



1966

The Rorschach in Adolescence: A Longitudinal Study of Intellectually Superior Girls

M. Clare Zuercher
Loyola University Chicago

Recommended Citation

Zuercher, M. Clare, "The Rorschach in Adolescence: A Longitudinal Study of Intellectually Superior Girls" (1966). *Master's Theses*. Paper 2226.
http://ecommons.luc.edu/luc_theses/2226

This Thesis is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Master's Theses by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License](https://creativecommons.org/licenses/by-nc-nd/3.0/).
Copyright © 1966 M. Clare Zuercher

THE RORSCHACH IN ADOLESCENCE:
A LONGITUDINAL STUDY OF INTELLECTUALLY SUPERIOR GIRLS

by

Sister M. Clare Zuercher, O.S.B.

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
Master of Arts

October

1966

LIFE

Sister M. Clare Zuercher, O.S.B., was born in Evanston, Illinois, July 13, 1931.

She received her high school education at St. Scholastica High School in Chicago and entered the Benedictine Sisters of Chicago in 1949, making her final vows in 1954. She obtained a degree of Bachelor of Arts, magna cum laude from Loyola University in June, 1960, and entered the graduate school there in 1962. During the summers of 1964 and 1965, she was employed as an assistant psychologist at the Loyola Center for Guidance and Psychological Service, Chicago, Illinois.

A teacher for fourteen years, she has had experience both in the grammar and high schools of the Archdiocese of Chicago. At present she is Director of Guidance Services at St. Scholastica High School.

ACKNOWLEDGMENTS

The author wishes to acknowledge the aid of Dr. Ann Heilman whose direction and encouragement have brought this study to completion. Further thanks are extended to Dr. Frank J. Kobler whose comments and criticisms have enabled the author to improve this thesis, and to Dr. Ronald Walker for his statistical advice and interest in the progress of the work.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
II. REVIEW OF RELATED LITERATURE.	3
A. Longitudinal Adolescent Studies	3
B. Normative and Validating Research	12
C. Special Studies.	17
III. METHODS AND PROCEDURE.	21
IV. STATISTICAL ANALYSIS OF THE RORSCHACH DATA	25
V. SUMMARY AND CONCLUSIONS.	34
BIBLIOGRAPHY	37
APPENDIX	41

CHAPTER I

INTRODUCTION

Hermann Rorschach in his book Psychodiagnostik provided the first standardized version of inkblot testing in 1921. Early Rorschach research had been largely confined to adult mentally disturbed subjects. A trend toward child and adolescent studies was begun in the 1930's and developed more fully into recent times. Due to this research in personality development, many applications and amplifications have added to the usefulness of the Rorschach as a clinical tool.

One period of life which, because of its fluctuating nature, is of particular research interest is that of adolescence. The Rorschach was early identified as offering a special service in the study of adolescent psychology by longitudinal study following subjects over periods of time. This area of research furnished a fertile ground for detecting individual patterns as well as dynamic group norms.

Existing studies of adolescent protocols have primarily utilized average to above average subjects. It is the purpose of this thesis to note significant changes in direction of response for the superior and very superior high achieving adolescent girl at ages 14 and 15. Besides comparing these changes, any contrast between the protocols of the present research and those of subjects with a more nearly average intelligence will be noted.

The literature has indicated two outstanding factors in adolescent research: the first is the necessity for norms based on subjects with a normal

intelligence quotient; the second is the need for further longitudinal studies to trace personality development. The latter factor has been the consideration in this present thesis. Coupled with this emphasis is the desire to obtain data about that young person who occupies such an important place in planning the educational future: the intelligent and achieving student.

*Clarify & expand
purpose. justify your
research more convincingly*

CHAPTER II

REVIEW OF THE RELATED LITERATURE

Adolescent Rorschach literature can be separated into several areas for a more clear and adequate summary of its thirty-five year history. Studies covering pre-pubertal and post-pubertal personality traits as well as normative data and research with specialized groups make a chronological report of less value than a topical report. For this reason, the discussion will center around the various groupings into which the data fall.

Marguerite Hertz was one of the first to recognize and initiate study of personality developmental changes. She noted that many patterns which have been identified with pathology in adults are of frequent occurrence in protocols of younger people. As early as 1936 this pioneer in adolescent Rorschach research reported that an average W was slightly higher and an average d slightly lower for adolescents than for adults. The M and F% were a good deal higher than adult scorings and the number of responses agreed with Rorschach's adult figures. She stressed that her group of 150 males and 150 females of 14 years was composed of subjects of high average intelligence and cautioned against application of her findings beyond similar groups similarly selected.

The Brush Foundation in connection with the University of California at Berkeley and strongly influenced by Hertz, in 1940 reported test results of 76 children on 152 records. Tested at 12 and 15 years, these subjects' responses were analyzed for patterns purported to reveal presence or absence of emotional stability, adaptability, egocentricity, impulsiveness, inner living, fantasy

life, and age and sex differences. The Erlebnistypen was examined to note its constancy or change of direction. Hertz concluded that the 12-year-olds, especially boys, were more extratensive than introversive, more externally impressionable and occupied with external relationships. The 15-year-olds indicated a more richly developed inner life and fantasy life. They were concerned with subjective experiences. More emotional stability and maturity were evidenced, especially in the girls, although they also manifested a surprising degree of excitability and impulsiveness. She found what had been the assumption in adolescent research: that personality patterns tended to change. The introversive did so less than other types, the most characteristic swing being toward introversion and contraction of both sides of the psychogram. She concluded that the Rorschach was a highly serviceable tool in analysing and describing the adolescent personality. Cronbach (1949) has criticized Hertz's use of statistical procedures in this study, stating that by applying a formula for correlated samples she would find significance where she has reported none. Where significance is reported, the probability of significant difference is lessened by the fact that she had dichotomized her data excessively.

The following year (1941), she and Baker extended the research based on 35 female subjects to 80 at 12 years and 100 at 15 years in order to examine the influence of pubescence on the girls' results. She found that the new records substantiated earlier testing. Constriction was apparent in the early pattern of puberty, introversiveness in late puberty and dilation in post-puberty. The older 15-year-old pubescents are characterized by heightened emotionality. She indicated that the development evidenced in the protocols was due not only to age and physical change, but to social expectations and social

pressures as well.

Also in 1941, Baker tested 76 children and found a decrease in constriction for emotional reactions from 12 to 15 years. Mental control accompanied this loosening, and significant sex differences were noted. These results broadened and substantiated her study with Hertz.

In a series of articles (1942, 1943), Hertz summarized the extensive research of the Brush Foundation with 76 12- and 15-year-olds. Her first article (1942) dealt with movement factors. She found many individual differences, but generally was able to conclude that at 15 a person is more introversive, more concerned with inner urges and subjective experiences, and more emotionally mature than at 12. This description she found to be especially true of girls. At the same time as more primitive promptings are present, more control is evidenced. Although there is a heightened inner life, this life may be of a fantasy or daydreaming variety rather than of a productive nature. No sex differences in movement responses were found.

Color factors were discussed in a following issue (1943). According to Rorschach, the normal adult color score is 3 form color responses, 1 color form response and 0 pure color response, with women showing a tendency toward more color form than men. Behn-Eschenburg's research showed an increase in fantasy trends for boys at that time. Girls' protocols yielded factors indicating an increase in emotional rapport, emotional animation and egocentric trends. Hertz pointed out that the small number of subjects in the Behn-Eschenburg study made only moderate generalization possible. She reported that a child of 12 responded readily to environment, was easily stimulated by it, and was readily influenced by feelings and impulses. He was also livelier, more labile,

and more excitable. Variations in girls' results were more frequent, probably due to the pubertal crisis. At 15 the adolescent was less extratensive, more stable and adaptable. Also, there were fewer infantile outbursts and less egocentricity and impulsiveness. Here, again, many variations were noted. Girls with their higher movement score showed fewer responses to environment. Hertz concluded by saying that the popular conception that the adolescent is unadaptable and unstable emotionally was not born out in her findings.

According to Rorschach, the Erlebnistypus demonstrated the way an individual experienced life. It indicated the capacities of the person for a certain mode of adaptation, but could not reveal whether this mode was actively employed in the person's adjustment. Rorschach believed that there was little change in the manner of viewing life except in the period from pre-adolescence into adolescence when a shift might be expected. Klopfer (1954) tended to reject the important ratio between movement and color if the other two deciding factors differed.

Hertz (1943) quoted results of Shapiro and Palluk which showed that the four main types--extratensive, introversive, ambiequal, and constricted--all showed profound maladaptation to environment and emotional imbalance as well as a relative incapacity for intellectual activity at puberty. She found that at 12 the types of extratension or constriction were most frequent, especially among boys. She judged this difference to be due to the factor of girls' earlier physical maturity.

In a typological study, (1943), Hertz noted additional results. At 12 the predominant type was the extratensive, followed in order by the introversive, ambiequal and constricted. Constriction was more frequent in the girl of 12,

but not even in evidence in the girl of 15. Change from 12 to 15 occurred in 68% of the subjects tested. This change was mostly toward introversiveness, especially among girls, who are normally more introversive than boys. Complete reversals were found in 24% of the cases. At 15 the types ranked introversive, extratensive, ambiequal, and constricted. Those who were extratensive at this stage were more apt to remain that way, while 54% remained or became introversive.

Before leaving the studies of Hertz it would seem important to again note that her subjects were intellectually above average, White Americans, a factor important to keep in mind when summarizing the picture of adolescent development mirrored in the Rorschach test.

In order to extend research to the college level, Hertzman and Margulies (1943) tested 60 boys with a mean age of 13 years and 9 months and compared these scores to those of 60 male college students whose mean age was 19 years and 4 months. The two groups were equated for intelligence, academic status, socio-economic status, and were largely New York City natives. The older group gave a significantly greater number of responses and more with a dr location, while the high school boys emphasized whole responses. The older boys gave more M and C determinants and shading responses indicative of anxiety. These authors stressed again the value of long range Rorschach studies. Since the variables of intelligence and socio-economic level were largely controlled for, the changes in response seem to have been narrowed to more exclusively developmental factors. In this study Cronbach (1949) has again pointed out that significance of differences was underestimated by using a formula for independent groups.

