1954


Melvin Prince Reid
Louisiana State University and Agricultural & Mechanical College

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EMOTIONAL STABILITY IN STRESS AND THE RORSCHACH PERSONALITY TEST OF HIGH SCHOOL FOOTBALL PLAYERS

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of Psychology

by

Melvin Prince Reid
B. A., University of Miami, 1949
M. S., University of Miami, 1951
June, 1954
MANUSCRIPT THESIS

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ACKNOWLEDGEMENTS

The author wishes to express his sincere appreciation to Dr. T. W. Richards, Chairman of the Dissertation Committee, for scoring the Rorschach records and for his constant guidance and assistance.

The author is deeply grateful to Dr. Bernard M. Bass who, as Project Director, supervised all phases of the Stress Criterion Data study as part of a preliminary study for the Air Force, A.F. Contract #10-89.

Without the unlimited cooperation of the East Baton Rouge Parish Board of Public Instruction, the Principals, Coaches, Players and Guidance Counselors this Research would not have been possible.
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Emotional Stability in Stress and the Rorschach Personality Test of High School Football Players

By

Melvin Prince Reid
Louisiana State University

The primary purpose of this research was to test certain hypotheses concerning the relationship between (a) emotional stability and (b) reactions to stress and performance with a projective psychological test, namely, the Rorschach Ink Blot Test.

The subjects in this study were thirty-nine high school football players in two high schools.

The criterion of emotional stability was the combined rating of their several coaches. Reactions to stress were measured by having each subject watch a motion picture of critical situations in a game in which he had recently participated. He was asked to recall his feelings at that time and to express these by means of a multiple choice questionnaire. His responses were scored in each of five categories: Fear, Frustration, Anxiety, Conflict, and Fatigue.

Statistical analysis showed significant individual differences in the extent to which the various emotions were experienced by different players.

Each player was given the Rorschach test individually. To avoid bias the records were scored independently by an expert.
Hypotheses deriving from the literature in personality theory and other sources were formulated prior to the analysis of the data, and predictions of relationships between various measures were set forth.

Subjects rated high by coaches on Emotional Stability tended to react to stress in terms of Anxiety and Fatigue rather than Fear, Frustration, and Conflict. They also tended to give moderate rather than extreme degrees of pure form and popular responses in their Rorschach performances.

Subjects scoring higher on Fear gave stereotyped Rorschach records. Those higher on Frustration gave shorter, less detailed records and indulged in much card turning. Those higher on Anxiety tended to respond slowly to the ink blots, to give whole rather than detail responses, and to give vista responses such as landscapes. Those scoring higher on Conflict tended to give certain minute details and either a very large or very small number of responses; they tended also to give less movement in proportion to whole responses and to react less precipitously to the ink blots.

While many of the formulated hypotheses were not supported by the results, the number of those hypotheses confirmed statistically was greater than might be expected from chance occurrence alone.

It is concluded that Rorschach theory, on the one hand, and the technique here used for measuring reactions to stress and emotional stability on the other are supported by these findings.
CHAPTER I

INTRODUCTION

People under stress behave in very different ways. This is something well known and extensively studied by many investigators. But the concept of stress has had far from uniform expression in the literature. What is stress? How can it be measured? What are its correlates in terms of the personality's predisposition, its current assets, liabilities and its future determination?

Somewhat pessimistically, Beier (3, p. 3) recognizes this conceptual confusion when he says that stress is "a collective term for many factors, anxiety, fear, frustration, etc. Unfortunately at the present time none of the factors can be fully isolated, either by definition or procedure."

Beier's comment well illustrates a failure on the part of the investigator in the area of stress research to define satisfactorily in operational terms just what he means by the term. Perhaps a result of this failure in satisfactory definition is the fact that it is very difficult to evaluate studies in this field because they cannot easily be compared with one another.

Definition of the term "stress" is but one problem. Another is the lack of uniformity in how and in what degree stress is induced. The experimental literature contains many studies of induced frustration (1, 13, 39), anxiety (3, 10) and other dimensions (38, 40, 41) of stress
in both humans and animals. Discussing laboratory-induced states such as "frustration", Lindsey et al. (25), emphasize the failure in most studies to consider social motives and acquired drives, a failure that reduces their value for generalization to the broad meaning of "Stress" as a concept.

To be meaningful, a study of stress should incorporate each of the following: descriptive specificity of the dimensions employed, consideration of the social nature of stress, and relative uniformity of mobilization to the stressful situation.

**Purpose of this Research**

The purpose of this research was to determine the relationship between performance on a standard projective personality test, namely the Rorschach, and (1) emotional stability, and (2) the extent to which various types of stress are experienced in a crisis.

The Rorschach Test is well enough known not to require description in detail at this point. This is not true of the measure here adopted to evaluate various types of stress; the procedure, while reported at a scientific meeting, has not yet been published. Actually, the present study is an extension of the initial investigation of this procedure for measuring various types of stress, an investigation largely of the reliability and to some extent the validity of this procedure, particularly as applied to football players. Utilizing both analysis of variance and split half correlation techniques, this previous

---


2. Bloom, B. The study of conscious thought processes by the method of stimulated recall. Mimeoographed manuscript, University of Chicago.
investigation showed clearly that the experience of different types of stress could be reliably measured, - in other words that individuals differed significantly in their reaction to this particular test situation. These measures were shown to be correlated with ratings by coaches of emotional stability and with other behavioral indices. Various details of this earlier experiment will be discussed in the material that follows, but for a full acquaintance with this study, the reader is referred to the original report which is on file in the Department of Psychology, Louisiana State University.

It was this Stress Criterion data, and not the Rorschach phase of the present study, which was done under A. F. Contract #10-89.
Thirty-nine members of two high school football teams in a large southern city comprised the sample in this study. The mean age was 17 years and 9 months with a standard deviation of 9.4 months, with a range in age from 16 years 6 months to 19 years 3 months. All were beyond the Freshman year, largely juniors to seniors. Ninety-five percent of the group had played at least one year of football before the season under consideration.

The Stress Scales

Emotional experiences reported introspectively by the ball players during the stresses of a previous football game served as a criterion for the various types of stresses (36) to which the Rorschach was related. The development of this criterion, while unpublished, was reported by the author at a scientific meeting in 1955; it was a study attempting to investigate the possibility, validity and utility of typing stress situations in terms of psychological concepts. The research was designed to determine whether or not each of several types of situations led consistently to different perceptions by the individuals experiencing each of the situations. It is necessary for the understanding of the present study to clarify somewhat the nature of these data and how they were obtained.

(a) Types of Stress and their Conceptualization

Four types of stress situations were conceived. It seemed possible that each of these might theoretically be imposed on the
subjects independently of the others. These four types and their theoretical bases were:

**STRESS 1.** Thwarting-of-approach behavior which should characteristically produce feelings of Frustration.

Maslow (28) speaks of a frustrating situation as one in which there is a deprivation which is important to the organism, but even more basically, a threat to the personality of the individual, his life goals, his defensive system, his self esteem and his feelings of security.

**STRESS 2.** The arousal of incompatible behaviors characteristically producing feelings of Conflict.

Dollard, et. al. (7) discusses conflict as a situation in which one is strongly driven to flee, wherein, in the usual case two or more drives are operating producing incompatible responses. Brown (4) and Miller (30) treat the concept similarly.

