15	1.00

* Significant at .05
 ** Significant at .01
 *** Significant at .001

CHAPTER VII

SUMMARY AND SUGGESTIONS FOR FURTHER RESEARCH

Summary

Hand Tests were administered to one group of "aggressive" Ss (N=52) and one group of "non-aggressive" Ss (N=52). The "aggressive" Ss were black male adolescents who had been identified by school teachers, administrators and/or juvenile courts as exhibiting overt "hostile" and "aggressive" anti-social behavior. The "aggressive" Ss had a mean age of 14 years, 4 months and a mean IQ of 71.0. These "aggressive" Ss were attending either Washington Center, a special school within the Oklahoma City Public School System, or the Oklahoma State Training School for Delinquent Boys at Boley, Oklahoma.

The "non-aggressive" Ss were black male adolescents who were attending public schools in Oklahoma City, Oklahoma. The "non-aggressive" Ss were students who were making satisfactory adjustment to the traditional school setting and were not reported to have had any history of "disruptive" behavior. The "non-aggressive" Ss had a mean age of 4-11 and a mean IQ of 72.6.

Three hypotheses were tested by using a Median Test (Ferguson, 1966). The results of testing the hypotheses were

as follows:

1. There was no significant difference between the "non-aggressive" and "aggressive" Ss on the acting-out score of the Hand Test.

2. There was no significant difference between the "non-aggressive" and "aggressive" Ss in the number of AFF (affection) responses given to the Hand Test stimuli.

3. The "aggressive" Ss gave significantly more ($p < .01$) WITH (withdrawal) responses to the Hand Test stimuli than the "normal" Ss. WITH responses are characteristic of Ss who seek to avoid personal interaction (Wagner, 1971).

It was suggested that two of the stimulus items (cards III and VI) needed to be redrawn in order to eliminate the stereotyped responses given to these cards. These cards detracted from the overall concurrent validity of the Hand Test and failed to support the claims Wagner (1970) has made for the test (i.e. that the Hand Test can identify Ss who exhibit overt "hostile" and "aggressive" behavior).

This was the first study done with the Hand Test involving only black adolescents. The acting-out scores of the Ss sampled were surprisingly low considering, (a) data presented on the Hand Test by other researchers, and (b) other research which suggested that black children tend to show a greater propensity toward aggression (on personality tests) than white children.

Limitations of the Study

The obvious limitations of this study are as follows: The Ss sampled were limited to black male adolescents attending the public schools in Oklahoma City and the schools for "delinquent" boys at Boley, Oklahoma. The study is limited by those subjective factors which are inherent in the scoring and interpretation of any projective test (viz. the type of analytical thinking required for the scoring and interpretation of projective tests places heavy emphasis on the creativity of the experimenter, and this must be considered when assessing the results). However, the scoring categories (direction, aggression, affection, dependence, and communication) considered in this study are relatively well defined and self-explanatory.

Suggestions for Future Research

In this study Hand Tests were administered to black Ss by a white E. The stimulus items of the Hand Test are very obviously caucasian hands. Many options for future research with the Hand Test are possible. One option would be to have a black E administer the tests to black Ss and see if the presence of a black E would produce any significant differences in the responses of the Ss. Another possibility would be to redraw the stimulus items so that they would resemble the hands of a black person and see how the Ss' responses might be affected. Using either an E or stimulus

items that are of a different race than the Ss might prove effective in identifying Ss who had strong racial prejudices. Having a white E and black Ss could be at least a partial explanation for the large number of WITH responses given by the "aggressive" adolescents in the present study. The Ss may have been reluctant to respond because the E was white.

Another possibility for doing research with the Hand Test could be to adapt the test for use with blind Ss. The adaptation could be accomplished by making plastic models of the stimulus items so that the blind Ss could feel of the hands and then make their responses. It has been shown (Thetford, 1972) that the Hand Test responses of deaf children are quite similar to the responses of "normal" children. It might be interesting to replicate her study using models of the hands as stimulus items for blind Ss.