McFate and Orr (1949) tested 194 subjects in two groups at 11, 13, 15, 18, and 12, 14, 16, 18. Their purpose was to describe normality and to indicate true signs of abnormality as well as to describe the growth process in Rorschach terms. Results included the following information: Responses did increase in number after 13, but this increase was only half as large as Hertz's number and lower than Hertzman and Margulies (1943); whole responses were higher than these previous studies and increased in boys' protocols, and movement was higher than Hertz's; D increased with girl subjects; Dd increased with age as did S after 13, appearing before that time in fewer than 20% of the tests. Girls gave more populars at all levels, but to a statistically significant degree at 18. Animal movement decreased with age, especially from 11 to 13. Not much m was found at this period. More boys scored K, Fk, and FK than girls who used more Fc or cF determinants. Half of all the records showed that c reached a peak at 13 and decreased to 18. Hertz had found only 7% of her subjects using cF while these authors found an equality between Fc and cF responses.

Girls used more color, but both groups increased in color responses over the period of testing. Even at this, color as a determinant did not equal the Hertz report. Pure form scored higher for girls who also used more H and Hd. Even up to 18 the A% stayed above 50. Several contrasts have been noted between this study and those of Hertz. These contrasts would seem to be due to the more normal intelligence of subjects in the McFate and Orr research.

Further developmental data became available with the study of Thetford et al (1951). With 155 subjects of average mentality and age breakdowns of 6-9 (latency), 10-13 (prepubescence), and 14-17 (adolescence), much important information became available. Age increased the number of responses on each card

as previous tests had shown. The organizational drive also increased as evidenced by a greater number of whole responses. The F in the prepubescent period showed a trend toward constriction. Intellectual approach remained unchanged over all periods, and in all 4268 responses only 2 were DW's. Irregularity in sequence was most frequent in the adolescent group. A% which represents flexibility and in an extreme form stereotypy, showed a tendency toward constriction in the prepubescent period. H, which implies increased socialization, was highest, as would be expected, in adolescence. So, too, were popular responses higher as more socialization occurred. The Lambda Index, a ratio of all F's to all other responses, showed constriction from 10 to 13. Increasing R, Z and M showed the adolescent period as one of general enrichment. There was a diminution of defense mechanisms as the adolescent began to cope with his problems. Again, color was found on a steady increase. The adolescent also showed a tendency toward self-appraisal by vista responses, and he also used shading more than previously.

The factor of rising movement responses and an increase in autism suggested the question as to what might differentiate normal adolescent turmoil from the probability of a schizophrenic break. Constriction of inner and outer living was seen as a preadolescent defense mechanism. The general constraint of personality forces led to liberation in adolescence. Rorschach said that the adolescent period was one of ambiequal experience balance, while these authors found a marked increase in autism leading to introversion and accompanied by outer emotional expression and lessening the number of adolescent introversives. This trend prepared for crystallization of the personality structure in maturity. S locations were again found to be much like those in adulthood.

The thorough study of Ames et al published in 1959 has furnished much valuable recent information on the developing adolescent personality. Working in the Gesell Institute, these authors had ample opportunity for research. Their years of observation led them to suspect that, while the Rorschach responses did continue to change in a patterned and somewhat predictable way from 10 to 16, they might do so in a way somewhat different from what had been thought until that time. These authors set out to test whether the introversive phase of adolescence might not occur more than once and alternate with ages of full and expansive behavior. They believed that developmental factors overshadowed individual personality factors at the early stage. Later, whether in adolescence or the twenties they did not say, individual factors came to the fore to be again overshadowed by maturity factors in old age. Where Hertz and Baker in 1935 observed an introversive swing from 12 to 15, Ames found this to be a sudden change occurring at 15. The widest variation from the Ames study was that of Beck. Paulsen with her longitudinal work also held that there were rhythmic fluctuations and found that adequate adjustment could be predicted for 66% of the cases she tested.

Further reviewing the background literature, Ames mentioned Soares' study which showed an increased M for boys at 15, indicating the puberty crisis, and an increased C for girls, indicating that the puberty crisis had been passed. Steiner found on a group administration, which Ames felt made his conclusions less valid, that many defense mechanisms had their numerical peak at puberty. The Ames research used 50 boys and 50 girls who were retested from 10 to 16 years a total of 700 times. Her results, like those of Hertz, must be qualified, since the socio-economic level and intelligence quotient of 116 were not

those of a normal population and cannot be applied as such.

Ames (1960) found that the consistency of responses tended to increase with age in children from 2 to 16. The majority of these consistent responses were of the popular or banal type. Girls' consistent responses became less popular; boys', more popular.

Also in 1960, Ames and Kremer reported results of the earlier Gesell Institute research with emphasis on tracing the individual patterns on the protocols rather than the group patterns. They concluded that the sequence of stages in personality development at ages 10 to 16 was more important than the age at which the stages occur. They described what they termed the "introversive crisis" at 14 or 15. The entire period from 10 to 16 was characterized by introversion, but periods of expansion and restriction within the introversive range are almost always evident. Constriction and flattening of response, not increased human movement response as in adult introversion, was found in adolescent protocols. Responses were reduced, F% increased, and animal content increased. Scores approaching adult figures at 16 were R, F, M, FM, m. W%, F%, A%, and H% were still higher than at maturity and color and shading were lower than the normal adult level. Expansion at age 14 was found in 96% of the female subjects. Restriction at age 15 was found in 92% of female records and showed a decrease in human movement and often in sum C and number of responses as well as in increase in F%.

Developmental research has centered around several concepts. These include the hypothesis of personality change in adolescence with the variation found in Ames in backward and forward shifts. The expansion and enrichment of protocols toward adulthood and the presence of adult abnormal responses as of commonplace

occurrence are also characteristics of normal adolescent tests. The application of some of the detailed longitudinal study had proved limited due to the above average intelligence of the subjects chosen for the research.

Allen and Blatt (1964) found that the complexity and accuracy of perception of whole responses determined the intellectual level of the subject and they urged attention to qualitative features of responses rather than summary conventional scoring categories. That the summary technique fails to be an adequate distinction between average and bright subjects would seem to follow from Eleckner's study (1959) in which no significant category differences were found between a group with IQ's of 120 and up and a group with IQ's of 90 to 110.

Allen and Groman (1958), whose research centered around four annual protocols of two children, suggested that the Rorschach interpreter should not consider absolute numbers and percentages of each Rorschach test element in a single protocol, but rather the total developmental pattern of the individual subject. In concluding this section it might be well to mention Paulsen's caution (1943) that the years of adolescent flux must keep the clinician from drawing final conclusions from a single Rorschach performance. Richards (1955) suggested that longitudinal research will do much toward validation or refutation of basic hypotheses in child development. His research consisted in following a single subject over the years from 5 years, 9 months to 15 years, 10 months with a series of six Rorschach administrations.

Hertz said in 1941 that norms are a necessary part of the Rorschach Method and must be determined for different cultures, various age groups, age ranges, mental age levels within these ranges, and possibly for developmental levels.

Without them, she maintained, the inter-individual approach in interpretation could have no scientific pretensions.

In 1950 Beck again stressed the need to find a normal group, a group against which deviant scorings might be placed for evaluation.

In 1949 Hershensen had tested 15 male and 15 female randomly selected high school juniors. The group differed from Beck's adult control group by showing more hostility and rebellion, less ego strength, greater effort at adapting to the everyday world, less conformity to popular thinking, and less capacity to grasp relationships. Both boys and girls preferred the color cards. Of those who preferred the achromatic card, five out of six made Card VII their favorite. This factor suggested to the author the presence of a dependence-independence conflict since Card VII represented the maternal figure and security. Production was found to be greater on preferred cards and no single factor seemed to determine responses. The more a chromatic card was preferred, the more affective was the response. The more an achromatic card was preferred, the less dysphoric was the response.

Those properties of a blot which seem to pre-dispose the subject to use certain aspects of it is called "card-pull." This factor was inspected by Ranzoni et al in 1950. They found that well over 50% of responses were to the first six cards. The W pull broke down on Card VII so that, beginning with VIII, less than 25% of responses were whole responses. With regard to determinants, several results occurred: pure form was over 50% on five cards; color was markedly weak and the authors did not feel justified in calling a failure to use color on Card II as shock. Texture responses scored 46% on Card VI; human movement was found more often on Card III with 44%, VII with 38%, I with

16%, and II with 22%. Animal movement was first on Card VIII with 41% and second on Card V with 31%. Animal content ranked first on eight cards. The results of this study seemed particularly significant because they yielded norms from a large, randomly-selected group.

Hofner and Rosen (1964) tested 28 boys and 27 girls at the ninth grade level and found by using semantic scales that the older the subjects the more the blots differed from each other with regard to connotative meaning. This differentiation occurred earlier in girls. The mean IQ of the group, was, again, above average, which would cause a question as to a true normative sample.

Normative data concerning movement responses of 200 college students was obtained by Siegel (1960) who pointed out the fact that no extensive normative studies had been reported in the literature. Total responses were somewhat higher for males than for females as were human movement responses. The converse was true for inanimate movement. Animal movement production was about the same for both groups and very nearly approximated quantities of human movement. Cards III and VII presented the most facility for human movement; Card VIII, for animal movement; Card IX for inanimate movement. Data obtained from this research might be applicable to the older adolescent, since mean age of these subjects was about 20.

The research of Hertz (1941, 1943), Ames (1959), and McFate and Orr (1949) had as one purpose to describe normality and indicate true signs of abnormality. Thetford et al (1951) also attempted normative study as well as developmental longitudinal research and chose subjects of average mentality for that purpose. Normative and developmental studies are thus combined in several instances.