**STRESS 3.** Thwarting-of-avoidance behavior characteristically producing feelings of Fear.

M. E. Miller (30, 31) employs this concept emphasizing the inability to avert shock and pain.

**STRESS 4** Expectation-of-being-thwarted, generally in avoidance behavior, characteristically producing feelings of Anxiety.

This anticipatory state is considered by many to represent anxiety. Freud (14) categorized anxiety as undeniably related to expectation. One feels anxious lest something occur - something traumatic.
Mowrer (32,33) in a reformulation of Freud's views, considers anxiety as an anticipation of actual organic need or injury. Fromm-Reichmann (15) agrees with Freud when she states that anxiety is the original reaction to helplessness in a traumatic situation.

(b) The Motion Picture Experiment

After systematic formulation of this conceptualization of the types of stress situations, motion picture films of two championship football games were viewed by the research project staff a few days after the games had actually been played. Each staff observer independently selected crucial incidents in each game; the number of these incidents was reduced objectively until all members agreed upon critical plays for each game consisting of two plays for each of the four stress types previously listed—a total of eight plays for each game. Descriptions of the actual plays selected are listed in the Appendix.

Each team was shown the film of the game in which it had participated a few days earlier. This was the first time the subjects had seen the film. During its projection the film was stopped at each of the eight plays, at which points the subject, presented with five alternative statements of feeling, was asked to indicate which of the five was most representative of him during that play, and which the least. The fifth alternative was one for Fatigue, included as a buffer item. There were five such alternative choices for each play, providing a possible range of ten score units for each stress scale during each play. A copy of the form used to elicit these self evaluations is provided in the Appendix.
(c) The Stress Data

In this manner scores were obtained for each subject on each of five scales for every type situation. Tests of significance between means indicated that the two schools differed significantly only in the extent to which they experienced Fatigue.

Scores on the various scales for the two different schools are presented in Table I.

Because in the present study it was necessary to combine the samples from the two schools, raw scores were converted to standard scores for each school.

A split half correlation was determined for each scale and corrected for attenuation. These coefficients appear in Table II for each school sample and for the total group.

In Table III appear coefficients of intercorrelation among the Stress scales.

Pearson coefficients of correlation between various sorts of Stress and chronological age yielded a range from \( r = .18 \) (for Fatigue) to \( r = -.26 \) (for Frustration). It is clear that, within the group studied, age is not a factor in determining the Stress score, although there is a tendency for younger subjects to experience Frustration and Fear \( (r = -.13) \), and the older subjects to experience Fatigue.

Ratings on Emotional Stability

By means of a five-point rating scale, each subject was rated by his coaches for Emotional Stability; five coaches independently rated subjects of School A and two independently rated subjects of School B. The correlation between raters is shown in Table IV. The mean of these
TABLE I

Means and Standard Deviations of Stress Scores for Subjects in Two Schools

<table>
<thead>
<tr>
<th>Stress Type</th>
<th>School A</th>
<th></th>
<th></th>
<th>School B</th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>51.90</td>
<td>5.99</td>
<td>47.94</td>
<td>4.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frustration</td>
<td>55.36</td>
<td>4.39</td>
<td>53.13</td>
<td>6.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>37.27</td>
<td>4.77</td>
<td>38.29</td>
<td>5.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict</td>
<td>34.94</td>
<td>7.21</td>
<td>35.77</td>
<td>5.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>25.36</td>
<td>11.62</td>
<td>19.73</td>
<td>10.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE II

Coefficients of Correlation between split halves of each Stress scale, corrected for attenuation

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>Mean (z Transformation)</th>
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</thead>
<tbody>
<tr>
<td>Number of Cases</td>
<td>22</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>.59</td>
<td>.94</td>
<td>.84</td>
</tr>
<tr>
<td>Frustration</td>
<td>.62</td>
<td>.66</td>
<td>.64</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.76</td>
<td>.79</td>
<td>.78</td>
</tr>
<tr>
<td>Conflict</td>
<td>.52</td>
<td>.85</td>
<td>.73</td>
</tr>
<tr>
<td>Fatigue</td>
<td>.76</td>
<td>.85</td>
<td>.81</td>
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# TABLE III

Coefficients of Correlation between Stress Scales and with Emotional Stability

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<thead>
<tr>
<th></th>
<th>Fear</th>
<th>Anxiety</th>
<th>Fatigue</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Emotional Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear</td>
<td>-</td>
<td>-.17</td>
<td>-.38</td>
<td>.12</td>
<td>-.14</td>
<td>-.45</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-.17</td>
<td>-</td>
<td>-.33</td>
<td>-.14</td>
<td>.00</td>
<td>.26</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.38</td>
<td>-.33</td>
<td>-</td>
<td>-.51</td>
<td>-.61</td>
<td>.36</td>
</tr>
<tr>
<td>Frustration</td>
<td>.12</td>
<td>-.14</td>
<td>-.51</td>
<td>-</td>
<td>.33</td>
<td>.34</td>
</tr>
<tr>
<td>Conflict</td>
<td>-.14</td>
<td>-.00</td>
<td>-.61</td>
<td>.33</td>
<td>-</td>
<td>.22</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>-.45</td>
<td>.26</td>
<td>.36</td>
<td>-.34</td>
<td>-.22</td>
<td>-</td>
</tr>
</tbody>
</table>
TABLE IV

Coefficients of Correlation of the Ratings of Five Coaches of School A on Emotional Stability

<table>
<thead>
<tr>
<th></th>
<th>Coach 1</th>
<th>Coach 2</th>
<th>Coach 3</th>
<th>Coach 4</th>
<th>Coach 5</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coach 1</td>
<td>-</td>
<td>.58</td>
<td>.51</td>
<td>.53</td>
<td>.58</td>
<td>.55</td>
</tr>
<tr>
<td>Coach 2</td>
<td>.58</td>
<td>-</td>
<td>.52</td>
<td>.62</td>
<td>.48</td>
<td>.55</td>
</tr>
<tr>
<td>Coach 3</td>
<td>.51</td>
<td>.52</td>
<td>-</td>
<td>.38</td>
<td>.52</td>
<td>.48</td>
</tr>
<tr>
<td>Coach 4</td>
<td>.53</td>
<td>.62</td>
<td>.38</td>
<td>-</td>
<td>.67</td>
<td>.55</td>
</tr>
<tr>
<td>Coach 5</td>
<td>.58</td>
<td>.48</td>
<td>.52</td>
<td>.67</td>
<td>-</td>
<td>.56</td>
</tr>
</tbody>
</table>
ratings (using the z transformation) is .54. Reliability for the average rating of five coaches by the Spearman-Brown formula (16), becomes .855 for School A.

Two coaches rated thirty-three players in School B. The correlation between these yielded a coefficient of .76 which, by means of the Spearman-Brown correction becomes, for the mean of two ratings, .86.

As the basic score in Emotional Stability, the mean of the coaches' rating was used. This also required the conversion of raw to standard scores for each school.

For the total group of thirty-nine subjects, correlation of Emotional Stability with chronological age yielded a coefficient of \( r = .16 \), suggesting slight, if any, relationship.