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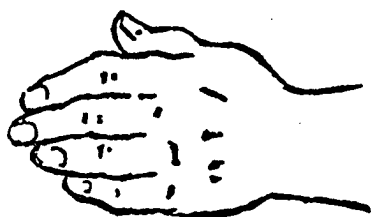
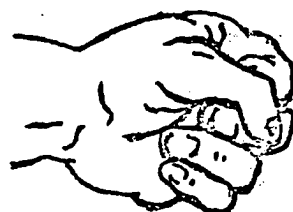
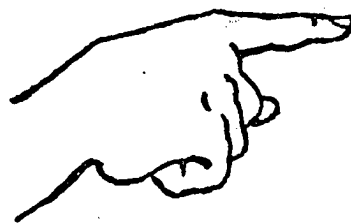
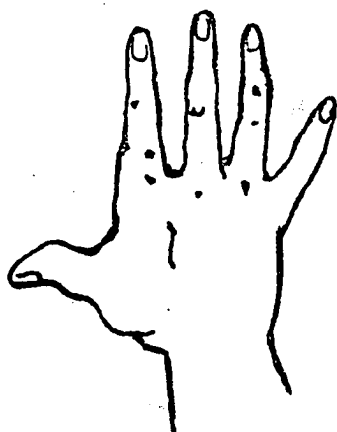
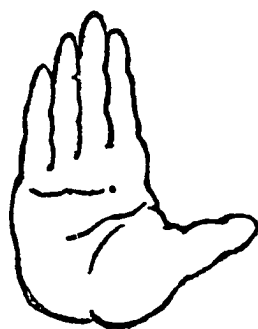
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APPENDIX A
STIMULUS ITEMS OF THE HAND TEST



APPENDIX B
DEMOGRAPHIC DATA ON "AGGRESSIVE" SUBJECTS

DESCRIPTIVE DATA ABOUT
"AGGRESSIVE" Ss

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>CA</u> <u>Yr. Mo.</u>	<u>IQ</u>
S1	M	B	12-6	83c
S2	M	B	13-3	96w
S3	M	B	13-3	86w
S4	M	B	15-6	na
S5	M	B	15-2	na
S6	M	B	14-8	92w
S7	M	B	13-10	63c
S8	M	B	12-6	na
S9	M	B	15-8	na
S10	M	B	13-2	na
S11	M	B	13-3	na
S12	M	B	13-7	na
S13	M	B	14-10	75c
S14	M	B	13-9	75c
S15	M	B	14-0	78c
S16	M	B	13-9	96w
S17	M	B	14-0	na
S18	M	B	13-4	na
S19	M	B	13-4	98c
S20	M	B	14-0	80w
S21	M	B	16-5	75w
S22	M	B	16-0	62c
S23	M	B	14-2	na
S24	M	B	16-2	na

continued on next page

DESCRIPTIVE DATA ABOUT
"AGGRESSIVE" Ss

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>CA</u> <u>Yr. Mo.</u>	<u>IQ</u>
S ₂₅	M	B	14-4	na
S ₂₆	M	B	14-2	na
S ₂₇	M	B	14-4	na
S ₂₈	M	B	15-10	76w
S ₂₉	M	B	15-1	95c
S ₃₀	M	B	14-4	74w
S ₃₁	M	B	14-5	72w
S ₃₂	M	B	15-8	91w
S ₃₃	M	B	14-6	79o
S ₃₄	M	B	14-4	82o
S ₃₅	M	B	14-4	81o
S ₃₆	M	B	16-6	na
S ₃₇	M	B	14-7	77o
S ₃₈	M	B	14-8	na
S ₃₉	M	B	11-11	66o
S ₄₀	M	B	15-15	76o
S ₄₁	M	B	13-8	63o
S ₄₂	M	B	13-11	54o
S ₄₃	M	B	14-2	62o
S ₄₄	M	B	15-1	80o
S ₄₅	M	B	14-10	62o
S ₄₆	M	B	16-1	63o
S ₄₇	M	B	15-4	65o
S ₄₈	M	B	13-1	78o

continued on next page

DESCRIPTIVE DATA ABOUT
"AGGRESSIVE" Ss

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>CA</u> <u>Yr. Mo.</u>	<u>IQ</u>
S ₄₉	M	B	14-0	60o
S ₅₀	M	B	14-5	81o
S ₅₁	M	B	15-11	85o
S ₅₂	M	B	14-4	87o
			$\bar{X}=14-4$	$\bar{X}=71$

LEGEND

c = California (Short Form) Test of Mental Maturity
 w = Wechsler Intelligence Scale for Children
 o = Otis-Lennon Mental Ability Test
 b = Stanford-Binet Intelligence Test
 na = Data not available

IQ scores were not available for all Ss for a number of reasons. Most prominent among these reasons are, (a) the academic records of the S had not been forwarded from the school(s) which the S had previously attended and (b) the S was absent from school on the day the intelligence tests were given.

Several different tests were used in determining the IQ scores of these Ss. However, this E does not believe this causes any problem in the interpretation of the data because of the high correlations among the tests. Anastasi (1971) reports:

The Wechsler scales have been repeatedly correlated with the Stanford-Binet as well as with other well known tests of intelligence. Correlations with the Stanford-Binet in unselected adolescent or adult groups and among mental retardates cluster around .80. (pp. 279-28)

Otis and Lennon (1967) report correlations of .60 between the Otis Lennon Mental Ability Test and the Stanford-Binet Intelligence Scale and correlations of .68 to .80 between the Otis and the California (SF) Test of Mental Maturity.