Greene (1941) has stated that, up to the period at which he was writing, the Rorschach lacked information on consistency. This was due, he believed, to the fact that the Rorschach had been developed as a clinical tool and used in clinics where retesting was often impossible. Subsequent longitudinal research has to some extent removed that criticism.

Paulsen (1943) found positive evidence for the Rorschach Method's validity. She said that the developmental picture as depicted on scoring sequences was consistent with Rorschach as to the meaning of various components. Ratings on the Rorschach also corresponded with case histories. She tested girls 45 times and boys 37 times from 6 to 12 years and concluded that personality development was revealed as a process of nature evolving out of the potentials within the psyche rather than a process instilled or controlled from without. Despite her endorsement of the test, she cautioned against drawing final conclusions from a single performance at the especially fluctuating personality period. However, prognostic validity was possible in over 40% of cases as early as six years, especially when joined with case histories.

Another verification of Rorschach results with case histories and previous research was brought forward by Goldfarb (1944). Cronbach (1949) has criticized the statistics of this research by pointing out that the author could have found greater significance by using a statistical formula for independent groups. The subjects in this study were two groups of institutionalized dependent children. Further discussion of results will be considered in the section on special studies. Gorlow et al (1952) in their study of the validity of anxiety and hostility Rorschach content scores found that the delinquents suffered from both to a marked degree.

Kottonhoff (1965) found that the nature of animal content percentage was badly clarified and suppressed by intelligence. Low animal content and high personality trait flexibility formed a valid prognostic evaluation in personnel selection. While not a directly adolescent study, the frequent high A% in adolescents bears some relationship to this research.

The study of Davis (1961) with 70 subjects whose IQ's were distributed rectangularly between 40-49 and 100-109 was constructed to test whether intellectual level could be judged from various features of the Rorschach including vocabulary. Three psychologists estimated IQ's from the transcribed Rorschach records and two other sets of material. The conclusion was that either the total Rorschach record or expressed vocabulary are useful supplements to formal measures of intelligence. None of the material studied could be used for valid prediction, however, in individual cases.

Spivak et al (1959) in a study of 47 males ranging from 11 to 19 found that human movement responses have a different significance in adolescents. They had inhibited motor activity in their subjects and found that a relationship between this inhibition and empathic motion perception of fantasy does not take place until maturity. General inhibition ability does not take form as a pervasive trait until adulthood.

The group Rorschach administered to 562 pre- and post-pubescent subjects from different areas of the United States and various socio-economic levels constituted the research of Rychlak et al (1965) on so-called "unhealthy" responses. They hypothesized that the unhealthy connotation of the responses might have been derived from identifying a characteristic of disturbed adults with a fact of disturbance. Perhaps experimenters had confounded a test varia-

ble with a communication variable and not content with an expression of content. Young people who reported large percentages of unhealthy content were prone to be rather practical, matter-of-fact, and active. They were often popular and well-adjusted. Consequently, the authors suggested that these responses might better be termed aesthetically unpleasant and pedestrian.

In 1958 Tanaka found that there was a positive correlation between human movement and intelligence as measured on the Wechsler, especially in the verbal area, thus suggesting that the M score is a valid predictor of intelligence. There was no relation between animal movement and intelligence, however. The "father" and "mother" cards were identified by 50 Japanese delinquents and 50 college students as consistent with American results. Card IV, the father card of both cultures, was seen to have a positive value to the normals and a negative one to the delinquents. Card VII saw the delinquents exhibiting less positive and more dependent mother images than the normals. These two studies bridge the area from validity into some special studies.

In 1944 Stainbrook and Siegel compared 40 White and 40 Negro high school students, who were sophomores and juniors, and 45 White and Negro college level students in a group Rorschach. The Negro high schoolers had less R, D, S, m, K, CF, and more FC. They demonstrated less fluidity and differentiation and were more emotionally stable, less impulsive, and less anxious. The Negroes at college level had less R, D, S, O, M, sum C, m, Fc, FK, and CF, as well as significantly more FM:M. Their general personality resources were less adequate and they demonstrated more immaturity. Again, this group showed greater emotional stability. It should be noted that the mean college IQ for White students was 120 and that for Negroes was 90.

Testing children who had spent 3 years and 3 months on the average in an institution, Goldfarb (1944) contrasted this group with 15 children placed in foster homes at a mean age of 14 months. The Rorschach showed the institution children to be less mature, controlled, differentiated. They were more impoverished, apathetic, less ambitious, less adjustive to goals.

Twenty-nine high achievers and 27 low achievers ranging in intelligence from 120 to 139 were subjects in Fieldsteel's study (1964). She found no discrimination between high and low achievers at this high intellectual level and concluded that current Rorschach practices should be sharply modified. The use of the Rorschach for study of problems of discrepancies between intelligence and academic achievement was not justified scientifically.

High and low achievers were also subjects in Snider's research (1953). Although the small number of subjects is a defect in the study, a careful background study to avoid confounding variables adds to its value. Rorschachs were administered to 20 high and 20 low achieving high school males and differences were compared in various psychologically meaningful areas. The only raw score significant difference showed more Fc for high achievers. Other findings were significantly negative. The homogeneity of structure in the subjects of this research suggests that academic achievement may be the result not of the interplay of inner dynamisms but of effectual self-determination outward to a self-evaluated goal. Snider concluded that degree of achievement seems to be a function of something other than "personality structure" as measured by the Rorschach technique.

Adolescent Rorschach study, in summary, has consisted in early longitudinal group research and a more recent emphasis on longitudinal analysis of

individual patterns. The reader cannot but be impressed by some longitudinal studies with the Rorschach. Hertz and Ames are especially to be admired for the extent of their efforts in a type of research that is complicated by the very practical difficulty of retaining subjects over long periods of time and the human desire to obtain more immediate results which will lead to more immediate conclusions.

Although Rorschach researchers realize that every individual scoring symbol relates to the number and kind of other symbols in the protocol, statistical treatment of isolated symbols continues. More recent research seems to be emphasizing that the study of a group of individuals at certain levels, while important, is of less value than the study of one individual at various periods of time. This emphasis points out the value of the Rorschach Method not so much as a test concerned with validity, but rather as a useful and productive technique aiding in the evaluation of an individual in an holistic manner. Ames has attempted to get beyond this concept of the "average" and allow for greater sensitivity to individual differences even in her report of group results by employing the statistic of median rather than mean scores.

The response of the subject to the total test situation is so influential that group and individual administration results, the approach to both of which forms a distinct set for a subject, can be compared only with reservations. The type of administration, therefore, must be carefully noted in reading the literature in the field.

Normative data, while considered an essential part of any truly scientific approach to Rorschach study, has not been extensive, due to the frequent use of subjects of above average mental ability. There are some studies in content

and scoring areas, but these are often with reference to adult expectancies and need to be applied to the adolescent population. The data of the first two decades was considered by Cronbach to be spurious, due to the use of in-applicable statistical procedures. He stated that as much as 90% of all conclusions up to 1949 needed a complete statistical reinterpretation if they were to be a base for psychological science. The nature of the instrument makes a careful application of statistical methodology necessary, and recent research has followed from a more thorough understanding of this fact.

The quality of adolescent Rorschach research has improved, research designs have tightened, and the history of past mistakes has produced a more scientific approach to the adolescent personality as revealed on this instrument. Recent research has shown the effects, as well, of an awareness that the answer to the question "Is this test useful?" is perhaps of more moment than the answer to the question "Is it valid?"

CHAPTER III

METHODS AND PROCEDURE

The present research is an attempt to contribute to longitudinal Rorschach studies in the adolescent field. That change occurs in adolescent protocols is undisputed today. There does exist some discussion as to whether this change occurs gradually from 12 to 15, as Hertz suggests, or whether it is a sudden pulling in of both sides of the psychogram at age 15, as Ames and her associates have observed. The "introversion crisis" found at age 15 and described in the preceding chapter indicates a phenomenon perhaps peculiar to the adolescent personality and, therefore, the adolescent Rorschach protocol.

Existing research leads to the hypothesis that significant changes should be noted between ages 14 and 15 on the Rorschach. A record of what these changes are and what personality factors they designate offers an area for interesting and valuable experimentation.

The second consideration in this study is the influence of superior intelligence on personality development and on Rorschach scores. A comparison of the results of this study with those of the Gesell Institute should demonstrate that intelligence constitutes a variable which needs to be considered in adolescent Rorschach evaluation if differences are indicated. The subjects in this research come from a socio-economic background similar to those in the Ames study. (See Table 1). Their intelligence, however, is higher and could be hypothesized to be the cause of differences should such occur.

TABLE 1
Percentages of subjects' parents in various occupations

Occupation	Ames Study	Exp. Group	Control Group
Professional	52	25	30
Semi-professional, managerial	26.8	40.6	25
Clerical, skilled trades, retail business	11.7	25	30
Farmers	.0	.0	.0
Semi-skilled, minor clerical, minor business	5.8	9.4	5
Slightly skilled	3.7	.0	10
Day laborers	.0	.0	.0

The subjects of this research are 32 high school girls who have been chosen from among over 250 eighth graders to compose the top group in their freshman class. The basis for this decision was the Scholastic High School Placement Test, an intelligence and achievement test of the Scholastic Testing Service, joined with grammar school achievement scores and class rank. The mean IQ was 126 with a standard deviation of 4. At the time of the first testing at the end of the freshman year the mean age was 14 years, 10 months; at the second testing after sophomore year, the mean age was 15 years, 11 months. There was a standard deviation of four months for both administrations.

