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## Relationships between age and maladjustment in delinquency

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RELATIONSHIPS BETWEEN AGE AND MALADJUSTMENT <sup>3</sup>  
IN DELINQUENCY

100: 2: 16AM  
A Thesis

Presented to

the Faculty of the Department of Psychology  
College of the Pacific

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

by

George John Badaracco

June 1956

To the memory of Dad

#### ACKNOWLEDGMENTS

The writer wishes to record his appreciation of the opportunity afforded him, in making this study, by the California Youth Authority; and his particular indebtedness to Harry R. Wilson, its Education and Training Program Supervisor, and Beatrice D. Dolan, Superintendent of the Los Guilucos School for Girls.

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# TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND METHOD OF ATTACK . . . . .	1
The problem . . . . .	1
Statement of the problem . . . . .	1
The thesis . . . . .	1
Method of attack . . . . .	2
Group tested . . . . .	2
Control . . . . .	3
Test used . . . . .	3
Manipulation of test results . . . . .	3
Brief summary of the findings . . . . .	4
Adjustment ratings . . . . .	4
Significant differences . . . . .	4
II. THE NEED FOR RESEARCH . . . . .	5
Review of past studies . . . . .	5
Contribution of this study . . . . .	8
Justification and delimitation . . . . .	8
Summary . . . . .	9
III. DESCRIPTION OF POPULATION AND TESTING . . . . .	10
The Los Guillucos School for Girls . . . . .	10
The Adjustment Inventory (Student Form). . . . .	11
Method of measurement . . . . .	12
Summary . . . . .	14

CHAPTER	PAGE
IV. TEST RESULTS . . . . .	16
Age-grouped scores . . . . .	16
Norms . . . . .	16
Areas of maladjustment . . . . .	20
Stockton High School scores . . . . .	23
Summary . . . . .	24
V. RELIABILITY OF DIFFERENCES . . . . .	25
Reliability of group means . . . . .	25
Comparison of group means . . . . .	27
Significant differences . . . . .	32
Summary . . . . .	32
VI. SUMMARY AND CONCLUSIONS . . . . .	33
General summary . . . . .	33
Conclusions . . . . .	35
Further studies needed . . . . .	36
BIBLIOGRAPHY . . . . .	37
APPENDIX . . . . .	43

# LIST OF TABLES

TABLE	PAGE
I. Adjustment Inventory Grouped Mean Scores . .	18
II. Adjustment Inventory Norms for High School Age Females . . . . .	19
III. Standard Deviations and Standard Errors of Grouped Scores . . . . .	26
IV. Standard Errors of the Difference Between Means, Obtained Differences, Critical Ratios, and Significance of Differences Between Group Scores on the Home Scale . .	28
V. Standard Errors of the Difference Between Means, Obtained Differences, Critical Ratios, and Significance of Differences Between Group Scores on the Health Scale .	29
VI. Standard Errors of the Differences Between Means, Obtained Differences, Critical Ratios, and Significance of Differences Between Group Scores on the Social Scale .	30
VII. Standard Errors of the Differences Between Means, Obtained Differences, Critical Ratios, and Significance of Differences Between Group Scores on the Emotional Scale . . . . .	31



## TABLE

## PAGE

VIII. Adjustment Inventory Grouped Raw Scores . .	44
IX. Stockton High School Mean Scores . . . . .	45



## LIST OF FIGURES

FIGURE	PAGE
1. Age Distribution of Groups . . . . .	17
2. Scale Scores of Age Groups (Four) . . . . .	21
3. Scale Scores of Age Groups (Two) . . . . .	22

## CHAPTER I

### THE PROBLEM AND METHOD OF ATTACK

Chronological age, albeit an imperfect measure of physical and mental maturation, provides a practical means of classifying data necessary to the study of different developmental levels. It makes possible a more meaningful system of averages, or "norms," without which researchers would be severely handicapped in their attempts to provide reliable measures of diagnosis and prognosis.

#### I. THE PROBLEM

Statement of the problem. This study involved a search for statistically significant relationships between age and particular areas of maladjustment measurable by The Adjustment Inventory in a population of delinquent girls.

The thesis. Similarities in adolescent adjustment difficulties are generally considered to be due to coincident hereditary and environmental factors. Such an all-conclusive definition is of dubious value, and should not be allowed to discourage more precise analyses. This study endeavored to make such an analysis and examined whether or not subtle growth changes predisposed individuals of the same age to adjustment difficulty in the same area. When psychological

development is considered as being intimately dependent upon physiological growth, the tenet that changes in the former could, to an unknown extent, be attributed to changes in the latter becomes reasonable. From conception to death, physiological maturation brings complex changes into being within the organism, and at any stage of physical development like changes are taking place in the majority of the same age group. What effect these changes have upon the psyche is not entirely understood, but it is known that the more tumultuous often lead to typical adjustment problems.

In pursuing this study, chronological age was accepted as being a valid mean differential of time intervals between growth changes. The "differential," itself, was termed the "longevity factor." It was the purpose of this study to consider the existence of predispositions to particular maladjustment patterns which would bear a causal relationship with the "longevity factor."

## II. METHOD OF ATTACK

Group tested. A population of teen-age delinquent girls was measured. The evidences of maladjustment were manifest, and the age spread, while wide enough to allow for the longevity factor, seemed sufficiently narrow to exclude most personality problems not overtly common to the group as a whole. Moreover, the sexual homogeneity of the population



disallowed the intrusion of a sex variable.

Control. Due to the racial origins and socio-economic backgrounds of the test group, it was not possible to form a control group worthy of the definition. The absence of a control was not considered as materially affecting the study's validity, however, as its purpose was to discover relationships within a deviate group rather than to confirm the deviation.