Sullivan, Clark, and Teigs (1964) state:

The 1963 revision of the California (SF) Test of Mental Maturity, C(SF)TMM, was scaled to the 1960 revision of the Stanford-Binet Form L-M, to obtain the total IQ and corresponding mental age. The complete scale of IQ values and ultimately all other derived scores--was developed from precise scaled relationships of the two instruments at specific reference points distributed throughout the chronological age range of the C(SF)TMM. (pp. 31)

APPENDIX C

DEMOGRAPHIC DATA ON "NON-AGGRESSIVE" SUBJECTS

DESCRIPTIVE DATA
ABOUT "NON-AGGRESSIVE" $\frac{Ss}{CA}$

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>Yr. Mo.</u>	<u>IQ</u>
S ₁	M	B	13-6	na
S ₂	M	B	13-2	na
S ₃	M	B	16-9	60w
S ₄	M	B	14-11	70c
S ₅	M	B	16-0	64w
S ₆	M	B	15-0	106c
S ₇	M	B	13-11	na
S ₈	M	B	15-6	64w
S ₉	M	B	13-9	na
S ₁₀	M	B	13-9	na
S ₁₁	M	B	14-11	102c
S ₁₂	M	B	13-2	na
S ₁₃	M	B	17-3	56w
S ₁₄	M	B	17-8	73w
S ₁₅	M	B	15-0	85c
S ₁₆	M	B	14-2	59w
S ₁₇	M	B	15-3	64w
S ₁₈	M	B	16-3	64w
S ₁₉	M	B	15-2	73w
S ₂₀	M	B	15-2	85w
S ₂₁	M	B	15-1	91c
S ₂₂	M	B	14-3	82w
S ₂₃	M	B	17-10	68w
S ₂₄	M	B	16-10	69w

continued on next page

DESCRIPTIVE DATA
ABOUT "NON-AGGRESSIVE" Ss

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>CA</u> <u>Yr. Mo.</u>	<u>IQ</u>
S ₂₅	M	B	18-0	57w
S ₂₆	M	B	13-2	na
S ₂₇	M	B	15-7	66c
S ₂₈	M	B	14-4	98c
S ₂₉	M	B	14-1	na
S ₃₀	M	B	13-6	na
S ₃₁	M	B	13-4	na
S ₃₂	M	B	14-8	93c
S ₃₃	M	B	14-7	na
S ₃₄	M	B	14-7	na
S ₃₅	M	B	16-7	67w
S ₃₆	M	B	13-11	na
S ₃₇	M	B	15-1	66c
S ₃₈	M	B	15-4	57w
S ₃₉	M	B	14-6	na
S ₄₀	M	B	16-4	62w
S ₄₁	M	B	13-2	na
S ₄₂	M	B	14-6	na
S ₄₃	M	B	14-6	85c
S ₄₄	M	B	14-11	100c
S ₄₅	M	B	17-6	63w
S ₄₆	M	B	14-8	77w
S ₄₇	M	B	14-11	90c
S ₄₈	M	B	13-3	na

continued on next page

DESCRIPTIVE DATA
ABOUT "NON-AGGRESSIVE" Ss

<u>Subject</u>	<u>Sex</u>	<u>Race</u>	<u>CA</u> <u>Yr. Mo.</u>	<u>IQ</u>
S ₄₉	M	B	13-3	na
S ₅₀	M	B	14-3	na
S ₅₁	M	B	14-1	na
S ₅₂	M	B	15-7	70w

Legend

c = California (Short Form) Test of Mental Maturity
 w = Wechsler Intelligence Scale for Children
 o = Otis-Lennon Mental Ability Test
 b = Stanford-Binet Intelligence Test
 na = Data not available

IQ scores were not available for all Ss for a number of reasons. Most prominent among these reasons are, (a) the academic records of the S had not been forwarded from the school(s) which the S had previously attended and (b) the S was absent from school on the day the intelligence tests were given.

Several different tests were used in determining the IQ scores of these Ss. However, this E does not believe this causes any problem in the interpretation of the data because of the high correlations among the tests. Anastasi (1971) reports:

The Wechsler scales have been repeatedly correlated with the _____ as well as with other well known tests of intelligence. Correlations with the Stanford-Binet in unselected adolescent or adult groups and among retardates cluster around .80. (pp. 279-280)

Otis and Lennon (1967) report correlations of .60 between the Otis Lennon Mental Ability Test and the Stanford-Binet Intelligence Scale and correlations of .68 to .80 between the Otis and the California (SF) Test of Mental Maturity.