Although the group would seem likely to have retained a high class rank in high school, at the end of freshman year 14 were no longer in the top quarter of their class. After the sophomore year 11 were below the top quarter. Despite this lowered grade point average, 22 ranked in the upper ten per cent in achievement on the National Educational Development Test administered the spring of

sophomore year. The rest of the group ranked above the 84th percentile. Five of these subjects were again tested at the end of senior year. The mean age for this latter group was 17 years, 10 months. In order to ascertain whether the results of the re-test for the entire group at 15 years, 11 months was due to the test-retest variable, a control group of 20 girls who had not been previously tested on the Rorschach was given the test at the end of sophomore year. The controls were also chosen from the top freshman group, placed there by the same criteria as the experimental group so that differences in intellectual capacity and achievement might not constitute a confounding variable. A comparison of the experimental and control groups is found in Table 2.

TABLE 2

Age and Intellectual Factors of the Experimental and Control Groups

Groups	Mean Age in Months	S.D.	Mean IQ	S.D.
Experimental (32 Subjects) Second Administration	191	4	126	4
Control (20 Subjects)	191	3	128	3

The Rorschach was administered individually to all subjects in both groups. Letters were sent to the parents of the girls describing the purpose of the study to be that of obtaining data for a research thesis on adolescent personality development. The Rorschach was described as an individually administered personality test requiring no preparation or study on the part of the testee. The experimenter was personally acquainted with all of the experimental subjects before the time of the first administration. She had met only a few of the control subjects, however, before the time of the test.

The Testing of Limits portion was omitted because of a possibility that suggested responses might be recalled at a second testing. Results were tabulated for both experimental administrations and for the control group in the following categories: R; W; D; d; dd; S; M; FM; m; k; K; FK; F; Fc; c; C'; FC; CF; C; H; Hd; A; Ad; P; F%; A%; P%; Sum C; percentage of responses to Cards VIII, IX, X; rejections. Scoring criteria developed by Klopfer et al and Loyola University studies under the direction of F. J. Kobler, Ph.D., were employed.

Because this is a case of related non-parametric samples, a two-tailed Sign Test was used to determine the significance of directional change of determinants at the second administration.

CHAPTER IV

STATISTICAL ANALYSIS OF THE RORSCHACH DATA

A summary of the Rorschach areas which did not yield sufficient data to warrant further analysis are found in Table 3 below.

TABLE 3

Areas of Insufficient Data: Main Determinants and Rejections

Administrations	d	S	m	k	K	FK	Ad	C'	C	Rej.
First: Number of subjects employing	7	5	11	4	4	5	10	8	1	9
Second: Number of subjects employing	10	7	12	4	6	11	14	14	2	5

The small amount of d is to be noted with respect to the determinants listed in Table 5. According to Rorschach, the normal adult protocol yields from 5 to 15% d, while 79% of all of the subjects of this study on the first administration and 69% on the second administration used no d at all. Data on the manner of approach as found in the Ames study of 14- and 15-year-old girls, in the Rorschach normal adult expectancy, and in this experimental group are listed in Table 4.

Both the Ames study and the present research indicate that whole responses are more characteristic of these groups than of the normal adult protocol. The possibility arises that this is a factor of the higher than average intelligence level of both groups, especially at the 14-year-old level where the num-

ber of whole responses is in proportion to the IQ score. If the idea is accepted that good whole responses are a function of intelligence, as Klopfer maintains, this present data would substantiate that hypothesis. However, several studies previously discussed have demonstrated no significant differences in this category for average and gifted young people. Hertzman and Margulies (1943) found that the younger group in their research emphasized the whole response, suggesting that the developmental factor is at work. The D% increased sharply at the 15-year-old level in their study as it did in that of McFate and Orr (1949) and contrary to Ames. Thetford et al found no differences from childhood through age 17 in this factor.

TABLE 4

Manner of Approach: W% and D%

	W%				D%			
Rorschach adult expectancies	20-30				45-55			
Present study	Age 14		Age 15		Age 14		Age 15	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
		53.76	19.44	43.08	24.94	31.97	17.56	43.01
Ames study	35.8	27.0	47.6	26.8	52.0	20.0	44.2	22.4

Another area which contrasts Ames's study and the present research found in Table 4 is the opposite trend of the two results. The Ames group moved toward more W and away from D, while this study moves toward D and away from W. The experimental data is more in accord with the literature.

Table 5 lists those areas which contain enough responses to warrant analysis, but which afford insignificant results. In line with the statement of Ames on the "introversion crisis" at age 15, the non-significance of $F\%$ forms an interesting contrast. The present research yields lower $F\%$ at both 14 and 15 than does the Ames study which is 18.12 points higher at 14 and 11.64 points higher at 15. The higher FC and CF areas and the increase in M at age 15 indicated on Table 6 further contradict the description of introversion at age 15 (Ames, 1960).

TABLE 5

Sign Test Results for Categories showing No Significance

Determinant	Number showing increase in response (+)	Number showing decrease in response (-)	Number showing no change in response (0)
dd%	13	16	3
FM	15	9	8
F%	17	15	0
A%	10	18	4
H%	12	16	4
Hd	13	5	14
Fc	13	8	11
FC	15	4	13
CF	8	13	11
Sum C	13	15	4

Kottonhoff's study (1965) has indicated that intelligence suppressed A%. While the Sign Test indicates no significant change between the two experimental administrations, Table 6 shows a markedly lowered A% score over the Ames research. This lowered A% substantiates the Kottonhoff findings.

TABLE 6

Means and Standard Deviations of the Experimental Group
Contrasted with the Ames Study

	R				dd				M			
	Age 14		Age 15		Age 14		Age 15		Age 14		Age 15	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Present Group	18.44	8.29	24.96	12.33	12.8	11.42	10.82	6.99	2.6	1.87	3.35	2.62
Ames Study	26.9	15.2	21.1	10.3	12.2	14.3	8.2	10.2	2.9	2.8	2.4	1.7
	FM				m				Fc			
Present Group	3.29	3.02	3.65	2.72	.67	.56	.82	.79	1.94	1.65	2.6	2.4
Ames Study	2.1	2.0	1.9	2.4	.9	1.0	.5	.8	1.5	1.9	1.7	1.8
	FC				CF				H%			
Present Group	.82	.53	.81	.31	1.48	1.27	1.27	1.37	20.62	9.03	15.58	9.69
Ames Study	.3	.5	.3	.7	.9	1.5	.9	.9	21.7	11.2	21.9	9.5
	P				F%				A%			
Present Group	5.58	1.7	6.74	2.0	45.28	21.73	48.36	19.57	26.3	6.07	17.98	5.5
Ames Study	6.6	1.9	6.2	1.5	63.4	17.1	60.0	17.0	44.5	13.4	45.3	16.8

Table 7 lists the significant areas of directional changes revealed on the Sign Test. The increase in responses is found to be a characteristic of the adolescent protocol in nearly all research. The change away from W% toward D%, while it indicates a more practical approach to concrete everyday living, may in part be a factor of the increase in number of responses. High D% in a superior person can also indicate, according to Klopfer, an insecurity, a fear of losing one's bearings if one does not stay close to obvious facts. Since introversion (F%) and anxiety (m, K, FK) are not high, however, this hypothesis would not seem to hold. The highly significant number of changes invites comment on the D% factor; but, aside from these remarks, nothing more conclusive can be said without further research.

Klopfer has called the human movement factor perhaps the most significant and yet, interpretatively, the most elusive single Rorschach determinant. The M concept implies three main features: 1) a kinesthetic projection which implies an imaginal process; 2) a human concept which implies empathy with others; and 3) perception at a highly-integrated and well-differentiated level. Thus, the M response touches upon all of the most important aspects of the well-functioning personality, bridging the gap between inner resources of drive and fantasy and outward orientation.

In this present research, it was found that production of M increased in a significant number of subjects between age 14 and age 15. While the Ames study showed slightly more M at the 14-year-old level and a decrease at 15, thus creating the introversial picture described previously, the experimental research not only showed a significant increase (.02 level) by 15, but had surpassed the mean of the Ames group by nearly one response. (See Table 7.)

These research results would serve to substantiate Klopfer's hypothesis that good quality M's are signs of intelligence.

TABLE 7

Sign Test Results for Categories showing Significance

Determinant	Sign.	+	-	0
R	<.01	23	5	4
W%	<.02	8	23	1
D%	<.01	22	8	2
M	<.02	18	7	7
P	<.01	21	5	6

Griffin (1957) summarized some of the best-known descriptions of what the Rorschach popular response indicated. The concepts included the ability to adjust to practical requirements of life, sufficient participation in collective thinking, adaptability to the thought of the common man, and cooperativeness. Thompson (1950) found that statistically the popular response was related to the number of responses in the protocol, and that the clinical meaning from P ruling out R, to some extent, could best be extracted by taking the per cent of P in the protocol. In short, by taking P% the function of length of record is largely controlled for, at least with the group Rorschach and an R no greater than 40 or 50.

With these considerations in mind, it will be well to examine the significance of P in Table 7 more critically. The increase in P responses is coupled with an increase in the total number of responses in the protocol and is highly significant according to the Sign Test where raw data is used. However, when

P% is computed, the results are not only not significant, but are almost a perfect chance distribution. If the hypothesis which Thompson proposes is to be accepted, the research data in Table 7 regarding P is spurious. This example serves to demonstrate some of the complexities into which Rorschach research can lead statistically.

As stated before, the question arises in considering the results of the second Rorschach administration as to whether the data reported is influenced by the variable of re-testing. Table 8 summarizes the scores of the experimental and control groups on the statistically significant determinants found by the Sign Test method.

The control group retained the higher W% characteristic of much adolescent research, while the experimental group had approached the normal adult relationship more closely by the time of the testing. Whether familiarity with the plots is a factor in this difference of response cannot be ascertained on the basis of this data. R, M, and P of the controls approximate the experimental group to a degree that would indicate that any re-test variable was not a confounding one.