Test used. The Adjustment Inventory (Student Form) by Hugh M. Bell was selected as the measuring device.<sup>1</sup> Its standardization included delinquent groups, both male and female, and its norms were applicable to the ages being tested. It purported to measure four areas of adjustment generally problematic to the entire test group, and the inclusion of no more than four scales lent practicality to both the mechanics and results of the statistical survey.

Manipulation of test results. The scores were arranged into four pre-established age groups. Using Garrett<sup>2</sup> as a reference, a statistical analysis was made to determine

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<sup>1</sup> Cf. post., pp. 11-12.

<sup>2</sup> Henry E. Garrett, Statistics In Psychology and Education (third edition; New York: Longmans, Green and Company, 1950).

the significance of differences between scores made by the different age groups on the same scale.

As a further check for significance, the two lower age groups were combined into a single group, as were the two higher; and the same survey for differences between them was made.

A considerable number of Adjustment Inventory scores were obtained by the writer from various California school districts. These were used in addition to the norms to evaluate the test results.

### III. BRIEF SUMMARY OF THE FINDINGS

Adjustment ratings. The mean scores of the fourteen sixteen, and seventeen year old groups when rated on the test norms showed evidences of unsatisfactory adjustment, but the fifteen year olds scored "satisfactory" throughout. This peculiarity is discussed in Chapter VI.

Significant differences. A significant difference (at the .02 level) was found to exist between the fourteen and fifteen year old groups on the Health scale. The differences derived from all other group comparisons failed to meet the requirements of the .05 level of confidence, and were attributed to sampling errors. The possible meanings of the differences obtained are discussed in Chapter VI.



## CHAPTER II

### THE NEED FOR RESEARCH

The available literature was carefully reviewed, but whereas a wealth of information exists pertaining to maladjustment and the causes and consequences of delinquency, little was found that was intimately associated with the problem being investigated.

Review of past studies. As no parallel studies were found, all research which suggested the study of adolescent age-adjustment relationships was examined, but by and large all such studies dealt with a quantitative rather than a qualitative relationship.<sup>3</sup> Kuhlen and Arnold, in their study of religiously connected age differences, pointed out the lack of the latter type of research, stating that, ". . . adequate evidence indicating age differences in beliefs held and problems faced during the adolescent period is not available for ages below college."<sup>4</sup>

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<sup>3</sup> Two of the more recent studies are: Gilbert J. Rich, "Childhood as a Preparation for Delinquency," Journal of Educational Sociology, 27:404-13, 1954; and, John E. Anderson, "The Relation of Attitude to Adjustment," Education, 73:210-18, 1952.

<sup>4</sup> Raymond G. Kuhlen and Martha Arnold, "Age Differences in Religious Beliefs and Problems During Adolescence," Journal of Genetic Psychology, 65:291-300, 1944.

Duvall and Motz,<sup>5</sup> using a questionnaire, attempted to find relationships between chronological age and personal family adjustment. They had limited success, but established nothing this study could draw upon. The problem check list approach was used by Mooney<sup>6</sup> in his measurement of 330 high school students. The result most significant to this study is that the freshman class (no specific ages were given) tended to be more concerned with health problems than the higher classes.

A ten year longitudinal study of personality recently completed by Paulsen<sup>7</sup> allows hypotheses especially pertinent to the problem at hand. The author after testing thirty school children with the Rorschach at six, eight, ten, and twelve years of age, conducted a follow-up interview program with each at their sixteenth year, and concluded that:

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<sup>5</sup> Evelyn M. Duvall and Annabelle B. Motz, "Age and Education as Factors in Social Experience and Personal Family Adjustments." School Review, 53:413-21, 1945.

<sup>6</sup> Ross L. Mooney, "Surveying High School Students' Problems by Means of a Problem Check List," Educational Research Bulletin, 21:57-69, 1942.

<sup>7</sup> Alma A. Paulsen, "Personality Development in the Middle Years of Childhood: A Ten Year Longitudinal Study of Thirty Public School Children by Means of Rorschach Tests and Social Histories," American Journal of Orthopsychiatry, 24:336-50, 1954.



. . . The development of personality is a uniquely organized, complex and dynamic process intimately associated with maturation. The process appears to be an inwardly determined one, affected by, but not conditional upon, social and other environmental factors . . . for the basic developmental sequences seemed quite general . . . despite traumatic incidents, unfavorable family environments, cultural and economic deprivations, etc. The development of personality is revealed as a process of nature evolving out of the potentials within the psyche, rather than a process which is instilled or controlled from without.<sup>8</sup>

Powell's<sup>9</sup> newly-published dissertation related in part to this study. He tested groups of pre-adolescents, adolescents, and young adults with a word-association test ". . . to determine the chronological ages at which the greatest intensity of psychological conflict is manifested in various areas of adjustment."<sup>10</sup> The test was standardized by Powell to measure degree of conflict in several areas (i.e., "Parent-Child Relationships," "Social Acceptability," etc.). His results did not statistically substantiate his hypothesis but did indicate that conflicts appeared earlier for females, and that adolescence is the period of maximum

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<sup>8</sup> Ibid., p. 349.

<sup>9</sup> Marvin Powell, "Age and Sex Differences in Degree of Conflict Within Certain Areas of Psychological Adjustment," Psychological Monographs: General and Applied, (No. 387) Vol. 69, No. 2; 1955, 14 pp.

<sup>10</sup> Ibid., p. 1.

conflict.<sup>11</sup>

Contribution of this study. This study investigated further the hypothetical existence of measurable relationships between age and areas of adjustment difficulty.

Justification and delimitation. The maladjusted adolescent not only presents a sociological problem but a therapeutic one as well. No time can be safely lost in the treatment of the delinquent, for studies have shown that maladjustment is not static but tends to increase in severity with age.<sup>12</sup> Axiomatic as it might be that successful treatment demands correct diagnosis, the diagnostician, limited to the available knowledge, often must classify particular adjustment difficulty as general maladjustment. Research, alone, can put more discriminating tools in his hands.