Sullivan Clark, and Teigs (1964) state:

The 1963 revision of the California (SF) Test of Mental Maturity, C(SF)TMM, was scaled to the 1960 revision of the Stanford-Binet Form L-M, to obtain the total IQ and corresponding mental age. The complete scale of IQ values and ultimately all other derived scores--was developed from precise scaled relationships of the two instruments at specific reference points distributed throughout the chronological age range of the C(SF)TMM. (pp. 31)

APPENDIX D
SCORING CATEGORIES
(AND EXAMPLES OF RESPONSES)
OF THE HAND TEST

HAND TEST SCORING CATEGORIES

1. Affection, AFF: Interpersonal responses involving an interchange or bestowment of pleasure, affection or friendly feeling.

"Waving to a friend--a greeting."
 "Signaling." (Q) "Saying 'hi!', in a gesture of friendship."
 "A friendly salute to a fellow officer."
 "Patting someone on the back."
 "Shaking hands."
 "Petting my cocker spaniel."
 "The hand of a lover." (Q) "An embrace."
 "Priest blessing someone."
 "Mother's hand helping her child across the street."
 "Comforting hand of a nurse."

2. Dependence, DEP: Interpersonal responses involving an expressed dependence or need for succor from another person.

"A hand folded in prayer, asking for forgiveness."
 "Hitch hiker thumbing a ride."
 "Begging . . . panhandling."
 "Someone pleading for mercy."
 "A drowning person calling for help."
 "Hand's in the air." (Q) "I surrender!"
 "Little child reaching for mother's skirt."
 "Holding hand out to receive something."
 (Q) "Money."
 "Saluting your leader."
 "Child holding hand up in class." (Q) "To leave the room."

3. Communication, COM: Interpersonal responses involving a presentation or exchange of information.

"Giving a speech--wants to make a point."
 "Like saying, 'Oh, you're joshing!'" (D)."
 "Stressing a point in conversation."
 "A child holding fingers up, showing how old he is."
 "Sign language." (Q) "A deaf mute talking."

"Describing something to somebody."
 "Communicating with your sign-man."
 "Talking with your hands."
 "Saying, don't you understand?"
 "Playing that Italian game: rock, paper,
 scissors."

4. Exhibition, EXH: Interpersonal responses which involve displaying or exhibiting one's self in order to obtain approval from others or to stress some special noteworthy characteristic of the hand.

"Showing off his muscles."
 "A minstrel man--dancing."
 "Showing off her diamond ring."
 "A ballet dancer with graceful hand movements."
 "Making shadow pictures on the wall."
 "Hand of a lady held out to be kissed."
 "Child showing off his clean hand."
 "A comedian doing his stuff."
 "Like Hitler." (Q) "On the balcony receiving
 heels from his people--he's a big deal."
 "Flashing her new bracelet."

5. Direction, DIR: Interpersonal responses involving influencing the activities of, dominating, or directing others.

"Policeman saying stop."
 "Teacher sending a child to the board."
 "Traffic signals. Making a right turn."
 "Giving a command."
 "Shoving a dog out the door."
 "Leading an orchestra."
 "Inciting the workers to a riot."
 "Quarterback calling a huddle."
 "Someone saying shush!"
 "Crain operator." (Q) "Lower the boom!"

6. Aggression, AGG: Interpersonal responses involving the giving of pain, hostility, or aggression.

"Trying to scare someone."
 "Grabbing someone with violence."
 "A judo punch to break the shoulder blade."

"Making a fist." (Q) "To hit somebody."
 "Slapping a fly."
 "A punch in the mouth."
 "Pushing someone off a cliff."
 "Pow! Right in the kisser!"
 "Boxing in the ring."
 "Wringing a chicken's neck."

7. Acquition, ACQ: Environmental responses involving an attempt to acquire or obtain a goal or object. The movement is ongoing and the goal is yet to be obtained and, to some extent, still in doubt.

"Reaching for something on a high shelf."
 "Kid trying to get into a cookie jar."
 "Trying to catch a football."
 "Jumping up to grab hold of a tree branch."
 "Stretched out." (Q) "Grabbing for something going by."
 "Grabbing for something that has fallen."
 "Reaching for the rung of a ladder."
 "A climber." (Q) "Trying to grab a ledge."
 "Like on a bus." (Q) "Reaching for the strap."
 "Groping for something caught in a crevice."

8. Active, ACT: Environmental responses involving an action or attitude designed to constructively manipulate, attain, or alter an object or goal. ACT responses are distinguished from ACQ responses in that the object or goal has been, or will be, accomplished and the issue is, therefore, not in doubt.