Rorschach Data

(a) Administration

Within two months of completion of the football season, Rorschach tests were administered individually to the subjects by the author during their study hall periods in a room free from interruptions and distractions. Testing procedure and scoring technique was that of Klopfer (23); no "testing of the limits" was attempted. Records were scored independently by an acknowledged expert in Rorschach procedure.

(b) Reliability

Twelve of the thirty-nine records were randomly selected and rescored by the author without benefit of the original scoring. For "determinants" (such as movement, color, etc.) the two scorers agreed on 94% of the 382 responses in these twelve records, a figure consistent with the scoring reliability routinely reported for Rorschach
studies. The chief source of disagreement was in the scoring of inanimate movement responses.

(e) Rorschach Scores

Expressed as medians and as percent of the total group giving a particular response or index, the Rorschach findings are presented in Tables V, VI and VII, as determinants, location and other scores.

(d) Comparison with Adolescent Norms

For purposes of normative comparison the subjects studied are compared with a group of adolescents studied by McFate and Orr (29). To make this comparison two procedures not otherwise utilized in the present report had to be adopted: (1) calculation of means and standard deviations for Rorschach scores (a procedure considered inappropriate for such data because of the unusual distribution, as McFate and Orr point out) and (2) limitation of scoring to material given only in the "Main" or "free association" phase of the Rorschach test (thus ignoring secondary scoring factors on responses that might appear later, in the "Inquiry").

Since McFate and Orr report results for subjects aged eighteen only, eleven of our subjects at this age, as well as the total group, are compared with the normative group in Table VIII.

The most striking difference between the groups is the greater number of responses (R) for the football players; this superiority holds for both the eighteen-year-olds and the total group (a difference better than at the 1% level of confidence). Significant differences between the athletes and the normative group of McFate and Orr were found for FC (form-color responses) and D (the use of large and frequently used details in contrast to wholes and small details or
TABLE V

Medians and Proportions giving one or more of Several Rorschach Determinants

N = 39

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Median</th>
<th>% giving one or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>1.94</td>
<td>72</td>
</tr>
<tr>
<td>FM</td>
<td>2.69</td>
<td>95</td>
</tr>
<tr>
<td>m</td>
<td>3.08</td>
<td>92</td>
</tr>
<tr>
<td>k</td>
<td>1.05</td>
<td>51</td>
</tr>
<tr>
<td>K</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>PK</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>F%</td>
<td>0.64%</td>
<td>100</td>
</tr>
<tr>
<td>Po</td>
<td>1.09</td>
<td>74</td>
</tr>
<tr>
<td>G</td>
<td>3.95</td>
<td>92</td>
</tr>
<tr>
<td>PC</td>
<td>3.15</td>
<td>95</td>
</tr>
<tr>
<td>CF</td>
<td>1.81</td>
<td>67</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>18</td>
</tr>
</tbody>
</table>
TABLE VI

Medians and Proportions giving one or more of Several Rorschach Location Scores

<table>
<thead>
<tr>
<th>Location Scoring Variable</th>
<th>Median</th>
<th>% giving one or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>W%</td>
<td>16.70</td>
<td>94</td>
</tr>
<tr>
<td>D%</td>
<td>52.32</td>
<td>97</td>
</tr>
<tr>
<td>d%</td>
<td>12.40</td>
<td>79</td>
</tr>
<tr>
<td>S</td>
<td>1.31</td>
<td>62</td>
</tr>
<tr>
<td>d1</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>dr</td>
<td>1.07</td>
<td>51</td>
</tr>
<tr>
<td>Dd%</td>
<td>10.00</td>
<td>94</td>
</tr>
</tbody>
</table>
### Table VII

Medians and Proportions giving one or more of Several Supplementary Rorschach Indices.

**N = 39**

<table>
<thead>
<tr>
<th>Supplementary Scoring Variables</th>
<th>Median</th>
<th>% giving one or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF/C</td>
<td>2.19</td>
<td>72</td>
</tr>
<tr>
<td>Content Categories</td>
<td>10.25</td>
<td>100</td>
</tr>
<tr>
<td>F</td>
<td>5.07</td>
<td>100</td>
</tr>
<tr>
<td>%P</td>
<td>20%</td>
<td>100</td>
</tr>
<tr>
<td>A%</td>
<td>46%</td>
<td>100</td>
</tr>
<tr>
<td>R</td>
<td>30.28</td>
<td>100</td>
</tr>
<tr>
<td>Trauma</td>
<td>1.65</td>
<td>72</td>
</tr>
<tr>
<td>Aggression</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>FM &gt; M</td>
<td>.93; 0</td>
<td>67% FM &gt; M</td>
</tr>
<tr>
<td>CF/C &gt; FC</td>
<td>0:2.25</td>
<td>58% CF/C &gt; FC</td>
</tr>
<tr>
<td>Sum C</td>
<td>4.05</td>
<td>-</td>
</tr>
<tr>
<td>Reaction Time</td>
<td>31.15 sec.</td>
<td>-</td>
</tr>
<tr>
<td>Response Time</td>
<td>16.9 sec.</td>
<td>-</td>
</tr>
<tr>
<td>W &gt; M</td>
<td>4:1</td>
<td>77% W &gt; M</td>
</tr>
<tr>
<td>M &gt; Sum C</td>
<td>0:1</td>
<td>-</td>
</tr>
<tr>
<td>e &lt; eF &lt; Fe</td>
<td>2.26</td>
<td>77</td>
</tr>
<tr>
<td>Systematic vs. unsystematic</td>
<td>20:19</td>
<td>-</td>
</tr>
<tr>
<td>% 8-9=10</td>
<td>36.8%</td>
<td>-</td>
</tr>
<tr>
<td>FK &gt; Fe; F</td>
<td>26% gave FK &gt; FC &gt; 20% F</td>
<td>-</td>
</tr>
<tr>
<td>Achromatic; Chromatic</td>
<td>49% had more Achromatic than Chromatic</td>
<td></td>
</tr>
<tr>
<td>Min Sum C : FK &gt; m : e(Fk &gt; C')</td>
<td>49% in same direction; - 51% reversal</td>
<td></td>
</tr>
<tr>
<td>FK &gt; Fe = (X &gt; Y)</td>
<td>54% greater FK &gt; Fe</td>
<td>-</td>
</tr>
</tbody>
</table>
### TABLE VIII
Comparison of Football Players with MoFate and Orrs' High School Boys for Several Rorschach Scores

<table>
<thead>
<tr>
<th>Football Players</th>
<th>MoFate and Orrs' Sample</th>
<th>Total Sample of Football Players Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 18 N = 11</td>
<td>Age 18 N = 70</td>
<td>Age 17-9 N = 39</td>
</tr>
<tr>
<td>Rorschach Variables</td>
<td>Mean</td>
<td>Standard Deviation &amp; % giving one or more</td>
</tr>
<tr>
<td>M</td>
<td>1.91</td>
<td>1.56</td>
</tr>
<tr>
<td>FM</td>
<td>2.45</td>
<td>2.46</td>
</tr>
<tr>
<td>FG</td>
<td>2.73</td>
<td>1.66</td>
</tr>
<tr>
<td>R</td>
<td>30.63</td>
<td>6.12</td>
</tr>
<tr>
<td>W</td>
<td>8.09</td>
<td>4.55</td>
</tr>
<tr>
<td>D</td>
<td>15.09</td>
<td>5.41</td>
</tr>
<tr>
<td>F</td>
<td>15.63</td>
<td>5.87</td>
</tr>
<tr>
<td>P</td>
<td>6.00</td>
<td>1.04</td>
</tr>
<tr>
<td>#8-9-10</td>
<td>34.64</td>
<td>6.08</td>
</tr>
</tbody>
</table>
Comparing the group of football players and the adolescents studied by MoFate and Orr it is seen that the distribution of most Rorschach variables is similar. Because of this the subjects in this study are considered to be similar to adolescents generally, even though norms for football players are not available.