The literature is replete with quantitative treatments of maladjusted groups, but considerably less are available in which a qualitative analysis was made. Of the latter type, extremely little has been done regarding age differences at the adolescent level, and a real need for further exploration appears to exist.

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<sup>11</sup> Ibid., p. 13.

<sup>12</sup> Rich, and Anderson, op. cit.

This investigation was limited to the search for relationships between age and adjustment in a defined mal-adjusted adolescent group, and no attempts were made to confirm or refute the degree of maladjustment.

Summary. The literature was reviewed, and, as no parallel studies were found, all research which suggested the investigation of age-adjustment relationships was examined. By and large, these studies dealt with quantitative rather than qualitative relationships, and offered little for this study to draw upon. The reports found treating adolescent age-adjustment relationships allowed some positive hypotheses but no reliable conclusions. Relatively little research has been done in this area, and this study contributed to the need for further exploration.



### CHAPTER III

#### DESCRIPTION OF POPULATION AND TESTING

The Los Guilucos School for Girls. This State School is located on Highway 12, about four miles west of Kenwood, California. A training institution of the California Youth Authority, its purpose is the rehabilitation of delinquent girls ranging in age from ten to seventeen years.<sup>13</sup> The age ratio is not constant, and at the time of testing spanned the years fourteen through seventeen.

Racially, the population fluctuates, the latest survey showing it to be approximately 60 per cent White, 25 per cent White (Mexican descent), and 15 per cent Negro.<sup>14</sup> The mental ratings reported in this last tabulation show 55 per cent of the population as "Normal," with the balance dispersed principally in below normal classifications (i.e., "Dull Normal," "Borderline," etc.).<sup>15</sup>

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<sup>13</sup> Beatrice D. Dolan, "Los Guilucos School for Girls," California Youth Authority Quarterly, Vol. 8, No. 2 (Sacramento, California: State Office Bldg. No. 1, Summer, 1955) pp. 9-14.

<sup>14</sup> State of California, "Characteristics of Resident Population of California Facilities for Youth Authority Wards and Youth Authority Parolees on June 30, 1955," Bureau of Criminal Statistics, August 1, 1955.

<sup>15</sup> State of California, op. cit.

Los Guillecos constitutes only a small segment of the total delinquency picture, but it is representative of the problem (and challenge) facing those who search for better ameliorative techniques. The Superintendent of Los Guillecos, in describing her charges, has said:

. . . They have suffered physical abuse, rejection, and condemnation; have been given too much responsibility at times; have been overindulged instead of loved; and have known insecurity and inconsistency in every area.<sup>16</sup>

The Adjustment Inventory (Student Form).<sup>17</sup> This paper and pencil personality inventory provides four scales of measurement: "Home," "Health," "Social," and "Emotional." The sum of the scale scores gives a "Total Adjustment Score." It contains 140 questions pertaining to the above scales which are answered by circling "Yes," "No," or "?." There is no time limit, and twenty-five minutes is the average time for completion. It can be hand-scored quickly and accurately with test-included stencils.

The Inventory was validated by (1) an item-analysis which selected the questions differentiating between extreme scores, (2) a two-year follow-up interview program with four hundred college students, and (3) correlation studies with

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<sup>16</sup> Beatrice D. Dolan, op. cit., p. 12.

<sup>17</sup> Hugh M. Bell, The Theory and Practice of Student Counseling (Stanford: Stanford University Press, 1935).



personality tests already in use.<sup>18</sup> Although developed primarily as a counseling aid, its high reliability allows its research use.<sup>19</sup>

Norms for both sexes are provided for. They were developed by Bell from the scores of high school and college students and institutionalized delinquents.<sup>20</sup>

The Inventory has been used extensively since 1934 in various research studies. Hanawalt has said of it:

. . . The validity apparently is as good as any of the paper and pencil adjustment inventories and better established than most of them. The subtests furnish valuable data concerning adjustment . . . It has proved to be a valuable instrument in research, in schools, and in clinical work . . . its popularity over the years is well justified.<sup>21</sup>

Method of measurement. The population of the school was tested in March, 1955. With the exception of a group in detention at the time, all were tested during the course of

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<sup>18</sup> Hugh M. Bell, Manual for The Adjustment Inventory (Stanford: Stanford University Press)

<sup>19</sup> Hugh M. Bell, op. cit., p. 30.

<sup>20</sup> Ibid., pp. 86-87.

<sup>21</sup> Oscar K. Buros, editor, The Fourth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1953) From opinion by Nelson G. Hanawalt, p. 29.

one day. Those in detention were tested on their return to class several days later.

The program was conducted in the classrooms normally attended by the girls; the regular staff instructors were present. Due to their excellent cooperation, it was not difficult to establish a workable rapport. The classes were not defined as to age, so each one presented a mixed age group.

A numbered test-booklet was given to each girl. At the same time her name was written in the first column of a three column sheet. The second column contained the corresponding number of the booklet she was given, and the third column was blank. It was explained to all groups that at the conclusion of the testing program the names would be used in a file check for the correct birthdate of each person tested. This birthdate would be written in column three and would correspond not only with the name, but the booklet number as well. The name column would then be removed and left at the school as a record of who was tested.

The remaining two columns would have the necessary information of what age achieved what score, but the individual's anonymity would be complete. This explanation of the procedure to be followed appeared to dispel any reticence the girls may have had.



The test was given in the manner outlined in the manual.<sup>22</sup> During the testing, it was necessary to answer many questions regarding the meanings of words not commonly used by the girls, but aside from this they appeared to have no great difficulty with the test. The twenty-five minutes usually needed to complete the test was exceeded by the majority of the girls who required from thirty to forty minutes.