"Might be typing."
 "Picking up a coin."
 "Writing with a pencil."
 "Sprinkling salt."
 "Carrying a suitcase."
 "Threading a needle."
 "Throwing a ball."
 "Dropping money in a tilt."
 "Pulling in a fish."

9. Passive, PAS: Environmental responses involving an attitude or rest and/or relaxation in relation to the force of gravity, and a deliberate and appropriate withdrawal of energy from the hand.

"Just resting."
 "Laying your hand flat on the table."
 "Drying your fingernails."
 "Laying out like this." (D) (Q) "Just limp."
 "Hand folded in your lap."
 "A sleeping hand."
 "Just dangling over a chair arm."
 "A natural, relaxed hand. Like in the statue of the thinker."
 "Hanging limp at your side."
 "Folded over." (Q) "Like when you're relaxed reading a book."

10. Tension, TEN: Energy is being exerted but little or nothing is being accomplished. A feeling of anxiety, tension or malaise is present, TEN responses also include cases where energy is exerted to support oneself against the pull of gravity accompanied by a definite feeling of strain and effort.

"A fist clenched in anger."
 "Pushing upward." (Q) "Trying to get up."
 "Tensing hard to see if the nerves are steady."
 "Clenching your fingers to keep from saying wrong things."
 "Hanging on to the edge of a cliff."
 "Holding something very tight."
 "A clenched fist of nervousness."
 "Hand is stretched and twisted back."
 "Straining on a parallel bar."

11. Crippled, CRIP: Hand is crippled, sore, dead, disfigured, sick, injured or incapacitated.

"A dead person's hand."
 "Someone's ill-sick hand-just about hanging on to life."

"Looks sorta deformed."
 "That hand is bleeding."
 "Cerebral palsy."
 "Been in an accident. Hanging out of the
 car window."
 "All beat up."
 "Woman's hand, she's been hurt. Raped maybe."
 "Fingers cut off."
 "Got black spots on it."
 "Frozen stiff. Been out in the cold."

12. Fear, FEAR: Responses in which the hand is threatened with pain, injury, incapacitation, or death. A FEAR response is also scored if the hand is clearly perceived as meting out pain, injury, incapacitation, or death to the subject or to a person with whom the subject identifies.

"Trembling . . . it's frightened by something."
 "Person going down for the third time."
 "Shielding his face." (Q) "Against an atomic
 blast."
 "Pretty morbid . . . (Q) Terrified . . . ugh!"
 "Walled in. Trying to get out but can't."
 "My father's hand . . . like he's going to hit me."
 "Like a hand in the night trying to strangle me."
 "Falling back. Trying to save himself."
 "Raised up to ward off a blow or flying glass."
 "Being sucked into quicksand."

13. Description, DES: Subject can do no more than acknowledge the presence of the hand with perhaps a few accompanying inconsequential descriptive details or feeling tones.

"Just a hand."
 "Palm up. (Q) "That's all."
 "Just straight out . . . not doing anything."
 "A left hand." (Q) "Lady." (Q) "That's all."
 "A fist." (Q) "No nothing."
 "Hand with a string tied around it's finger."
 "A plain ordinary hand."
 "Five fingers. Two fingers together. That's all."
 "Fingers closed." (Q) "Nothing else."

14. Bizarre, BIZ: A response predicted on hallucinatory content, delusional ideation or other peculiar, pathological thinking. The response partially or completely ignores the drawn contours of the hand and/or incorporates bizarre, idiosyncratic, or morbid content. One genuine BIZ response is pathognomic of serious disturbance.

"The world--just looking at a distance--trying to get a feel."
 "Give no hand as black. Pick up mama."
 "A black bug."
 "Crocodile creeping along the wall."
 "Death's hand . . . skull, skeleton, death."
 "Hand of a virgin . . . snow . . . it's pure white."
 "Culture, antidote, Dr. Heart, sleeping gas."
 "A hand cord." (Q) "Going to see St. Thomas."
 "See muscles? Brain comes from sunflowers."
 "Bones, fingerbones, bone-bones, heart-bones."

15. Failure, FAIL: Subject can give no scorable response whatever to a particular card. A FAIL is tabulated in computing summary scoring, but is not included in the response total, R, since it is not really a response but a failure to respond.

Summarizing, there are fifteen possible symbols used in scoring the Hand Test protocol: AFF, DEP, COM, EXH, DIR, AGG, ACQ, ACT, PAS, TEN, CRIP, FEAR, DES, BIZ, FAIL.