TABLE 8

Means and Standard Deviations of the Experimental Group
Significant Areas Compared to Controls

Groups	R		W%		D%		M		P	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Exp. Group: 2nd Admin- istration	24.96	12.33	43.08	24.94	43.01	19.77	3.35	2.62	6.74	2.00
Control Group	21.00	6.80	49.00	29.00	35.00	17.33	3.70	2.10	6.10	2.10

A final consideration of the research was a third re-testing of five original subjects at a mean age of 17 years, 10 months. The psychograms for these protocols are found in the Appendix of this paper, Tables 9, 10, 11, 12, and 13.

A summary of ungraphed data is in Table 14.

All of the psychograms demonstrate adolescent personality fluctuations and would lead to a restatement of Allen and Groman (1958) on the clinical importance of following longitudinally the protocols of an individual rather than the group norms. Ames also has said that it is not the age at which the predicted personality traits occur that is so important, but rather the fact that these traits do occur in a rhythmic cycle. An analysis of the protocols for these five subjects exceeds the scope of the present research, but provides data for a further study of adolescent Rorschach responses.

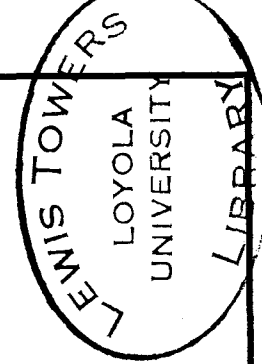


TABLE 14

Ungraphed Data for Three Administrations: Main Determinants

Sub.	W%			D%			d%			dd%			S			H		
5	78	50	37	0	28	45	0	0	4	21	21	12	1	0	0	2	2	3
14	75	36	41	13	28	37	0	20	0	13	0	20	0	0	0	6	6	7
21	33	13	18	58	75	62	0	0	0	8	13	20	0	0	0	2	2	8
31	47	18	9	35	54	43	5	10	14	12	18	31	0	0	0	4	3	6
32	41	14	25	53	49	44	5	4	6	0	30	16	0	1	1	0	5	6
Sub.	Hd			P			A%			Cds%			Rej.			R		
5	1	1	1	35	35	38	43	50	62	21	43	46	0	0	0	14	14	24
14	0	0	3	23	35	20	31	43	41	31	43	31	0	1	0	16	14	24
21	2	2	3	41	37	18	56	38	35	33	38	37	0	0	0	12	16	43
31	2	4	3	41	25	17	53	54	29	41	46	31	0	0	0	17	29	41
32	1	2	0	29	13	16	70	49	38	47	44	40	1	0	0	17	43	47

CHAPTER V

SUMMARY AND CONCLUSIONS

Rorschach literature in the adolescent area has pointed up the need for norms based on research with young people of normal rather than above-normal intelligence. It also indicates the need for longitudinal studies so that the development of the normal human personality through the adolescent years may be better understood.

This research is an attempt to contribute to the latter area, that of longitudinal study. The special characteristic of this research is its accent on the intellectually superior adolescent girl. Subjects were 32 high school girls with a mean IQ of 126 and a standard deviation of 4 on the Scholastic High School Placement Examination. These subjects were tested at age 14 years, 10 months and 15 years, 11 months. Significant changes in determinants over the period between ages 14 and 15 have been ascertained by the Sign Test of directional change in nonparametric samples. A comparison to the extensive work of the Gesell Institute under the direction of Louise Bates Ames was made.

It was found that a significant number of subjects increased the number of their responses ($<.01$). W% decreased in a significant number of cases ($<.02$) and D% increased significantly ($<.01$) during the single year in contrast to the Ames research, but more in accord with other studies. The unusually high W% at age 14 may be a factor of high intelligence or of an earlier level of development or of both. The high D at the second administration did not occur in the control group of 20 girls chosen from a socio-economic, intellectual,

chronological and achievement level comparable to the experimental subjects at age 15. This difference may indicate some re-test variable. M increased in a significant number of subjects ($<.02$) despite Ames's findings regarding the "introversial crisis" at age 15 which she characterized as having high F% and restriction of both ends of the psychogram. Further indication that the introversial crisis was not present in this group was the non-significance of F% change.

The control group also reported high M at age 15 and, again, suggested the factor of intelligence, since the present study utilized subjects in both experimental and control groups with a mean of at least 10 points above the Ames mean of 116. Raw popular responses showed a significant increase ($<.01$), but P%, considered by Thompson to be a more clinically accurate utilization of the popular determinant, showed no significance in change. A% was markedly lower than the Ames study, indicating that suppressed A% is, as it is purported to be, a factor in intelligence.

The experimental study included further testing at mean age 17 years, 11 months of five of the original subjects. Psychograms of these subjects are reported and other data tabulated, but analysis is suggested as a project for later research, emphasizing the importance of individual trends in adolescent protocols.

This research substantiates the hypothesis that a significant number of adolescent girls follow clear developmental trends in the period from age 14 to age 15. It also indicates that high M, low A%, and possibly high W% are, as has been hypothesized, factors in higher intelligence.

The 15-year-old "introversial crisis" in the Ames research is not reproduced in this study, possibly due to the greater sophistication of Ames's

subjects whose parents had a high percentage of professional careers. A danger in statistical analysis of Rorschach data is demonstrated by the spurious significance of P responses. Data for further analysis of individual protocols is here summarized and this analysis is urged as a clinically profitable research project.

BIBLIOGRAPHY

- Allen, R. M. and Groman, W. A note on Rorschach test age norms. Z. diagnostik psychologie., 1958, 6, 178-180.
- Allison, J. and Blatt, S. The relationship of Rorschach whole responses to intelligence. J. proj. Tech., 1964, 28, 255-260.
- Ames, L. B. Constancy of content in Rorschach responses. J. genet. Psychol., 1960, 96, 145-164.
- Ames, L.B. and Kremer, M. Longitudinal survey of child Rorschach responses: older subjects ages 10 to 16 years. Genet. psychol. Monograph, 1960, 62, 185-229.
- Ames, L.B., Metraux, R., and Walker, R.N. Adolescent Rorschach Responses. New York: P.B. Hoeber, Inc., 1959.
- Baker, E. Personality changes in adolescence as revealed by the Rorschach method. Psychol. Bull., 1941, 38, 705.
- Beck, S.J., Rabin, A., Thiesen, W., Molish, H., and Thetford, A. The normal ego as projected in the Rorschach Test. J. Psychol., 1950, 30, 241-298.
- Bell, J.E. Projective Techniques. New York: 1948.
- Bleckner, J. The responses of average and gifted students on the group Rorschach test. Calif. J. Educ. Res., 1959, 10, 200-206.
- Boynton, P.L. and Wadsworth, B.M. Emotionality test scores of delinquent and non-delinquent girls. J. abnorm. soc. Psychol., 1943, 38, 87-92.
- Cronbach, L.J. Statistical methods applied to Rorschach scores: a review. Psychol. Bull., 1949, 46, 393-429.
- Davis, H.S. Judgments of intellectual level from various features of the Rorschach including vocabulary. J. proj. Tech., 1961, 25, 155-157.
- Egan, G. A Rorschach study of dependent adolescents. Unpublished master's thesis, Loyola University, Chicago, 1963.
- Fieldsteel, N.D. The value of the Rorschach test for the prediction of school achievement. Diss. Abstr. 1964, 25, 3106-3107.

- Gesell, A., Ily, F., and Ames, L.B. Youth, the Years from Ten to Sixteen. New York: Harper and Bros., 1956.
- Goldfarb, W. The effects of early institutional care on adolescent personality. Rorschach data. Amer. J. Orthopsychiat. 1944, 14, 441-447.
- Gorlow, L., Zimet, C., and Fine H. The validity of anxiety and hostility Rorschach content scores among adolescents. J. Consult. Psychol., 1952, 16, 73-75.
- Greene, E.R. Measurements of Human Behavior. New York: The Odyssey Press, 1941.
- Griffin, D.P. Psychometric scales for the Rorschach popular responses. J. Clin. Psychol., 1957, 13, 283-287.
- Hershenson, J.R. Preference of adolescents for Rorschach figures. Child Develop., 1949, 20, 101-118.
- Hertz, M. Rorschach norms for an adolescent age group. Child Develop., 1935, 6, 69-76.
- _____. Some personality changes in adolescence as revealed by the Rorschach method. Psychol. Bull., 1940, 37, 515-516.
- _____. Rorschach: twenty years after. Rorschach Res. Exch., 1941, 5, 90-129.
- _____. Personality patterns in adolescence as portrayed by the Rorschach ink-blot method. The movement factors. J. genet. Psychol., 1942, 27, 119-188.
- _____. Personality patterns in adolescence as portrayed by the Rorschach ink-blot method. The erlebnistypus. J. genet. Psychol., 1943, 28, 225-276.
- _____. Personality patterns in adolescence as portrayed by the Rorschach ink-blot method. A typological study. J. genet. Psychol., 1943, 29, 3-45.
- Hertz, M. and Baker, E. Pubescence and personality. Psychol. Bull., 1941, 38, 598.
- _____. Personality patterns in adolescence as portrayed by the Rorschach ink-blot method. The color factors. J. genet. Psychol., 1943, 28, 3-61.
- Hertzman, M. and Margulies, H. Developmental changes in Rorschach test responses. J. genet. Psychol., 1943, 62, 189-216.
- Hofner, A.J. and Rosen, E. The meaning of Rorschach inkblots, responses and determinants as perceived by children. J. proj. Tech. and pers. Asses., 1964, 28, 192-200.