At the conclusion of the program, the files were searched, the corresponding birthdates secured, and the name columns removed and given to the school.

Summary. The population of the Los Guilucos School for Girls was measured. This institution is a training school for delinquent girls ranging in age at the time of testing from fourteen to seventeen years. The latest survey shows the school to have a racial population composed mainly of White, White (Mexican descent), and Negro girls. The mental ratings reported in the survey show 55 per cent of the population as "Normal," with the balance dispersed principally in below normal classifications.

The Adjustment Inventory was used as the measuring

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<sup>22</sup> Hugh M. Bell, Manual for The Adjustment Inventory, (Stanford: Stanford University Press, 1935).

device. It provides four scales of measurement, plus a "Total Adjustment Score," and could be accurately hand-scored. The test's validation was the result of a three part study by the author which included item-analysis, follow-up interviews, and correlations with pre-established tests. Its norms are based upon both normal and delinquent score studies, and are sex-differentiated for high school and college age groups.

The testing program was conducted in the regular classrooms of the Los Guilucos School. Each subject was given a numbered test booklet, and her name was correspondingly noted on a prepared sheet containing the booklet number. At the conclusion of the testing, the names were used as the basis of a file check for correct birthdates. They were then returned to the school in order to guarantee the anonymity of any individual's score. It was noted that the girls had difficulty with some of the words used in the test questions, and that they exceeded the time usually needed to complete the test.

## CHAPTER IV

### TEST RESULTS

A total of one hundred thirteen tests were given, and 102 were scored. The eleven unscored tests consisted of six not completed, and five taken by subjects too young or too old to be included in the measurable age groups offered by the population.

Age-grouped scores. The scored tests were arranged into four age groups: fourteen, fifteen, sixteen, and seventeen year olds; containing twenty-one, thirty-one, twenty-eight, and twenty-two subjects, respectively. In order to provide a basis for further manipulation of the scores, at certain times the two younger age groups were considered as a single group as were the two older. Figure 1 clarifies further the age distributions of the different groups. The mean scores of the groups were computed from the raw scores,<sup>23</sup> and are tabulated in Table I, page eighteen.

Norms. The norms prepared by Bell for his test are presented in Table II, on page nineteen.

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<sup>23</sup> The Raw Score Table is included in the Appendix.



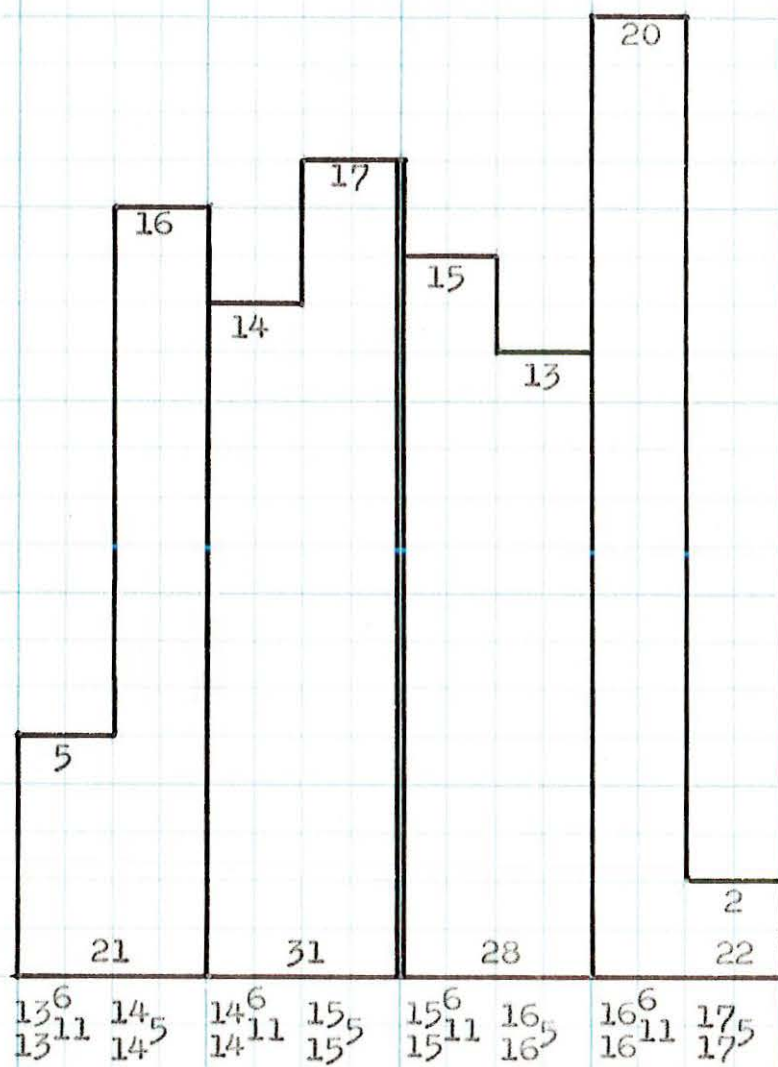


FIGURE 1

AGE DISTRIBUTION OF GROUPS

TABLE I  
ADJUSTMENT INVENTORY GROUPED MEAN SCORES

Scales	Age groups			
	<u>14 yrs.</u> (N= 21)	<u>15 yrs.</u> (N= 31)	<u>16 yrs.</u> (N= 28)	<u>17 yrs.</u> (N= 22)
Home	16.2	13.0	14.4	16.8
Health	12.6	9.4	10.4	10.5
Social	17.0	15.6	16.1	16.5
Emotional	17.1	16.9	18.6	17.2
	<u>14 &amp; 15 yrs.</u> (N= 52)		<u>16 &amp; 17 yrs.</u> (N= 50)	
Home	14.3		15.4	
Health	10.7		10.4	
Social	16.2		16.3	
Emotional	17.0		18.0	