**Statistical Procedures**

To test the degree of relationship between Rorschach variables and both Stress scales and Emotional Stability, several statistical procedures were used. The literature dealing with Rorschach studies shows that it is probably invalid to assume normal distribution for most Rorschach variables. Cronbach presents a convincing picture on this point (5).

Because of doubts about the normalcy of distribution, etc., two techniques here employed should be explained - namely, splitting the distribution of the Rorschach variable at a median point, as nearly dichotomous as possible; point-biserial r (where the bell-shaped curve for the Rorschach variable seemed questionable); the biserial r (where it seemed plausible).

---

3 Further research in this area might demonstrate the factors which operate selectively to determine athletic participation. Flanagan, using several different measures of "personality", (none of which a projective test) concluded that personality is an "important factor in the selection of physical activity of choice" (11, p.323).
Certain of the hypotheses were that individuals extreme at either end of the distribution (high or low) for a given Rorschach score would differ from those clustering about the median. For purposes of testing these hypotheses, subjects were grouped approximately in (1) an upper-lower quartile group, and (2) an interquartile (moderate) range. The percentage of those subjects in the Rorschach interquartile range who scored above the median on the Stress scale was compared with the percentage of those in the upper and lower Rorschach quartile scoring above the median of the Stress scale. An example of this in terms of a frequency table, is as follows, using D% as the Rorschach variable and Frustration as the Stress scale:

<table>
<thead>
<tr>
<th></th>
<th>(High)</th>
<th>(Low)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Above Median</td>
<td>Below Median</td>
<td>Frequency</td>
</tr>
<tr>
<td></td>
<td>in Frustration</td>
<td>in Frustration</td>
<td></td>
</tr>
<tr>
<td>Moderate D%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Interquartile range)</td>
<td>9</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Extreme D%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(High-Low quartiles)</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>20</td>
<td>19</td>
<td>39</td>
</tr>
</tbody>
</table>

Of the twenty subjects in the moderate D% group, eight or 40% were higher in Frustration. Of the nineteen subjects in the extreme D% range, twelve or 63% were high in Frustration. The standard error of the difference between percentages was then computed for t tests of significance (Cronbach, 5). This particular t was 1.48, failing to meet the requirements for significance.

In Table IX, the t's are reported as either plus or minus; plus
<table>
<thead>
<tr>
<th>Rorschach Variable</th>
<th>Fear</th>
<th>Anxiety</th>
<th>Fatigue</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of Moderate F group high in Stress: Proportion of High-Low F group high in Stress</td>
<td>-1.60</td>
<td>/1.10</td>
<td>/ .846</td>
<td>/ .01</td>
<td>-.93</td>
<td>/1.66*</td>
</tr>
<tr>
<td>Proportion of Moderate N% group high in stress: High-Low N% group high in stress</td>
<td>-.27</td>
<td>-.53</td>
<td>-.73</td>
<td>-.73</td>
<td>-.73</td>
<td>/1.95*</td>
</tr>
<tr>
<td>Proportion of Moderate R group high in Stress: Proportion of High-Low R group high in Stress</td>
<td>/ .81</td>
<td>-1.16</td>
<td>/1.14</td>
<td>-1.14</td>
<td>-1.81*</td>
<td>/1.58</td>
</tr>
<tr>
<td>Proportion of Moderate D% group high in Stress: Proportion of High-Low D% group high in Stress</td>
<td>-.81</td>
<td>/2.64**</td>
<td>-.81</td>
<td>-1.48</td>
<td>/.50</td>
<td>/.88</td>
</tr>
</tbody>
</table>

* .10 level of confidence  ** .02 level of confidence  those testing specific hypotheses

Those with positive signs indicate that the moderate (Interquartile) group had a larger proportion of high Stress scores, while a minus sign indicates the moderate group had a smaller proportion of persons giving high Stress scores.
means that the moderate group on the Rorschach variable scored higher on the Stress scale than the extreme Rorschach group. Minus indicates they scored lower than the extreme Rorschach group.
EXPERIMENTAL HYPOTHESES

For each of the Stress scales, hypotheses, formulated in terms of Rorschach performance, were made as follows:

**Fear Scale**

High scores in Fear will tend to be associated with:

1. **Traumatic Responses.** Trauma was considered present when a response involved either organismic insult, bloody or gory physical condition, or bodily assault. Examples of such responses are (a) "Looks like a piece of human body that's been bruised with the dark spots being bruises and red part is blood", (b) "Someone's face after a terrific impact; I saw one like it once; the red blood; cause his face was messy with mashed tissue", and (c) "beetle; whole thing looks as if he was stepped on and mashed; the red looks like blood."

2. **Short response times.** This seems logical in that fearful persons are strongly motivated to "leave the field."

3. **Reduced number of popular responses.** The Fear-reacting person would be less inclined to think along conventional lines.

4. **Increased A and Ad percent.** Such persons employ stereotyped reaction patterns to adapt.

5. **Increased pure color responses.** The individual fearing disaster is less likely to exercise emotional control.

6. **Low emotional adjustment on subjective impressions gained**
from total Rorschach. Rorschach adjustment was estimated by such features as confusion in explaining percepts, inability to re-find a percept mentioned earlier, rejection of one or more cards asking numerous questions of the examiner, producing more additional than main stage responses, etc.

**Frustration Scale**

High scores in Frustration will tend to be associated with:

1. **Excessive card turning**; in his anticipation of failure, one would experience difficulty in settling on a course of action.

2. **Increased number of responses**. Such an individual places great demands on himself for attainment and seldom perceives himself as succeeding.

3. **A discrepancy between the ratios M:Sum C and Fm/m : Fd/E/C**. Klopfer (24) speaks of this discrepancy as representing a persistent secondary orientation which the individual is unable to realize.

4. **Emphasis on whole responses at the expense of small detail responses**. With his emphasis on accomplishment, such a person would show greater inclination toward organizational and productive responses.

5. **A greater responsiveness to the last three chromatic cards**. Such a person would, for the reasons given in number 2, capitalize on the stimulation and relative ease of differentiation characteristic of these cards, influenced somewhat by a response gradient to the reward of completion.
(6) greater emphasis on wholes in relation to human movement 
(WsM). Piotrowski (35) describes such a phenomenon as an 
indication that one is striving beyond his functioning 
maturity.

(7) increased response time. Piotrowski (35) postulates such 
a relationship.

(8) low emotional adjustment as estimated subjectively from 
the total Rorschach.

**Conflict Scale**

High scores in Conflict will tend to be associated with:

(1) increased reaction time; one in conflict tends not to 
resolve opposing tendencies without sacrificing spontaneity.