- Klopfer, B., Ainsworth, M.D., Klopfer, W.G., and Holt, R.R. Developments in the Rorschach Technique. Vol. 1. New York: Harcourt, Brace and World Book Co., 1954.
- Kottonhoff, H. Reliability and validity of the animal percentage in Rorschach. Acta Psychologica, 1965, 22, 387-406.
- McFate, M. and Orr, F.G. Through adolescence with the Rorschach. Rorschach Res. Exch., 1949, 13, 302-319.
- Parker, R.S. The acceptability and expression of attitudes associated to the Rorschach human movement response. J. proj. Tech. and pers. Asses., 1965, 29, 83-92.
- Paulsen, A. Personality development in the middle years of childhood: a ten-year longitudinal study of 30 public school children by means of Rorschach test and social histories. Amer. J. Orthopsychiat., 1943, 24, 336-350.
- Ray, A.B. Juvenile delinquency pattern by Rorschach inkblots. Psychologia, 1963, 6, 190-192.
- Ranzoni, J.H., Grant, M.Q., and Ives, V. Rorschach "card-pull" in a normal adolescent population. J. proj. Tech., 1950, 14, 107-133.
- Richards, T.W. Personality development as reflected in Rorschach behavior: a case study. J. proj. Tech., 1955, 19, 54-61.
- Rorschach, H. Psychodiagnostics. New York: Grune and Stratton, 1942.
- Rychlak, J. and O'Leary, L. Unhealthy content in the Rorschach responses of children and adolescents. J. proj. Tech. and pers. Asses., 1965, 29, 354-368.
- Schmidl, F. The Rorschach test in juvenile delinquency research. Amer. J. Orthopsychiat., 1947, 17, 151-160.
- Setze, L.A. An experimental study of the effect of trial blot administration of the Rorschach test with seven-year-old children. Unpublished master's thesis, Loyola University, Chicago, 1954.
- Setze, L.A., Setze, K., Baldwin, J., Doyle, C., and Kobler, F. A Rorschach experiment with six, seven, and eight-year-old children. J. proj. Tech., 1957, 21, 166-171.
- Siegel, B. Rorschach movement responses of college students: a normative approach. Unpublished master's thesis, Loyola University, Chicago, 1960.
- Siegel, S. Nonparametric Statistics. New York: McGraw-Hill Book Co., Inc. 1956.

- Snider, L. Personality differences between high and low academic achievers in high school: A Rorschach and Thematic Apperception Test study. Unpublished doctoral dissertation, Loyola University, Chicago, 1953.
- Spivak, G., Levine, M., Fuschello, J., and Travanier, A. Rorschach movement responses and inhibition processes in adolescents. J. proj. Tech., 1959, 23, 462-466.
- Stainbrook, E.J. and Siegel, P.S. A comparative Rorschach study of southern Negro and southern White high school and college students. J. Psychol., 1944, 17, 107-116.
- Stark, S. A note on time, intelligence and Rorschach movement responses. Perceptual Motor Skills, 15, 267-272.
- Tanaka, F. Rorschach movement responses in relation to intelligence. Japanese J. educ. Psychol., 1958, 6, 132-133.
- Taniguchi, M., DeVos, G., and Murakami, E. Identification of mother and father cards on the Rorschach by Japanese normal and delinquent adolescents. J. proj. Tech., 1958, 22, 453-460.
- Thetford, W., Molish, H., and Beck, S.J. Developmental aspects of personality structure in normal children. J. proj. Tech., 1951, 15, 58-78.
- Thompson, G. Rorschach "populars" as a function of the length of record. J. consult. Psychol., 1959, 14, 287-289.
- Wolfensberger, W., Miller, M., Fasher, J., and Cromwell, R. Rorschach correlates of activity level in high school children. J. consult. Psychol., 1962, 26, 269-272.