TABLE II

## ADJUSTMENT INVENTORY NORMS FOR HIGH SCHOOL AGE FEMALES

	0-2	Excellent
	3-5	Good
Home .....	6-13	Average
	14-20	Unsatisfactory
	Above 20	Very unsatisfactory
	0-1	Excellent
	2-4	Good
Health .....	5-11	Average
	12-16	Unsatisfactory
	Above 16	Very unsatisfactory
	0-4	Very aggressive
	5-10	Aggressive
Social .....	11-21	Average
	22-30	Retiring
	Above 30	Very retiring
	0-3	Excellent
	4-8	Good
Emotional ...	9-18	Average
	19-24	Unsatisfactory
	Above 24	Very unsatisfactory
	0-15	Excellent
	16-31	Good
Total .....	32-57	Average
	58-74	Unsatisfactory
	Above 74	Very unsatisfactory

Areas of maladjustment. Using Bell's norms, the scale adjustment ratings of the groups were found. (The "Total" adjustment ratings were not considered consequential to the study of particular adjustment difficulty, and were not included in the survey.) Figures 2 and 3 show graphically the scores achieved by the different groups on the scales.

"Unsatisfactory" adjustment on the Home scale was common to the fourteen, sixteen, and seventeen year old groups. In addition, the fourteen year olds scored "unsatisfactory" on the Health scale, and the seventeen year old group bordered on "unsatisfactory" Emotional adjustment.

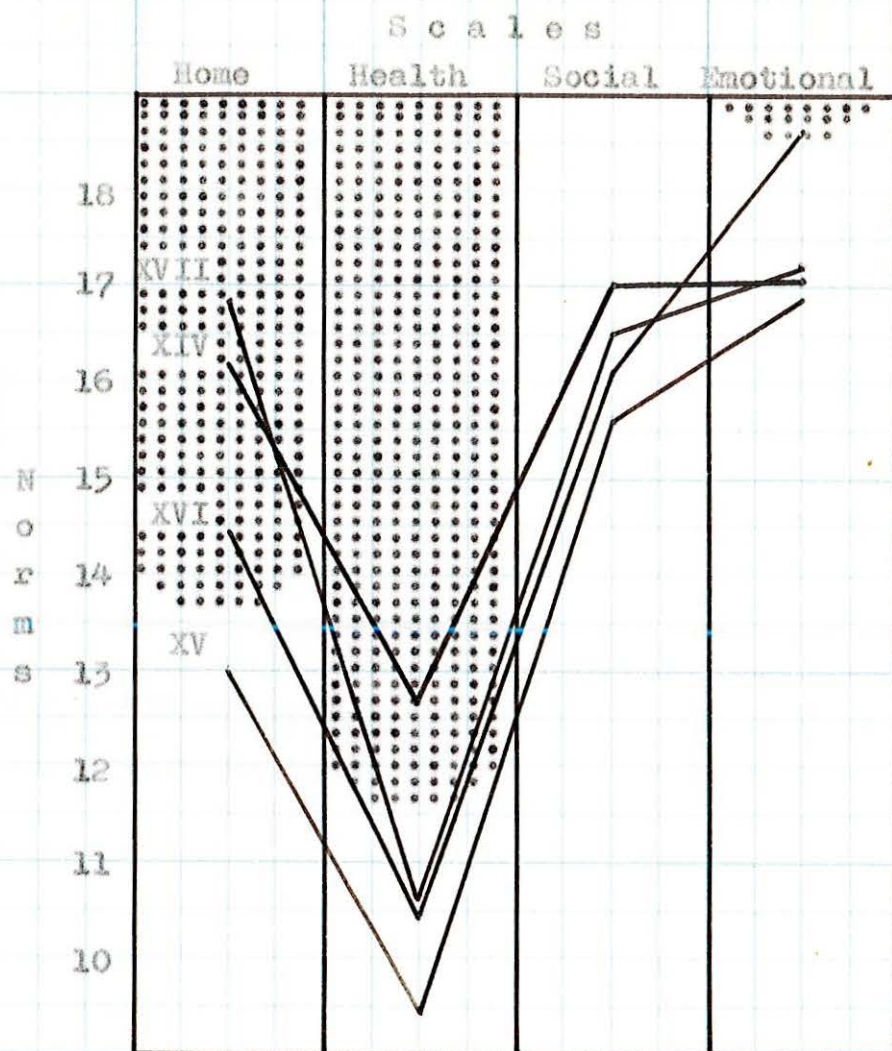
It will be noted that the fifteen year olds scored "satisfactory" on all four scales. The reasons for this peculiarity are not known and can only be speculated upon. The writer corresponded with Bell regarding this unexpected pattern. Bell stated that although the tested population was not large enough to justify definite conclusions the results were very suggestive and warranted further study.<sup>24</sup> Speculatively, he said:

. . . This difference can naturally be explained only after careful study. My guess might be that girls at that age are in the process of breaking away from the dependency relationship of the home and achieving a feeling of security and acceptance outside the home. This difference

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<sup>24</sup> Correspondence from Hugh M. Bell to writer dated September 29, 1955.