(2) increased card turning due to incompatible impulses.

(3) a preponderance of aggressive movement responses; Aggression 
was scored when movement of an attacking, striking, combative, 
hostile and quarrelsome picture was given. Examples were: 
"2 chickens fighting over a butterfly in the center"; "2 
people picking up a bucket and arguing over it," "a dog 
biting somebody"; "2 men fighting over something."

(4) greater attention to space areas of the blot; Piotrowski (35).

(5) extreme emphasis on either movement or color at the neglect 
of the other; such a person is unable to tolerate relative 
equality in the expression of such competing tendencies in 
the Erlebnistype continuum.

(6) an extreme number of responses, either few or many; such a 
person is either unable to act selectively to the ambiguous 
blots and produces drivel, or over inhibits impulses to
respond due to the conflictual nature of competing response possibilities.

(7) the use of shading as undifferentiated texture; Klopfer (23) treats emphasis on texture as an over determination of the contact vector in dependency; such a person is baffled, needs clarity and support.

(8) a narrower range of content; inability to utilize the customary scope of content suggested by the blots due to his conflict with dissenting energies.

(9) fewer whole responses resulting from the lack of freedom required to organize the blots into inclusive percepts.

(10) lower scores in emotional adjustment based on subjective evaluation of total Rorschach.

**Anxiety Scales**

High scores in Anxiety will tend to be associated with:

(1) many inside details. Robert M. Allen (2)

(2) much shading used as diffusion; Klopfer (23).

(3) large amount of inanimate movement responses; Piotrowski (35) and Klopfer (23).

(4) Narrowed perceptual scope evidenced by increased 0’;

Hoch and Zubin (20).

(5) increased response time due to anxiety aroused by some perceived relationship between his interests and the blot under consideration; Klopfer (24) speaks of such a disturbance.

(6) Narrowed perceptual scope manifested by a limited number of content categories.
(7) low emotional adjustment estimated from total Rorschach performance.

**Fatigue Scale**

High scores in Fatigue will be associated with:

(1) low W% and increased d%; Hoch and Zubin (20).

(2) few responses; same reference as above.

(3) reduced number of content and rare detail responses as evidence of decreased imagination, more constriction and a narrowed range of interests; reference same as above.

(4) high emotional adjustment estimated from total Rorschach; such hypothesis advanced in view of the positive correlation between Fatigue and coaches' ratings of emotional stability; in this situation, at least, selection of a fatigue response would seem to be healthier than the selection of the other Stress alternatives.

**Emotional Stability**

Those rated high in Emotional Stability by their coaches would tend to be low in:

(1) CF C; these responses represent inadequate emotional control; Klopfer (23).

(2) diffusion response

(3) inanimate movement (m) (23)

They will give:

(4) a systematic and orderly approach to the figures.

(5) moderate rather than extreme production of popular responses.

(6) moderate rather than extreme F%.

(7) high in emotional adjustment (based on Rorschach).
(8) **human movement responses** (H) in the amount of at least one half Sum C.
CHAPTER IV

RESULTS

Coefficients for various sorts of correlation and other indices of relationship between Rorschach variables and Stress Scale Scores and Emotional Stability are presented in Tables X, XI and XII.

Examination of these tables will show that, of the forty-three hypotheses of relationship posited, eleven were supported at the ten percent level of confidence. (By chance, one might have expected 4.3 to be thus supported).

Regarding individual scales, the ranking in terms of predicted vs. substantiated hypotheses, is presented in Table XIII.

It is seen that there was a fair degree of success in predicting for Frustration and Conflict; but little for Anxiety and Fear; Fatigue was in the middle.

Here will be discussed the relationships found at the 10% level of confidence, or near that level.

Fear Scale

As predicted, those high in Fear gave, significantly more Animal responses. None of the other predicted relationships was significant at this level. The prediction that pure color responses (C) would be related to high scores in Fear barely missed significance; it correlated with Fear substantially better than it was with any other Stress scale. The prediction that Fear scores would be related negatively to the number of Popular responses on the Rorschach (P) was in the predicted direction (r = -.26) and was the
### TABLE X

Correlation Coefficients of the Rorschach Determinants with the Stress Scales and Emotional Stability

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Fear</th>
<th>Anxiety</th>
<th>Fatigue</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Emotional Stability</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>m</td>
<td>-.05</td>
<td>.02</td>
<td>.06</td>
<td>-.11</td>
<td>.05</td>
<td>.00</td>
<td>r pb i</td>
</tr>
<tr>
<td>H</td>
<td>.17</td>
<td>-.15</td>
<td>.09</td>
<td>.15</td>
<td>-.12</td>
<td>-.12</td>
<td>r pb i</td>
</tr>
<tr>
<td>k</td>
<td>.04</td>
<td>.07</td>
<td>.27</td>
<td>-.23</td>
<td>-.25</td>
<td>.07</td>
<td>r pb i</td>
</tr>
<tr>
<td>FK</td>
<td>-.21</td>
<td>-.41**</td>
<td>.08</td>
<td>-.23</td>
<td>.08</td>
<td>.05</td>
<td>r pb i</td>
</tr>
<tr>
<td>C</td>
<td>.37</td>
<td>-.08</td>
<td>.08</td>
<td>-.35</td>
<td>.11</td>
<td>.08</td>
<td>r pb i</td>
</tr>
<tr>
<td>Fc</td>
<td>-.04</td>
<td>.24</td>
<td>.09</td>
<td>-.11</td>
<td>-.13</td>
<td>.13</td>
<td>r pb i</td>
</tr>
<tr>
<td>Fc</td>
<td>.19</td>
<td>.08</td>
<td>-.08</td>
<td>-.14</td>
<td>-.06</td>
<td>.12</td>
<td>r b i</td>
</tr>
<tr>
<td>CF ≠ C</td>
<td>.04</td>
<td>.12</td>
<td>.09</td>
<td>-.21</td>
<td>-.11</td>
<td>.00</td>
<td>r pb i</td>
</tr>
<tr>
<td>c ≠ CF</td>
<td>-.19</td>
<td>-.35</td>
<td>.18</td>
<td>.09</td>
<td>.23</td>
<td>-.01</td>
<td>r pb i</td>
</tr>
</tbody>
</table>

* .10 level of confidence
** .05 level of confidence
*** .02 level of confidence
**** .01 level of confidence

Those testing specific hypotheses.
TABLE XI

Correlation Coefficients of Various Rorschach Scores with the Stress Scales and Emotional Stability