In addition, there are four summation symbols which represent combinations of the symbols defined above. These are as follows:

Interpersonal, INT: AFF, DEP, COM, EXH, DIR and AGG are combined for the INT responses. That is, those responses involving relations with other people . .

an absence or dearth of INT always has a negative connotation.

Environmental, ENV: ACQ, ACT and PAS are combined for ENV responses. They are assumed to represent generalized attitudes toward the impersonal world, i.e. a readiness to respond to or come to grips with the environment in a characteristic fashion.

Malajustive, MAL: TEN, CRIP and FEAR are combined for MAL responses. They are assumed to represent difficulty of which the individual is at least partially aware in successfully carrying out various action tendencies and failure to achieve need satisfactions.

Withdrawal, WITH: DES, FAIL and BIZ are combined for WITH responses. They represent those who have found realistic interaction with people, objects and ideas so traumatic, difficult, and non-reinforcing that meaningful, effective life roles have been partially or completely abandoned.

APPENDIX E
ANALYSIS OF INDIVIDUAL RESPONSES
OF "AGGRESSIVE" SUBJECTS
ON THE HAND TEST

ANALYSIS OF INDIVIDUAL RESPONSES OF
"AGGRESSIVE" Ss ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S1	1	0	0	0	0	0	0	0	2	0	2	0	0	0	0	7	0	0	7	0
S2	1	1	0	0	4	0	6	0	3	0	3	0	0	0	0	0	1	0	1	4
S3	2	0	0	0	0	1	3	0	2	0	2	0	0	0	0	4	1	0	5	1
S4	2	0	0	0	0	2	4	0	3	1	4	0	0	0	0	2	0	0	2	2
S5	2	0	0	0	0	1	3	0	5	0	5	0	0	0	0	2	0	0	2	1
S6	3	0	0	0	0	0	3	1	0	2	3	0	0	0	0	2	2	0	4	0
S7	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	10	0	0	10	1
S8	0	0	1	0	0	2	3	0	2	0	2	0	0	0	0	4	0	1	5	2
S9	2	0	0	0	0	1	3	0	2	2	4	2	0	0	2	1	0	0	1	1
S10	1	0	0	0	1	2	4	0	4	2	6	0	0	0	0	1	0	0	1	3
S11	2	0	0	0	0	0	2	0	1	0	1	0	1	0	1	6	1	0	7	0
S12	0	0	2	0	0	1	3	0	2	0	2	0	1	0	1	3	0	1	4	1
S13	1	1	0	0	0	0	2	1	4	0	5	2	0	0	2	1	0	0	1	0
S14	0	0	0	0	0	0	0	1	2	2	5	0	0	0	0	3	2	0	5	0
S15	1	0	0	0	0	0	1	2	2	0	4	0	0	0	0	5	0	0	5	0
S16	0	0	0	0	0	0	0	0	3	2	5	0	1	0	1	3	1	0	4	0
S17	0	0	0	0	0	2	2	2	4	0	6	0	0	0	0	2	0	0	2	2
S18	0	0	0	0	0	1	1	1	2	0	3	0	0	0	0	6	0	0	6	1
S19	2	0	0	0	0	0	2	0	4	0	4	0	0	0	0	3	1	0	4	0
S20	0	0	0	0	1	1	2	0	2	0	2	0	0	0	0	6	0	0	6	2

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ANALYSIS OF INDIVIDUAL RESPONSES OF
 "AGGRESSIVE" Ss ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S ₂₁	3	0	0	0	0	0	3	1	0	0	1	0	0	0	0	3	3	0	6	0
S ₂₂	0	0	0	0	0	0	0	0	2	3	5	1	1	0	2	3	0	0	3	0
S ₂₃	2	0	4	0	1	3	10	0	5	0	5	0	4	0	4	0	0	0	0	4
S ₂₄	3	0	0	0	0	1	4	0	3	1	4	0	1	0	1	2	0	0	2	1
S ₂₅	1	0	2	0	1	0	4	0	6	0	6	0	0	0	0	0	0	0	0	1
S ₂₆	1	0	0	0	0	2	3	0	3	0	3	0	0	0	0	4	1	0	5	2
S ₂₇	3	0	0	0	0	1	4	1	4	0	5	0	1	0	1	0	1	0	1	1
S ₂₈	1	1	0	0	2	1	5	0	1	1	2	0	1	0	1	2	1	0	3	3
S ₂₉	1	0	0	0	0	2	3	0	2	1	3	0	0	1	1	3	0	0	3	2
S ₃₀	4	0	1	0	2	1	8	1	2	0	3	0	0	0	0	0	1	0	1	3
S ₃₁	1	0	1	0	1	2	5	2	4	0	6	0	0	0	0	1	0	0	1	3
S ₃₂	1	0	3	0	2	1	7	0	3	0	3	0	0	0	0	0	0	0	0	3
S ₃₃	3	0	0	0	0	2	5	0	3	0	3	0	0	0	0	1	1	0	2	2
S ₃₄	1	0	0	0	0	1	2	0	1	0	1	1	1	0	2	4	1	0	5	1
S ₃₅	1	0	0	0	0	1	2	0	4	0	4	0	0	0	0	4	0	0	4	1
S ₃₆	1	0	0	0	1	1	3	0	3	0	3	0	2	0	2	2	0	0	2	2
S ₃₇	3	1	0	0	0	1	5	0	3	0	3	0	1	0	1	1	0	0	1	1
S ₃₈	2	1	0	0	0	1	4	0	3	0	3	0	1	0	1	1	1	0	2	1
S ₃₉	2	0	1	2	2	1	4	0	1	1	2	4	4	4	4	4	0	0	4	1
S ₄₀	4	0	0	0	0	1	5	0	2	0	2	0	0	0	0	2	1	0	3	1