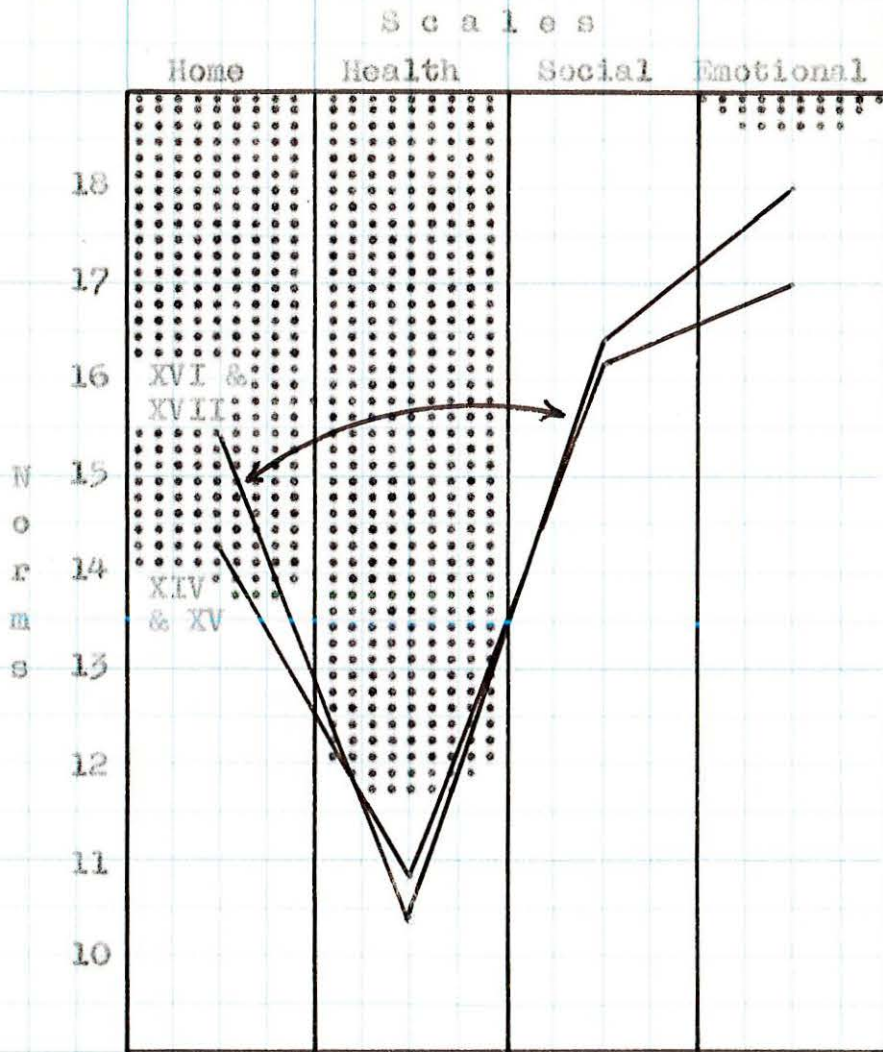




Dotted areas involve unsatisfactory adjustment.  
Roman numerals used to show age groups.

FIGURE 2

SCALE SCORES OF AGE GROUPS (FOUR)



Dotted areas involve unsatisfactory adjustment.  
Roman numerals used to show age groups.

FIGURE 3

SCALE SCORES OF AGE GROUPS (TWO)

might be related to that. On the other hand, it might turn out to be just a chance variation.<sup>25</sup>

The satisfactory scores of the delinquent fifteen year old group seemed inconsistent with their defined status, and at least questioned the reliability of the test's norms.

Stockton High School scores. It was hypothesized that norms standardized to general age groups might not be applicable to specific ages within the general group. Adjustment Inventory scores were solicited from several California high school districts. Many districts responded, but the only scores pertinent were collected from Stockton High School in Stockton, California. Their records yielded 252 sets of raw scores which the writer grouped according to age in the same manner as the test population. The mean scores<sup>26</sup> of the age groups were computed and rated on the Inventory norms. They showed consistent (and satisfactory) adjustment ratings, and no age group peculiarity as was evidenced in the Los Guilucos test group.

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<sup>25</sup> Correspondence from Hugh M. Bell to writer dated September 19, 1955.

<sup>26</sup> The Stockton High School mean scores are included in the Appendix.



Summary. One hundred two tests were arranged into four age groups: fourteen, fifteen, sixteen, and seventeen year old; containing twenty-one, thirty-one, twenty-eight, and twenty-two subjects, respectively. At times, the two younger age groups were treated as a single group, as were the two older. The mean scores of the different groups were computed from the raw scores and rated on the test's norms. The fourteen, sixteen, and seventeen year old groups showed evidences of unsatisfactory adjustment, but the fifteen year olds scored "satisfactory" throughout. The meaning of this inconsistency is not understood. Unless the peculiarity can be laid to chance, the norms must fall under suspicion. It was hypothesized that norms standardized for general age groups might not be applicable for specific ages within the general group. Over 250 scores collected from Stockton High School in Stockton, California, were rated on the Inventory norms, but the peculiarity present in the test population was not manifested in the Stockton scores.

## CHAPTER V

### RELIABILITY OF DIFFERENCES

Although all uneven numbers were carried to at least two decimal places and contain three figures, the use of slide rule computations necessitates their being considered as containing only two significant figures. The standard of reliability used throughout the analysis was arbitrarily placed at the .05 level of confidence.

Reliability of group means. Table III contains the standard deviation (SD) and standard error (SE) of each group scale mean. Both measures were sufficiently reliable at the .05 level of confidence to warrant further statistical analysis, the SE's showing a possible plus or minus variance of approximately 1.5 to 3.5 scale points<sup>27</sup> when tested against "Student's" distribution (Table of "t").<sup>28</sup> The smallest SE's were obtained from the Health scale means. It will be noted that they show a gradual increase with the age of the test groups; "t" showing the outside limits to be plus or minus

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<sup>27</sup> This variance, while not significantly affecting the statistical validity of the study, must be considered as indicative of reliability insofar as adjustment ratings are concerned. This is discussed in Chapter VI, p. 37.

<sup>28</sup> Henry E. Garrett, Statistics in Psychology and Education (third edition; New York: Longmans, Green and Co., 1950), p. 190.