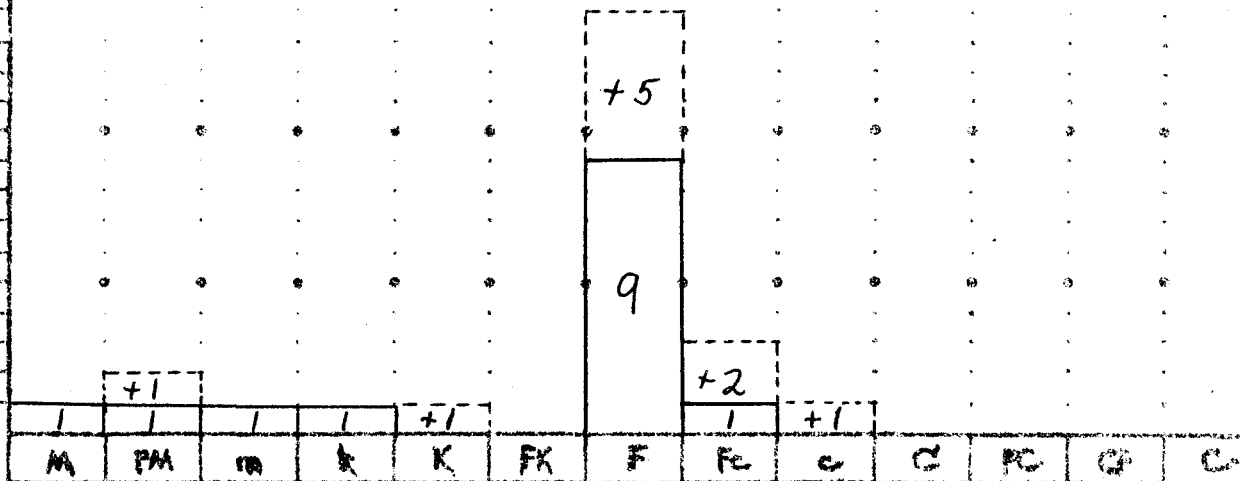
APPENDIX I

RORSCHACH PSYCHOGRAMS FOR THREE EXPERIMENTAL ADMINISTRATIONS

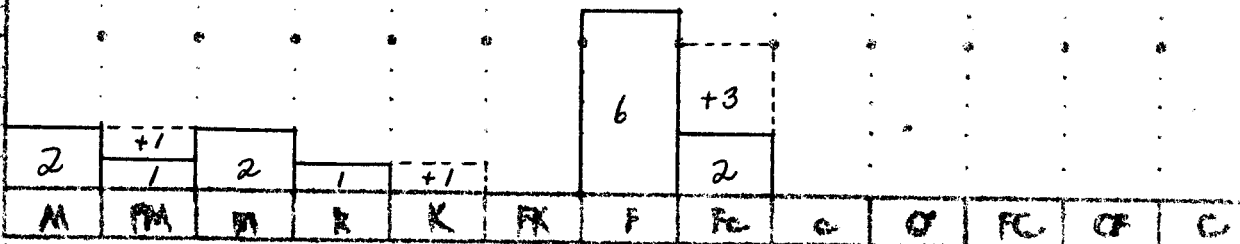
Subject 1 IQ 133

TABLE 9

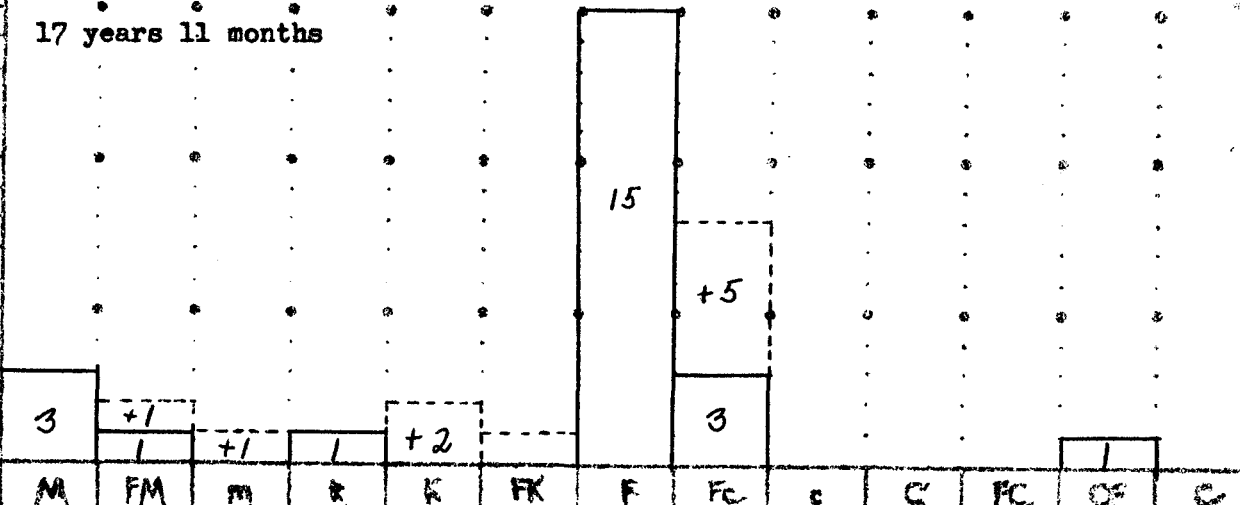
14 Years 11 months



15 years 11 months



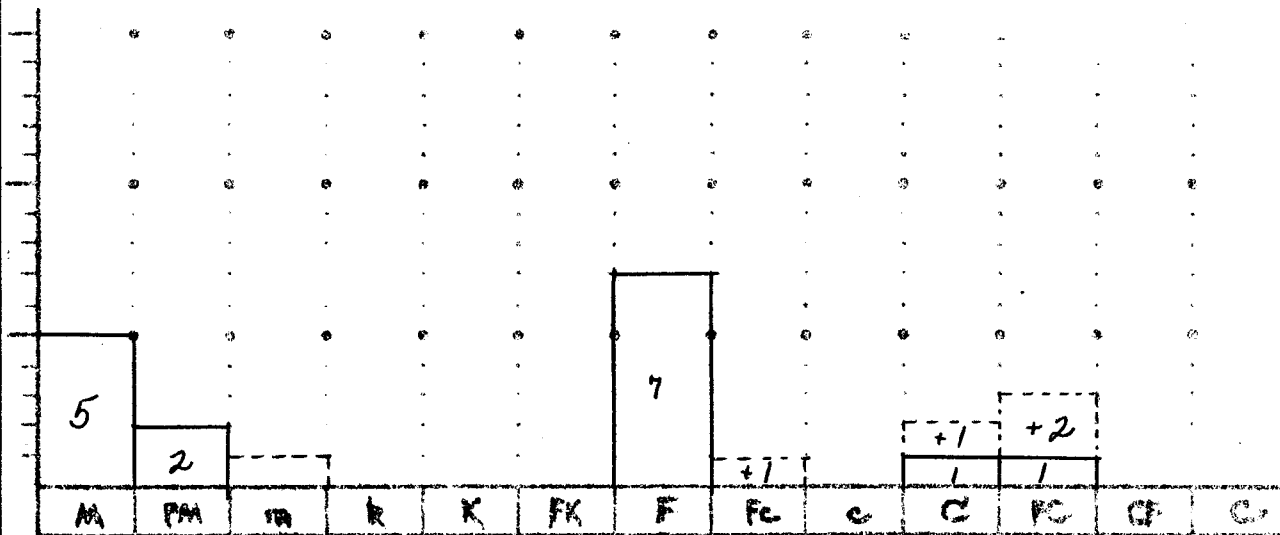
17 years 11 months



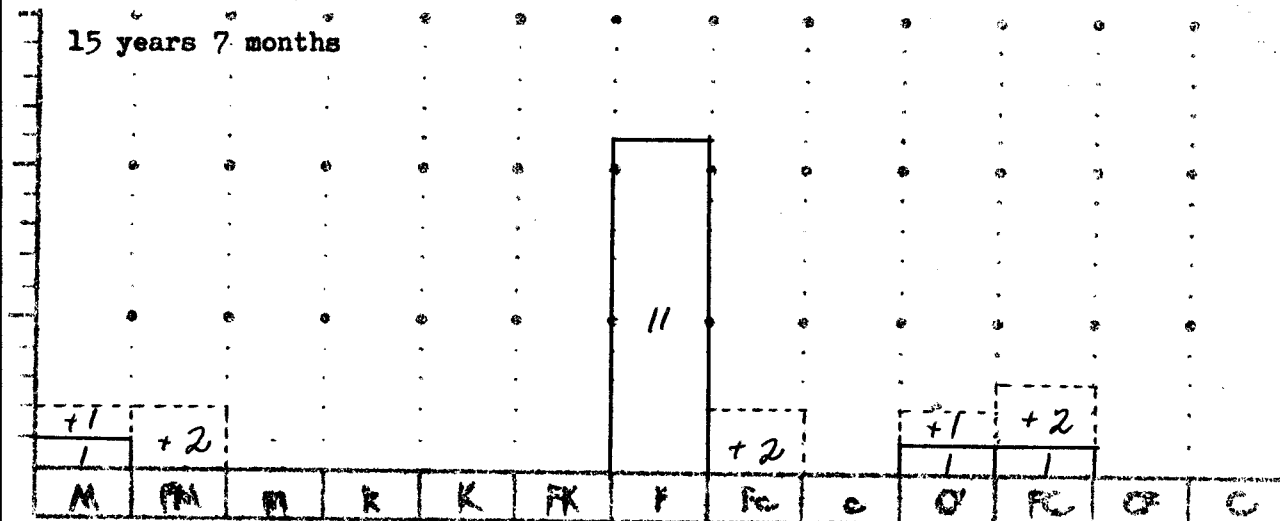
Subject 2 IQ 131

TABLE 10

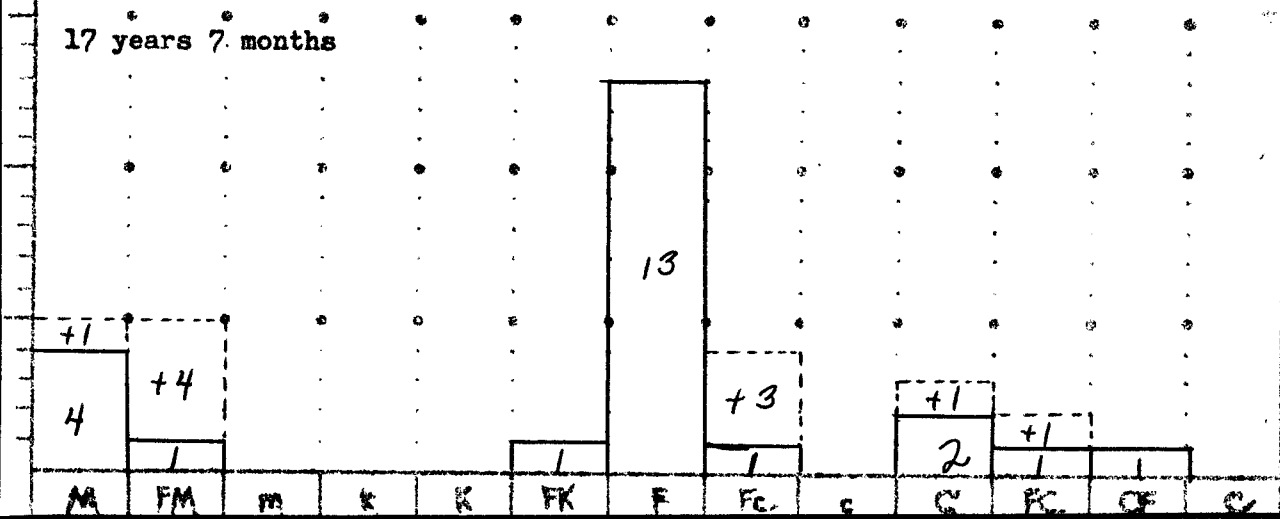
14 years 6 months



15 years 7 months



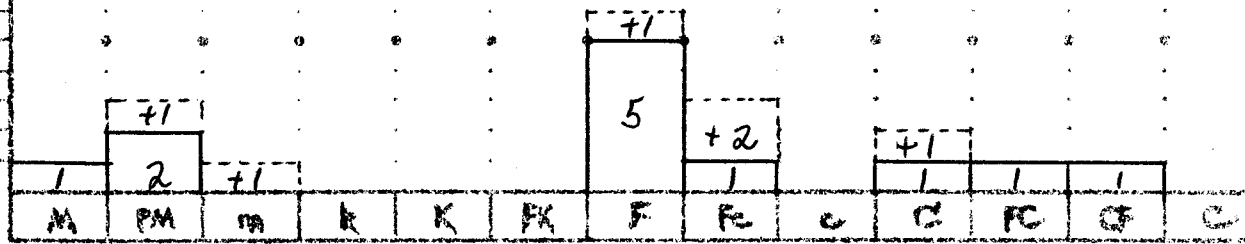
17 years 7 months



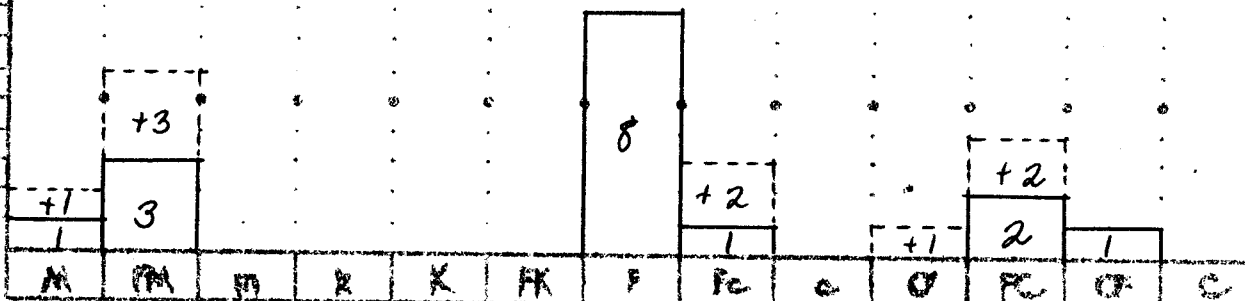
Subject 3 IQ 133

TABLE 11

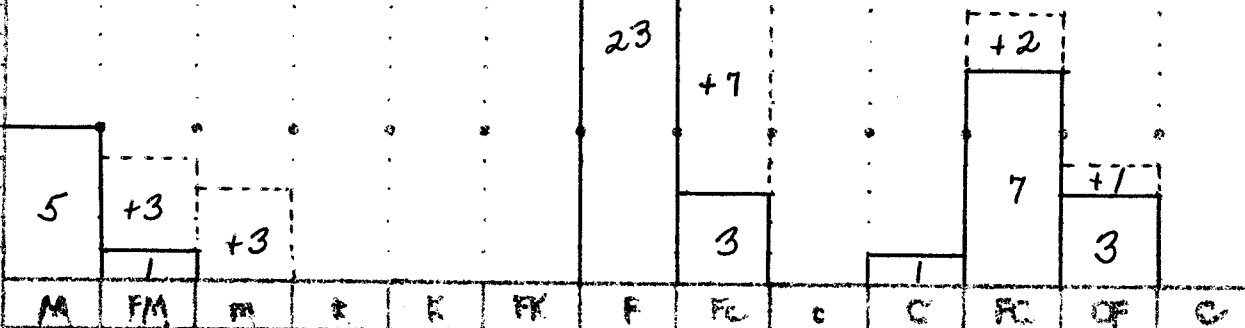
14 years 9 months



15 years 9 months