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ANALYSIS OF INDIVIDUAL RESPONSES OF
 "AGGRESSIVE" Ss ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S ₄₁	1	0	0	0	0	1	2	1	7	0	8	0	0	0	0	0	0	0	0	1
S ₄₂	2	0	0	0	0	1	3	3	5	0	8	0	0	0	0	2	1	0	3	1
S ₄₃	2	0	0	0	0	2	4	1	2	0	3	0	0	0	0	2	1	0	3	2
S ₄₄	1	0	0	0	0	1	2	2	2	0	4	0	1	0	1	1	2	0	3	1
S ₄₅	1	0	0	0	0	0	1	1	1	0	2	0	0	0	0	6	1	0	7	0
S ₄₆	3	0	0	0	0	1	4	1	4	0	5	0	1	0	1	0	0	0	0	1
S ₄₇	1	1	0	0	0	0	2	1	5	0	6	0	1	0	1	1	0	0	1	0
S ₄₈	2	0	0	0	0	5	7	1	1	3	5	0	0	0	0	3	0	0	3	0
S ₄₉	2	0	0	0	0	1	3	1	5	0	6	0	0	0	0	0	1	0	1	1
S ₅₀	3	0	0	0	0	1	4	1	3	0	4	0	0	0	0	1	1	0	2	1
S ₅₁	4	0	0	0	0	1	5	0	5	0	5	0	0	0	0	0	0	0	0	1
S ₅₂	2	3	0	0	0	1	6	0	3	0	3	0	1	0	1	0	0	0	0	1

APPENDIX F
ANALYSIS OF INDIVIDUAL RESPONSES
OF NON-AGGRESSIVE SUBJECTS
ON THE HAND TEST

ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-AGGRESSIVE" Ss ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S ₁	0	0	0	0	3	1	4	0	2	1	3	0	1	0	1	1	1	0	2	4
S ₂	1	0	1	0	2	1	5	0	4	1	5	0	0	0	0	0	0	0	0	0
S ₃	3	1	1	2	2	1	10	1	4	0	5	0	3	0	3	0	0	0	0	3
S ₄	1	0	1	0	2	1	5	1	3	1	5	0	0	0	0	0	0	0	0	3
S ₅	2	0	0	0	0	1	3	2	2	0	4	1	0	0	1	2	0	0	2	1
S ₆	3	1	0	0	0	1	5	0	5	0	5	0	0	0	0	0	0	0	0	1
S ₇	5	0	0	0	1	0	6	0	2	0	2	1	0	0	1	0	1	0	1	1
S ₈	1	0	1	0	2	1	5	0	5	0	5	0	0	0	0	0	0	0	0	3
S ₉	2	1	0	0	1	0	4	3	4	0	7	0	0	0	0	0	0	0	0	1
S ₁₀	3	0	1	0	0	2	6	1	4	0	5	0	0	0	0	0	0	0	0	2
S ₁₁	1	1	0	1	1	0	4	1	3	0	4	0	1	0	1	0	1	0	1	1
S ₁₂	1	0	1	0	2	0	4	0	4	0	4	0	1	1	2	0	0	0	0	2
S ₁₃	4	0	1	0	0	0	5	0	4	0	4	0	0	0	0	1	0	0	1	0
S ₁₄	4	0	0	0	0	1	5	2	2	0	4	0	0	0	0	1	1	0	2	1
S ₁₅	2	0	0	0	0	1	3	1	3	0	4	0	1	0	1	0	2	0	2	1
S ₁₆	1	0	0	0	0	0	1	2	3	1	6	0	0	0	0	3	0	0	3	0
S ₁₇	1	0	1	2	0	1	5	0	4	1	5	0	0	0	0	0	0	0	0	1
S ₁₈	2	0	2	0	0	0	4	0	3	0	3	0	0	0	0	2	1	0	3	0
S ₁₉	1	1	1	0	1	1	5	0	4	0	4	0	1	0	1	0	0	0	0	2