TABLE III

## STANDARD DEVIATIONS AND STANDARD ERRORS OF GROUPED SCORES

Scales	Age groups							
	14 yrs. (N= 21)*		15 yrs. (N= 31)		16 yrs. (N= 28)		17 yrs. (N= 22)	
	SD	SE	SD	SE	SD	SE	SD	SE
Home	6.33	1.41	7.01	1.28	7.54	1.45	7.69	1.68
Health	3.80	.850	4.67	.855	5.07	.977	5.20	1.14
Social	5.57	1.25	6.89	1.26	6.50	1.25	6.94	1.51
Emo.	5.68	1.27	8.43	1.54	5.71	1.10	6.35	1.39

	14 & 15 yrs. (N= 52)		16 & 17 yrs. (N= 50)	
	SD	SE	SD	SE
Home	6.74	.945	7.70	1.10
Health	4.63	.650	5.12	.733
Social	6.42	.900	6.69	.956
Emotional	7.45	1.04	6.03	.862

\* Standard error based on N-1 correction.



1.78 scale points for the fourteen year old group, and plus or minus 2.37 scale points for the seventeen year old group. The SE's of the other scales varied with the age groupings but showed no consistent pattern of increase or decrease.

As a further check, the SD's and SE's were compared with, and found to statistically approximate, the delinquent girl measures reported in Bell's norm study.<sup>29</sup>

Comparison of group means. The method of comparison and the results of the statistical analysis made to determine the significance of differences between means of the different age groups on the same scale are shown on Tables IV, V, VI, and VII; referring to the Home, Health, Social, and Emotional scales, respectively.

Using Garrett's formulas,<sup>30</sup> the critical ratio (CR) of each comparison was found by dividing the difference between the means (D) by the standard error of the mean difference ( $SE_D$ ). The CR's were checked against "Student's" distribution and the degree of significance (S) found.

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<sup>29</sup> Hugh M. Bell, Manual for The Adjustment Inventory, (Stanford: Stanford University Press, 1935) pp. 131-35.

<sup>30</sup> Garrett, op. cit., pp. 197-98.



TABLE IV

STANDARD ERRORS OF THE DIFFERENCES BETWEEN MEANS ( $SE_D$ ),  
OBTAINED DIFFERENCES (D), CRITICAL RATIOS (CR), AND SIG-  
NIFICANCE (S) OF DIFFERENCES BETWEEN GROUP SCORES ON THE  
HOME SCALE

Group comparisons	$SE_D$	D	CR	S*
14 vs. 15	1.91	3.2	1.68	.10
14 vs. 16	2.02	1.8	.892	.50
14 vs. 17	2.19	.6	.274	--
15 vs. 16	1.93	1.4	.726	.50
15 vs. 17	2.11	3.8	1.80	.10
16 vs. 17	2.22	2.4	1.08	.50
14 & 15 vs. 16 & 17	1.45	1.1	.760	.50

\* "Student's" distribution used; Garrett, p. 190.

TABLE V

STANDARD ERRORS OF THE DIFFERENCES BETWEEN MEANS ( $SE_D$ ),  
OBTAINED DIFFERENCES (D), CRITICAL RATIOS (CR), AND SIG-  
NIFICANCE (S) OF DIFFERENCES BETWEEN GROUP SCORES ON THE  
HEALTH SCALE

Group comparisons	$SE_D$	D	CR	S*
14 vs. 15	1.20	3.2	2.67	.02 <sup>r</sup>
14 vs. 16	1.30	2.2	1.69	.10
14 vs. 17	1.42	2.1	1.48	.50
15 vs. 16	1.30	1.0	.77	.50
15 vs. 17	1.43	1.1	.77	.50
16 vs. 17	1.50	.1	.067	--
14 & 15 vs. 16 & 17	.98	.3	.306	--

\* "Student's" distribution used; Garrett, p. 190.

<sup>r</sup> Bordering on .01 level of confidence (CR 2.68).

TABLE VI

STANDARD ERRORS OF THE DIFFERENCES BETWEEN MEANS ( $SE_D$ ),  
OBTAINED DIFFERENCES (D), CRITICAL RATIOS (CR), AND SIG-  
NIFICANCE (S) OF DIFFERENCES BETWEEN GROUP SCORES ON THE  
SOCIAL SCALE

Group comparisons	$SE_D$	D	CR	S*
14 vs. 15	1.78	1.4	.787	.50
14 vs. 16	1.77	.9	.508	---
14 vs. 17	1.96	.5	.255	---
15 vs. 16	1.78	.5	.281	---
15 vs. 17	1.97	.9	.456	---
16 vs. 17	1.96	.4	.204	---
14 & 15 vs. 16 & 17	1.31	.1	.076	---

\* "Student's" distribution used; Garrett, p. 190.

TABLE VII

STANDARD ERRORS OF THE DIFFERENCES BETWEEN MEANS ( $SE_D$ ),  
OBTAINED DIFFERENCES (D), CRITICAL RATIOS (CR), AND SIG-  
NIFICANCE (S) OF DIFFERENCES BETWEEN GROUP SCORES ON THE  
EMOTIONAL SCALE

Group comparisons	$SE_D$	D	CR	S*
14 vs. 15	2.0	.2	.10	---
14 vs. 16	1.68	1.5	.895	.50
14 vs. 17	1.88	.1	.053	---
15 vs. 16	1.89	1.7	.90	.50
15 vs. 17	2.07	.3	.145	---
16 vs. 17	1.77	1.4	.791	.50
14 & 15 vs. 16 & 17	1.35	1.0	.740	.50

\* "Student's" distribution used; Garrett, p. 190.



Significant differences. The difference between the fourteen and fifteen year old groups on the Health scale was found to be significant at the .02 level, and bordering on the .01 level (see Table V, p. 29). As such a difference could hardly be attributed to sampling errors, the null hypothesis<sup>31</sup> was rejected. No other group differences fell within the arbitrarily chosen .05 limits, and, in these cases, the null hypothesis was retained.