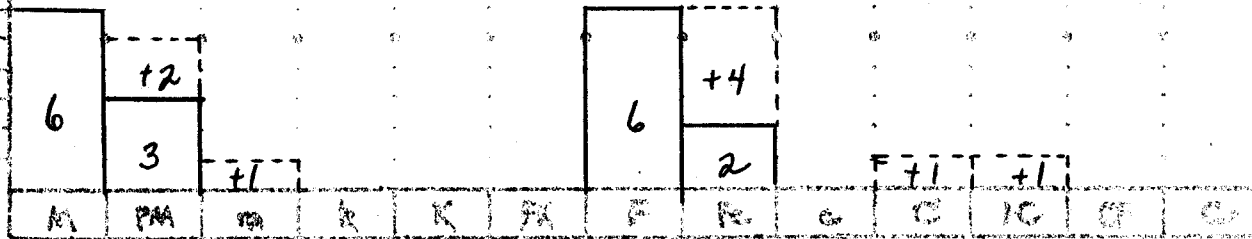
17 years 9 months



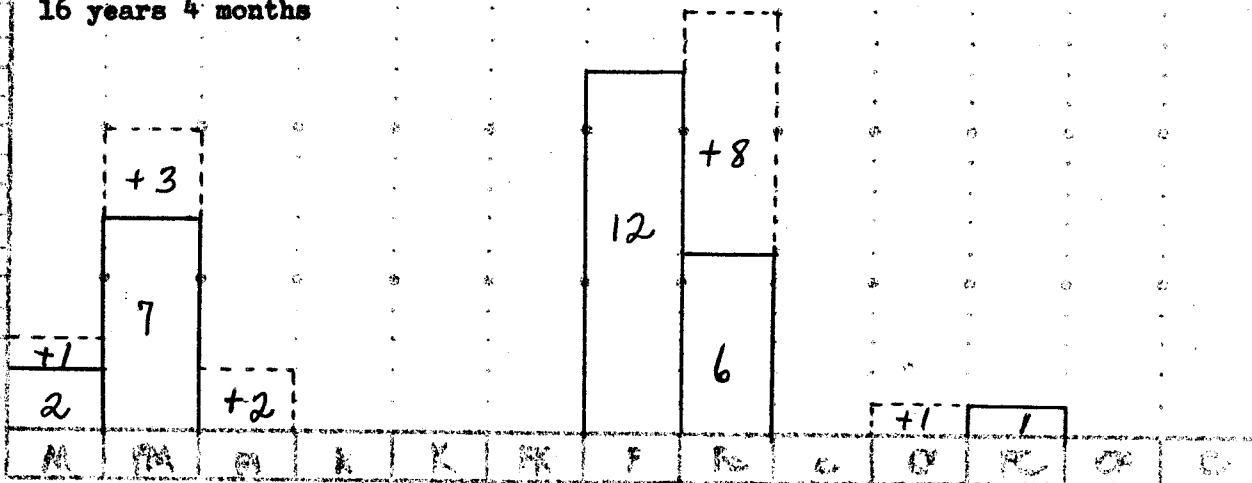
Subject 4 IQ 124

TABLE 12

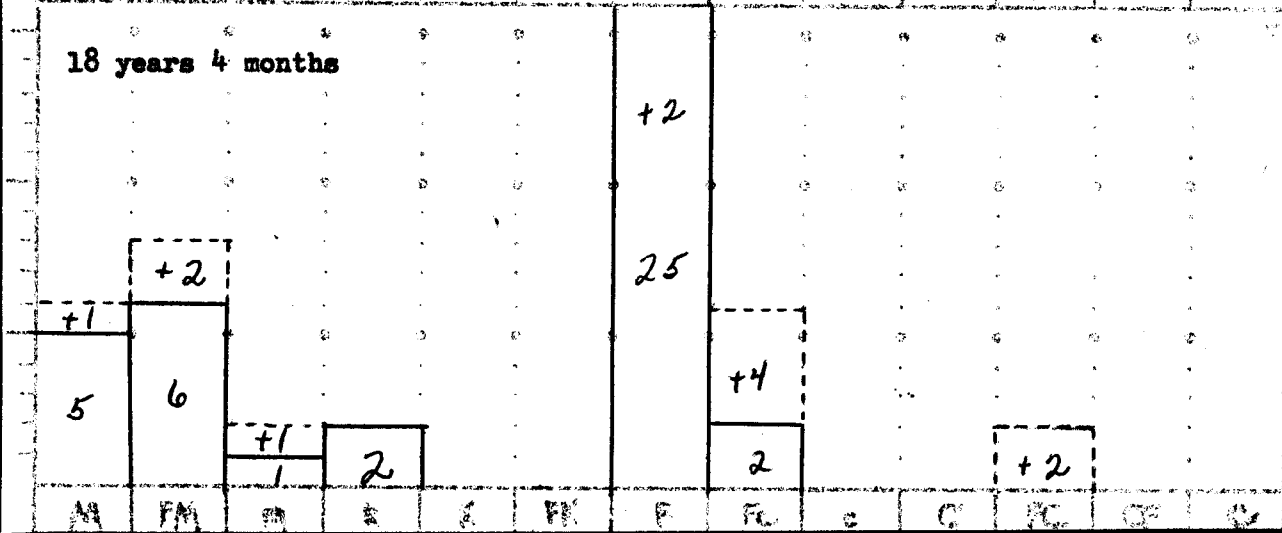
15 years 4 months



16 years 4 months



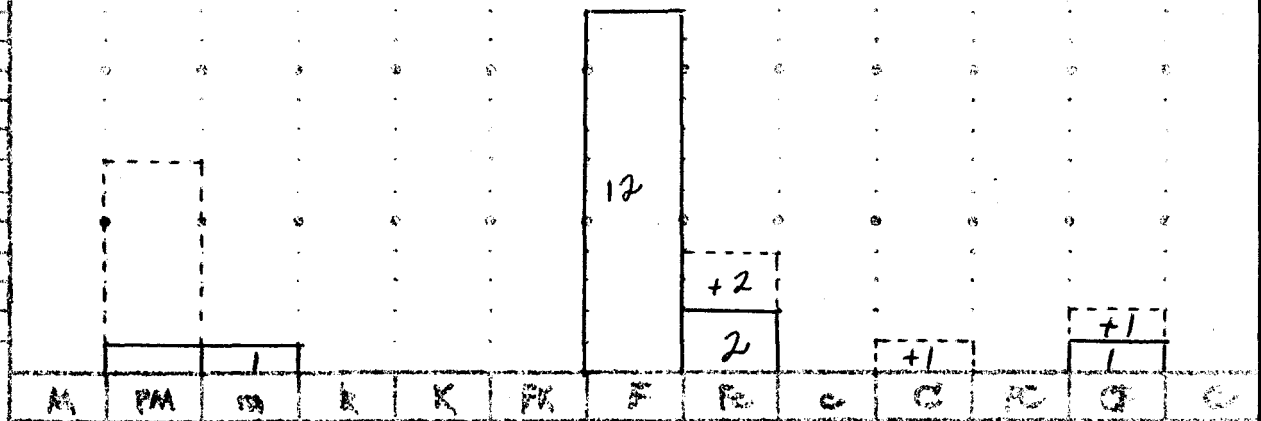
18 years 4 months



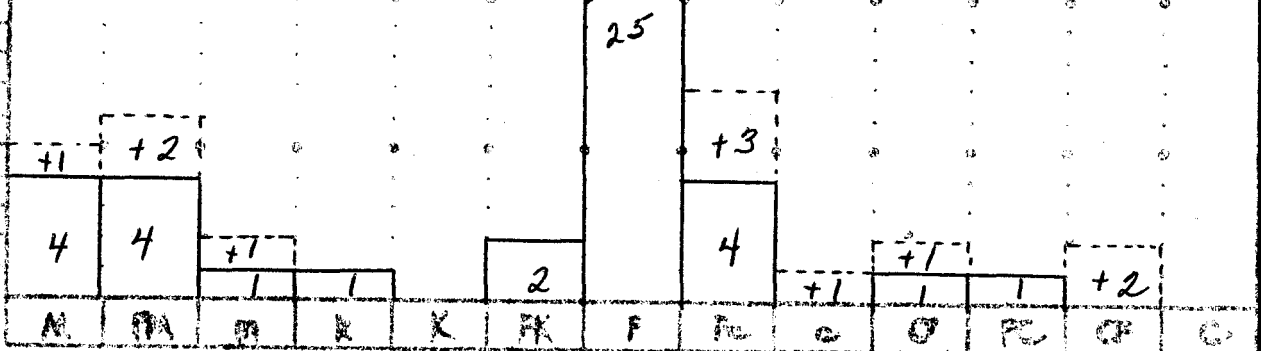
Subject 5 IQ 130

TABLE 13

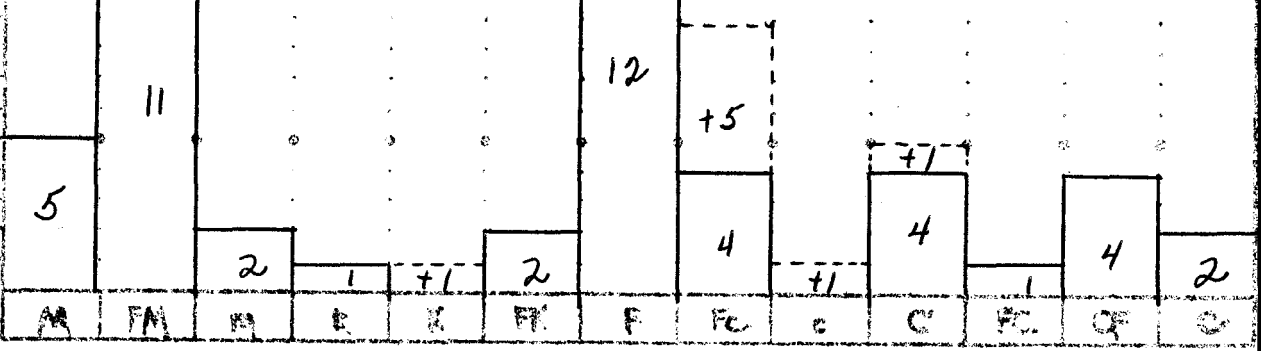
14 years 10 months



15 years 10 months



17 years 10 months



APPROVAL SHEET

The thesis submitted by Sister M. Clare Zuercher, O.S.B., has been read and approved by three members of the Department of Psychology.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

1/5/67
Date

Ann E. Heilmann
Signature of Advisor