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ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-AGGRESSIVE" SS ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S ₂₀	1	1	0	0	1	1	4	1	2	0	3	0	0	0	0	0	3	0	3	2
S ₂₁	2	0	0	0	0	2	4	0	3	0	3	0	0	0	0	3	0	0	3	2
S ₂₂	2	0	0	0	1	1	4	0	2	0	2	0	0	0	0	3	1	0	4	2
S ₂₃	1	0	1	0	0	0	2	0	8	0	8	0	0	0	0	0	0	0	0	0
S ₂₄	1	0	2	0	0	0	3	0	5	0	5	0	0	0	0	2	0	0	2	0
S ₂₅	0	0	0	1	0	0	1	0	1	0	1	2	0	0	2	7	0	0	7	0
S ₂₆	0	2	1	0	2	0	5	0	3	1	4	0	0	0	0	0	1	0	1	2
S ₂₇	3	0	0	0	0	0	3	1	5	0	6	0	0	0	0	0	1	0	1	0
S ₂₈	3	0	1	0	0	2	6	1	4	1	5	0	0	0	0	0	0	0	0	2
S ₂₉	1	1	2	0	1	0	5	1	3	0	4	0	0	0	0	1	0	0	1	1
S ₃₀	2	0	0	0	0	1	3	1	3	0	4	0	0	0	0	2	1	0	3	1
S ₃₁	2	1	0	0	0	2	5	0	3	0	3	2	0	0	2	0	0	0	0	2
S ₃₂	1	1	1	0	1	0	4	0	6	0	6	0	0	0	0	0	0	0	0	1
S ₃₃	5	0	0	0	0	1	6	0	4	0	4	0	0	0	0	0	0	0	0	1
S ₃₄	2	1	0	1	1	1	6	1	3	0	4	0	0	0	0	0	0	0	0	2
S ₃₅	1	0	0	0	1	1	3	2	2	0	4	0	0	0	0	3	0	0	3	2
S ₃₆	2	0	0	4	0	1	7	0	2	0	2	1	0	0	1	0	0	0	0	1
S ₃₇	3	0	1	0	0	0	4	0	4	2	6	0	0	0	0	0	0	0	0	0
S ₃₈	1	1	0	1	1	1	5	0	1	0	1	0	0	0	0	2	1	1	4	2

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ANALYSIS OF INDIVIDUAL RESPONSES OF
"NON-AGGRESSIVE" Ss ON THE HAND TEST

Subject	AFF	DEP	COM	EXH	DIR	AGG	INT	ACQ	ACT	PAS	ENV	TEN	CRIP	FEAR	MAL	DES	FAIL	BIZ	WITH	DIR+AGG
S ₃₉	3	1	0	0	1	1	6	1	3	0	4	0	0	0	0	0	0	0	0	2
S ₄₀	1	0	1	0	0	1	3	0	1	0	1	0	0	0	0	6	0	0	6	1
S ₄₁	1	0	0	0	3	1	5	1	6	0	7	0	0	0	0	0	1	0	1	4
S ₄₂	2	1	0	0	1	0	4	1	5	0	6	0	0	0	0	0	0	0	0	1
S ₄₃	2	0	0	0	1	1	4	2	4	0	6	0	0	0	0	0	0	0	0	2
S ₄₄	2	0	0	0	0	1	3	1	5	0	6	0	0	0	0	0	1	0	1	1
S ₄₅	1	0	0	0	0	0	1	0	4	0	4	1	1	0	2	4	0	0	4	0
S ₄₆	3	0	0	0	0	1	4	0	3	1	4	0	0	0	0	0	2	0	2	1
S ₄₇	2	0	0	0	1	1	4	0	3	1	4	0	0	0	0	2	0	0	2	2
S ₄₈	2	0	0	0	0	1	3	1	4	1	6	0	0	1	1	0	0	0	0	1
S ₄₉	1	2	0	0	0	0	3	0	6	1	7	0	0	0	0	0	0	0	0	0
S ₅₀	2	0	1	0	0	0	3	2	5	0	7	0	0	0	0	0	0	0	0	0
S ₅₁	4	0	0	0	0	0	4	2	3	0	5	1	0	0	1	0	0	0	0	0
S ₅₂	2	1	0	0	0	1	4	1	4	0	5	0	0	0	0	1	0	0	1	1