Summary. The SD and SE of each group scale mean was computed and found to be reliable at the .05 level. The lowest SE's obtained were from the Health scale means; they showed a gradual and consistent increase with the age of the test groups. This peculiarity was not evidenced by any other scale SE's. The SD's and SE's were found to statistically approximate the measures obtained by Bell in his testing of delinquent girls. The CR of each comparison was computed and its level of significance checked. The only significant difference found was between the fourteen and fifteen year old groups on the Health scale.

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<sup>31</sup> Ibid., p. 232.

## CHAPTER VI

### SUMMARY AND CONCLUSIONS

#### I. GENERAL SUMMARY

To test the hypothesis that subtle growth changes predispose individuals of corresponding ages to particular maladjustment patterns, this study searched for statistically significant relationships between age and particular areas of maladjustment in a population of delinquent teenage girls.

The literature was reviewed, and, as no parallel studies were found, all research which suggested the investigation of age-adjustment relationships was examined. With few exceptions, these studies dealt with quantitative rather than qualitative relationships and lent but little aid to this investigation. The qualitative treatments found allowed some favorable hypotheses but no definite conclusions.

The measured population included 102 wards of the Los Guillucos School for Girls, a State correctional institution in Sonoma County, California. The girls were mixed racially, and at the time of testing ranged in age from fourteen to seventeen. Mental ratings reported in a recent survey showed 55 per cent of the population as "Normal," with the balance dispersed principally in below normal classifications.



The Adjustment Inventory was used as the measuring device. A paper and pencil test, it contains 140 questions which purport to measure four areas of adjustment. It supplies its own norms which were compiled from both normal and delinquent score studies. They are sex-differentiated for high school and college age groups.

The testing program was conducted in the regular classrooms of the Los Guilucos School. Rapport was not difficult to establish due to the fact that the program was conducted in such a manner as to guarantee anonymity to any individual score. The girls had difficulty with some words not commonly used by them, and they exceeded the usually needed time to complete the test.

One hundred two tests were scored, and arranged into four age groups: fourteen, fifteen, sixteen, and seventeen year old, containing a comparative number in each. The mean scores of the different groups were rated on the test's norms. While the other groups showed evidences of unsatisfactory adjustment, the fifteen year olds scored "satisfactory" throughout. This peculiarity brought the norms under suspicion, and over 250 scores from Stockton High School, Stockton, California, were rated on the same norms. They showed consistent adjustment ratings, and no age group peculiarity.

The standard deviations and standard errors of each



group scale mean was computed and found to be reliable at the .05 level of confidence. The lowest standard errors, obtained from the Health scale means, showed a gradual and consistent increase with the age of the test groups. The critical ratio of each comparison was computed, and its level of significance checked. The only significant difference found was between the fourteen and fifteen year old groups on the Health scale.

## II. CONCLUSIONS

In general, the statistical analysis did not yield the significant differences necessary to corroborate the study's hypothesis. However, the exceptionally high significance of the Health scale difference between the fourteen and fifteen year olds allowed the rejection of the null hypothesis and deserves some special consideration. It can be stated with statistical confidence that the scores of the fourteen year olds were significantly higher than the fifteen year olds, insofar as the Health scale is concerned. While this fact alone does not show the presence of age-adjustment relationships, it can be seen as a positive sign in that direction. Too, the consistency with which the Health standard errors increased with the age of the test groups allows some further speculation towards an undefined, but positive, relationship, and as such might be corroborative

of Mooney's study discussed in Chapter II, on page six.

### III. FURTHER STUDIES NEEDED

The singular presence of a significant difference in the Health scale scores of the two youngest groups coupled with the consistent age increase of the Health standard errors (which in effect would allow less significance to older group differences), suggests the possibility that the measure was more affected by "years since menarche," than the less defined "longevity factor." It is possible that Health scale differences between younger than measured groups would show equal or greater significance as the age of menarche is approached. Further investigation along this line is recommended. In addition, it is suggested that other measuring devices be used to test the same and similar populations to find if comparable relationships consistently appear.

Even though the "satisfactory" adjustment ratings of the fifteen year old group can be explained on the basis of the standard error, which showed a plus or minus variance large enough to allow "unsatisfactory" score interpretations, it is suggested that investigations be made relative to the validity of norms standardized to general age groupings. A preliminary step in that direction, incorporated in this study, failed to find any weakness in the norms used.

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## APPENDIX



## APPENDIX I

## ADJUSTMENT INVENTORY GROUPED RAW SCORES

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Scales	Age groups			
	<u>14 yrs.</u> (N= 21)	<u>15 yrs.</u> (N= 31)	<u>16 yrs.</u> (N= 28)	<u>17 yrs.</u> (N= 22)
Home	340	402	402	369
Health	264	290	290	231
Social	357	485	451	364
Emotional	360	523	520	379

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	<u>14 &amp; 15 yrs.</u>	<u>16 &amp; 17 yrs.</u>
Home	742	771
Health	554	521
Social	842	815
Emotional	883	899

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## APPENDIX II

## STOCKTON HIGH SCHOOL MEAN SCORES

Scales	Age groups			
	<u>14 yrs.</u> (N= 53)	<u>15 yrs.</u> (N= 69)	<u>16 yrs.</u> (N= 80)	<u>17 yrs.</u> (N= 50)
Home	9.8	11.8	10.8	11.4
Health	9.65	10.6	9.3	10.6
Social	16.8	15.4	14.1	15.5
Emotional	13.6	14.4	14.1	16.9
	<u>14 &amp; 15 yrs.</u>		<u>16 &amp; 17 yrs.</u>	
Home	10.9		11.0	
Health	10.2		9.8	
Social	16.0		14.7	
Emotional	14.0		15.2	