<table>
<thead>
<tr>
<th>Location</th>
<th>Fear</th>
<th>Anxiety</th>
<th>Fatigue</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Stability</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>D%</td>
<td>-.58****</td>
<td>-.05</td>
<td>-.21</td>
<td>.08</td>
<td>-.13</td>
<td>-.14</td>
<td>r bi</td>
</tr>
<tr>
<td>W%</td>
<td>-.14</td>
<td>.26</td>
<td>-.09</td>
<td>.19</td>
<td>.25</td>
<td>.05</td>
<td>r bi</td>
</tr>
<tr>
<td>Dd%</td>
<td>.01</td>
<td>-.01</td>
<td>.02</td>
<td>-.08</td>
<td>.04</td>
<td>.01</td>
<td>r p bi</td>
</tr>
<tr>
<td>d%</td>
<td>.07</td>
<td>-.10</td>
<td>.21</td>
<td>-.65***</td>
<td>.20</td>
<td>.09</td>
<td>r bi</td>
</tr>
<tr>
<td>S</td>
<td>.19</td>
<td>.13</td>
<td>-.20</td>
<td>.25</td>
<td>.13</td>
<td>.00</td>
<td>r bi</td>
</tr>
<tr>
<td>di</td>
<td>-.24</td>
<td>.02</td>
<td>-.06</td>
<td>.06</td>
<td>.44***</td>
<td>.00</td>
<td>r bi</td>
</tr>
<tr>
<td>dr</td>
<td>-.07</td>
<td>.05</td>
<td>-.08</td>
<td>.04</td>
<td>.21</td>
<td>.02</td>
<td>r p bi</td>
</tr>
</tbody>
</table>

Other Scores

<table>
<thead>
<tr>
<th></th>
<th>Card Turning</th>
<th>Content</th>
<th>P</th>
<th>A%</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear</td>
<td>-.12</td>
<td>-.04</td>
<td>-.19</td>
<td>.35*</td>
<td>.25</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.00</td>
<td>.14</td>
<td>.26</td>
<td>-.18</td>
<td>.30</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-.28</td>
<td>.14</td>
<td>.10</td>
<td>.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Frustration</td>
<td>.40**</td>
<td>.04</td>
<td>-.19</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>Conflict</td>
<td>.19</td>
<td>.13</td>
<td>.08</td>
<td>-.50***</td>
<td>.02</td>
</tr>
</tbody>
</table>

* .10 level of confidence
** .05 level of confidence
*** .02 level of confidence
**** .01 level of confidence

Those testing specific hypotheses
TABLE XII

Correlation Coefficients of Rorschach Supplementary Indices with

the Stress Scales and Emotional Stability

N = 39

<table>
<thead>
<tr>
<th>Supplementary Score</th>
<th>Fear</th>
<th>Anxiety</th>
<th>Fatigue</th>
<th>Frustration</th>
<th>Conflict</th>
<th>Emotional Stability</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>-.18</td>
<td>-.02</td>
<td>.56****</td>
<td>-.47**</td>
<td>-.41*</td>
<td>.08</td>
<td>r bi</td>
</tr>
<tr>
<td>Aggression</td>
<td>.22</td>
<td>.27</td>
<td>-.04</td>
<td>-.12</td>
<td>.23</td>
<td>.04</td>
<td>r bi</td>
</tr>
<tr>
<td>FM-M</td>
<td>.19</td>
<td>-.10</td>
<td>-.09</td>
<td>-.07</td>
<td>.16</td>
<td>.06</td>
<td>r bi</td>
</tr>
<tr>
<td>(CF/C)-FC</td>
<td>-.22</td>
<td>.10</td>
<td>.16</td>
<td>.05</td>
<td>-.16</td>
<td>-.16</td>
<td>r bi</td>
</tr>
<tr>
<td>Reaction Time</td>
<td>.06</td>
<td>.06</td>
<td>.29</td>
<td>.33</td>
<td>.25</td>
<td>.04</td>
<td>r bi</td>
</tr>
<tr>
<td>Response time</td>
<td>.09</td>
<td>.35*</td>
<td>-.21</td>
<td>.25</td>
<td>-.16</td>
<td>.05</td>
<td>r bi</td>
</tr>
<tr>
<td>W-M</td>
<td>-.07</td>
<td>.41</td>
<td>.02</td>
<td>.08</td>
<td>-.29</td>
<td>.04</td>
<td>r bi</td>
</tr>
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<td>.64***</td>
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<td>.03</td>
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<td>-.31</td>
<td>.39*</td>
<td>.32</td>
<td>-.07</td>
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* .10 level of confidence
** .05 level of confidence
*** .02 level of confidence
**** .01 level of confidence

those testing specific hypotheses
<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Predicted</th>
<th>Expected by Chance</th>
<th>Substantiated</th>
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<tr>
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<td>3</td>
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<tr>
<td>Anxiety</td>
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<td>0.7</td>
<td>1</td>
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</table>
coefficient of highest magnitude for $P_*$.

Coefficients for Rorschach Emotional Stability, increased response time, and increased number of traumatic responses were negligible. In the case of the latter, the relationship was in reverse of expectation.

Those high in **Fear** showed significantly greater emphasis on large Details ($P_{*} = .01$). This was not predicted. The negative coefficients between **Fear** and both $W_{*}$ and $d_{*}$ and the negligible correlation with $D_{*}$ suggest that the relation between **Fear** and $D_{*}$ may be of real significance.

**Frustration Scale**

As predicted, those scoring high in **Frustration**:

(1) were significantly higher in the amount of card turning;

(2) were significantly lower in the number of small detail responses and higher in the percent of Whole response, although not significantly;

(3) showed a significantly greater discrepancy between two ratios of introversion - extratension ($M_{*} \leq C_{*} F_{*}/m_{*} o_{*} F_{*}/o_{*} C_{*}$)

The prediction that those high in **Frustration** would give more responses was significantly in reverse of expectation ($p = .02$).

Such a prediction seemed appropriate in that the frustration reacting individual would emphasize production.

The hypotheses that those high in **Frustration** would (1) give more responses to the last three cards, (2) show less general adjustment (subjectively judged), and require more time per response were all in the direction predicted and close to statistical significance. The
prediction that high scores in Frustration would be accompanied by a preponderance of W over M responses was of negligible magnitude.

**Conflict Scale**

As predicted, those scoring high in Conflict:

1. were extreme (′ or −) in number of responses produced;
2. produced human movement responses markedly in excess of color;
3. low in emotional adjustment as judged from total Rorschach performances.

Although statistically below the ten percent level of expectancy, the predictions that high scores in Conflict would be related to:

- increased number of space responses;
- fewer whole responses;
- increased undifferentiated texture responses;
- more responses of an aggressive nature; and
- fewer content categories were all in the expected direction. Each of these scores was correlated with Conflict more than with any other scale.

Although not predicted, scores in Conflict were significantly associated with:

1. few traumatic responses, and
2. preoccupation with inside details.

**Anxiety Scale**

As predicted, high scores in Anxiety:

1. were significantly related to increased response time.

Although not hypothesized, scores in Anxiety were significantly related to:

- a preponderance of Wholes in the W:M ratio, and
- few "Vista" (FK) responses.

The predictions that Anxiety would be related to:

- high scores in inanimate movement (m);
- toned down diffusion responses (k), and
- low scores on global Rorschach adjustment.
were all in the expected direction but of marginal significance statistically.

**Fatigue Scale**

As predicted scores on the Fatigue scale:

(1) were significantly correlated with emotion adjustment (as estimated subjectively from the Rorschach performance).

The predicted relationships between W% and d% were each in the expected direction but statistically not significant; this was the case also in the number of dr. Relationships for (a) content categories, and (b) number of responses (R) were opposite to that expected.

Not at all predicted, Fatigue showed a significant positive relationship with traumatic responses. (p = .01)

**Emotional Stability**

As predicted, Emotional Stability was significantly related to:

(1) moderate (rather than extremely high or low) F%; (2) moderate (rather than an extremely large or small number of) Popular responses.

The predictions for correlation with (a) inanimate movement, (b) diffusion responses, (c) intellectual approach, and (d) Emotional Adjustment were all in the expected direction but negligible. The predictions for (a) inanimate movement responses, (b) M: Sum C ratio, and (c) CF / C were either in reverse of expectation or of zero correlation.
Chapter V

Discussion

At an early point in this study the conclusion was drawn that Anxiety and, to a lesser extent, Conflict are rather generalized experiences. Fear, Frustration and Fatigue seemed to be more specific and to reflect more accurately differences between those stable and unstable emotionally. This assumption is at variance with the inference drawn by Johnson in his study (21) of football players and wrestlers. Johnson, although his criteria for "fear" and "anxiety" are somewhat at variance with those formulated here, concludes that these emotional states do not seem to be particularly prominent in the football situation.

Our finding that Anxiety is a common emotional experience in the football situation is in agreement with the findings of Harmon and Johnson (17) who studied college football players immediately prior to each game of the season, using physiological measures. They found a generalized "Emotional Reactivity", significantly associated with "upness" and "downness" (universal terms in the vocabulary of Coaches everywhere for "the will to win", the "right attitude", "preparedness", etc.). The finding that this "emotional reactivity" is a characteristic at the pre-game state suggests the necessity for a certain degree of mobilization of individual anxiety if the team is to perform adequately. Possibly it is when this "Emotional Reactivity" is accompanied by feelings of Fear or Frustration that decrement in performance and amount of emotional instability ensues.

Certain psychological features seem to cluster about each scale
for the measurement of stress. These are as follows: Those high in Fear are somewhat characterized by stereotyped response patterns, (A%) evasion of threat, and emotional lability (Pure C, Sum C+M and Color ratio). They, more than any other stress type, tend to react most to the familiar (P), neutral and easily differentiable features of their environment (D). They are high in the number of "burnt child type of responses", (C'). They are the least mature of all stress groups (FM). (This immaturity is probably chronological as well as emotional since younger players showed some tendency to score higher on fear). Subjects high in Fear were judged by their coaches least emotionally stable.

The players high in Frustration show the greatest diversion of effort in the attempt to avoid a headlong encounter with a threatening situation (card turning).

Smith (37) found a similar relationship with freshman football players and concluded those who have characteristically failed and are frustration oriented tend to "develop overt action which will remove them from the failure producing situation" (37, p.208).

Their frustration resulted also in lack of productivity (R), greater emphasis on the totality of the situation with marked exclusion of the less vital features (\%\% > \%\%). They were more inhibited. They show discrepancy in the introversion-extraversion (Erlebnistyp) (M: Sum C as compared with FM+m : C of C'). These persons, it would seem, are actually ungratified and frustrated. With Fear subjects, they are the least reliable under stress, as evaluated by their coaches.

Subjects highest in Conflict tend to react in an "all or none"
fashion, particularly with respect to the Erlebnistyp balance; they were predominantly introverted in the MiSum C ratio, suggesting an ideational rather than environmental inclination. They also react in an extreme fashion in productivity (R); they produce either many or few responses; seldom are they in the moderate range. They are more dependent (α and αθ) and hostile (aggressive responses) than any other stress "type".

That texture responses (αθ and α) should correlate inversely with Conflict is highly consistent with Klopfers' (23) formulation.

Piotrowski's (55) postulate that space responses (S) represents in introverted persons oppositional tendencies of intrapunitive nature seems tenable in view of the correlation of Conflict with (S), while not of demonstrable significance, the correlation of S with Conflict was greater than with any other scale. Additional weight in this regard is provided by Fonda (12) who found a significant relationship between the "?" category on the Minnesota Multiphasic Personality Inventory and the Rorschach (S) response.

Finally, those scoring high in Conflict gave the most unstable global Rorschach protocol together with (1) rejection of one or more card, (2) confusion in explaining percepts, (3) inability to re-find a percept mentioned earlier, (4) numerous questions to the examiner, (5) production of a large number of responses, and (6) subtle resistance to the examiner and the test.

Two unpredicted but significant relationships with Conflict emerged: (1) few traumatic responses, and (2) increased number of inside details (di). According to our scheme, one might have expected Trauma to be related to Fear and di to Anxiety, a viewpoint
consistent with Rorschach Theory (2). Production of inside details may be associated with the greater production of undifferentiated texture responses mentioned earlier. The lack of Traumatic responses might mean simply that the player in conflict does not Somatize his tension - he Intellectualizes.

Those high in Anxiety responded less precipitously to the blots (increased response time). The significant, unhypothesized relationship between vista responses (FK) and Anxiety requires some consideration. The vista response is regarded as an attempt at self understanding and insight; since introspection about their experiences in the game was the task given these boys, those with the greatest amount of self understanding may have been inclined toward the Anxiety alternative; it was the most commonly selected stress state for the group.

That Anxiety subjects should have a preponderance of whole responses (W) with respect to movement (M) is not explainable within our framework. (This prediction was made for the Frustration scale. The usual interpretation for this phenomenon is that the person with relatively large W is striving beyond his functioning maturity or capacity).

The Anxiety scale, as it happened, was the most difficult of the stress scales to formulate. Only one of seven hypotheses was supported statistically. That Anxiety is a very nebulous and diffuse experience has already been discussed in this paper and reference to the literature emphasizes the confusion in conceptualizing this state. We have had no more success in this study.

It is puzzling to attempt an explanation of the fact that those high in Anxiety should produce a moderate amount of large details (D%)
when those low in Anxiety should produce an extremely high or low percentage of D. Perhaps the anxious person is less spontaneous than others and clings to conformity.

Those high in Fatigue tend to be most stable emotionally (as rated by their coaches). They tend to have the most stable Rorschach performance. They also show a significantly greater number of traumatic responses. While this latter was not predicted, there seems adequate justification to assume the Fatigue-reacting person tends to be more preoccupied with his body and self preservation. This seems to be true in a clinical sense, and the magnitude of the correlation argues against chance occurrence in this study (level of confidence at $p = .01$).

The boy judged by his coach to be emotionally stable tends to produce moderate rather than extreme amounts of Popular (P) and pure form (PF) responses. This finding is in accord with Piotrowski's(35) concept of normalcy. Over or under production of (P) is considered unhealthy and extremes in PF are signs of maladjustment. While no other significant relationships were obtained for Emotional Stability there is a tendency for those least stable to score more responses of the sort that are regarded as unhealthy; diffusion responses (k), achromatic color ($C'$), undifferentiated texture responses (c and CF), rare detail responses (dr) and color in excess of form-color ($CF > C > FC$).

The failure to find a significant relationship between most of the Rorschach variables and Emotional Stability is probably due to two factors; (a) Rorschach components deal with a "layer" or level of personality organization quite different from that important in the ratings, which can be no other than behavioral. The subject may
well maintain control over any "pathology" and perform in spite of it; the coach is unable to determine its' presence since he is neither trained nor interested in such endeavor. (b) A "halo effect" may have affected the ratings. (Emotional Stability ratings correlated \( r = 0.77 \) with ratings on football ability in one school, for example - a finding somewhat expected, perhaps, but suggesting that ability may have influenced the ratings on stability and thus produced a source of error).
CHAPTER VI

SUMMARY AND CONCLUSIONS

In an effort to determine the relationship between the Rorschach performance and (a) Emotional Stability, and (b) Response to Stress, records of thirty-nine high school football players were compared with introspective reports of Stress during crucial points in a game.

The types of Stress were Fear, Anxiety, Frustration, Conflict and Fatigue. The measurement of Emotional Stability was made by means of coaches ratings. Eleven of forty-three hypothesized relationship between Rorschach variables and (a) Stress scales, and (b) Emotional Stability were supported at the 10% level of confidence or better.

The more Emotionally Stable players reported more Anxiety and Fatigue than Fear, Conflict and Frustration. They were moderate rather than extreme in the number of Popular and in per cent of pure form responses.

Those high in Anxiety showed increased response time, more vista and were moderate rather than extreme in their use of large details.

Those high in Fatigue were considered by the coaches to be more stable. They also produced both the most traumatic responses and the most stable Rorschach performances.

Those high in Fear gave more animal content, large details, and Popular responses. They tended to be more labile and immature and were judged least stable by their coaches.

Those high in Frustration gave more card turning, a greater discrepancy between indices of Introversion-Extratension, and a lesser proportion of small details.
Those high in Conflict were more Introversive, gave extreme rather than a moderate number of responses, and tended to give more space and pure texture responses. They also gave the least stable Rorschach performances.

The conceptualization of Stress employed in this study is found to be meaningfully related to Rorschach theory, generally, and to bear a consistent relationship with certain specific Rorschach Indices.
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APPENDIX
Coaches Rating Scale for Player Emotionality

Name: ____________________  Primary Coaches Areas: _____________________
(Line, Backfield, etc)

A five point rating scale is provided as a key for your ratings of each player on the team. You are to rate each player on his ability to withstand stress and remain sufficiently cool and collected in the face of a critical situation or game crisis. It is recognized that you may not be able to rate their Emotional Stability as well as you’d like, however, your experience with these boys should enable you to arrange them fairly accurately. These ratings will be confidential and used only by our Research organization. Please do your ratings independently of the other coaches. We will provide you with a correlation showing how yours compare with the others.

A suggested method of attacking the problem is to read the verbal descriptions of the numerical ratings provided in the key and become familiar with them. Then select the names of several boys who are definitely unstable, or who get rattled rather easily. Beside the names of these boys, write the number 1. Then select several boys who are superior with respect to “keeping their head” and who are, with respect to the other athletes you’ve met, very unusual in their coolness. Beside the names of these boys, place a number 5. The other boys on the squad should then fit into the other categories, namely, 2, 3, or 4.

Please do not confuse these ratings with talent or ability.

Key

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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Almost always gets too excited and can't be depended on too much in critical periods. (loses his head)</td>
<td>Frequently shows considerable emotion, although it doesn't affect his performance too much.</td>
<td>Shows average amount of emotion.</td>
<td>Is very hard to rattle.</td>
<td>Remains cool always.</td>
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(The names of the Players were listed in this space and a rating column accompanied them.)
Player Self-Description—Form I

Name: 
Position: 
High School: 

Directions: Imagine yourself back in the game. We want to know what your were thinking during the game during this last play you just saw. We want to know how you felt at this moment in the game. We are not interested in how you feel right now but how you felt during the game as it actually happened. Try to relive the experience you are seeing in the movie. It will be quite easy to do if you relax and think of yourself back in the game again just as you were several days ago.

Listed on the following pages are 5 groups of statements. We want you to indicate for each group which one statement "Most" describes how you felt during the last play. We also want you to pick out the statement which "Least" describes how you felt during the last play. We are not interested in how you feel now but how you felt then. Below is an example:

Example Group
1. I felt fine.
2. I felt tired.
3. I felt miserable.
4. I felt disturbed.
5. I felt nothing.

Example Answer Sheet
1. M ( ) L ( )
2. M ( ) L ( )
3. M ( ) L ( )
4. M ( ) L ( )
5. M ( ) L ( )

Example: Try the example group. Which one statement is Most like you felt during the last play you just saw? Fill in the slot ( ) on the sample answer sheet beside the M (most) column corresponding to the number of the one you selected.

Now, on the example answer sheet, fill in the slot ( ) corresponding to the number of the one which Least describes how you felt. You should have one slot filled in the "Most" column and one slot filled in the "Least" column. Have you any questions? O.K., now proceed to do the same for the next 5 groups of statements for each play.
Group 1

1. I was a bit frightened during this play.
2. I had a feeling that the worst was yet to come.
3. I felt tired.
4. I felt like "my hands had been tied."
5. I felt confused about what to do.

Group 2

6. I felt winded.
7. I was worried about the way the game was going.
8. I felt baffled about what to do during this play.
9. I was staggered by what happened.
10. I felt I had failed although I tried my best.

Group 3

11. I felt in great doubt.
12. I was concerned about the score.
13. I felt frustrated.
14. This play gave me a bit of a scare.
15. I felt exhausted.

Group 4

16. I felt defeated in my efforts.
17. I was frightened suddenly by what happened.
18. I was anxious about what would happen next.
19. I felt flustered and confused.
20. I ached.

Group 5

21. I was fatigued.
22. I was worried about our position
23. I felt I was laboring in vain.
24. For a moment I experienced the feeling that "all was lost."
25. My mind was muddled.
TABLE 1

Descriptions of the Eight Critical Points

During the Football Game

A1. **Thwarting of avoidance behavior.** Our team leads 6-0 in the third quarter. The opposing team has steadily marched toward the teams' goal on nine preceding plays. At this critical point, the opposing team crosses the goal line tying the score.

A2. **Thwarting of avoidance behavior.** Our team is behind 7-6 later in the third quarter and is forced to kick. The opponent makes a 55 yard punt return to bring the ball back close to the teams' goal.

B1. **Thwarting of approach behavior.** Early in the first quarter, with the score 0-0, our team needs two yards for a first down. Failure will mean loss of possession of the ball. An end misses an easy pass while in the clear, thereby preventing our team from gaining the first down.

B2. **Thwarting of approach behavior.** Late in the second quarter, our team has scored to go ahead 6-0. As the teams are evenly matched, the extra point is extremely important. It is missed.

C1. **Arousal of incompatible behaviors.** Early in the second quarter with the score tied 0-0, the ball is in motion when the decision must be made whether to take a big loss and keep the ball secure, or to throw a pass to several well-covered receivers and risk an interception.

C2. **Arousal of incompatible behaviors.** Late in the fourth quarter our team is behind 7-6, and they have just gained possession of the ball and on their own one yard line. They must elect to risk passes from behind their own goal line or risk time running out during a series of more conservative running plays.

D1. **Expectation of being thwarted.** On a third down, midway in the third quarter, the opposition is leading 7-6 and is on our teams five yard line. They throw a long pass into the end zone for which the defensive backfield of our team and the ends of the opposition struggle for an unusually long time. The ball finally falls to the ground, incompleting.

D2. **Expectation of being thwarted.** The opposing team, leading 7-6, is marching steadily toward our team's goal early in the fourth quarter. With third down and two yards to go for a touchdown, there is a tremendous pile-up when the opposition tries bucking the line. It takes the officials considerable time to extricate the ball to determine whether or not there was a score.
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EXAMINING COMMITTEE:

Date of Examination: