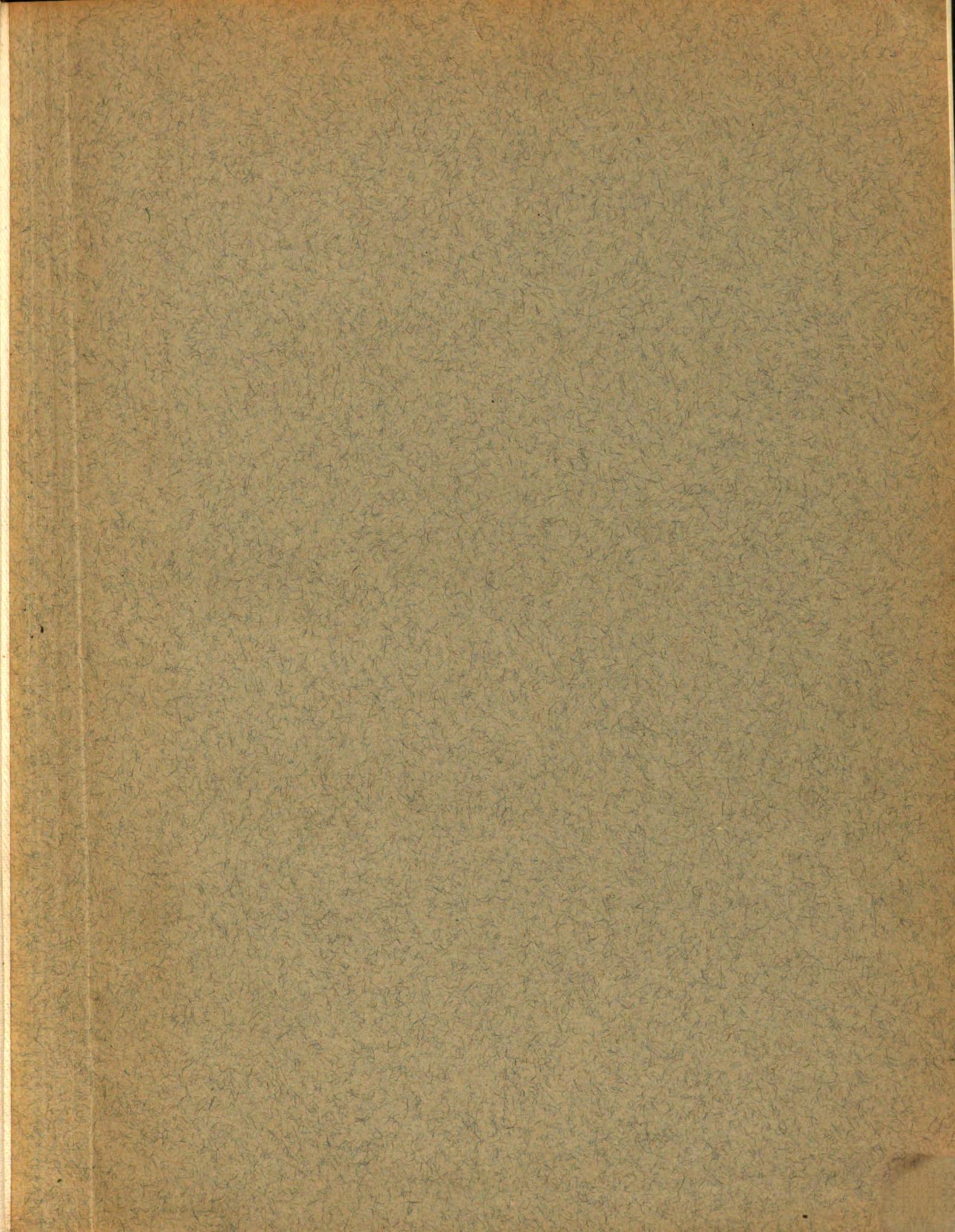


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A COMPARISON OF THE RESULTS
OF TEACHER-DIRECTION AND
TEACHER-ASSISTANCE IN THE
PRESENTATION OF AMERICAN
AND ENGLISH LITERATURE TO
HIGH SCHOOL CLASSES

Thesis for the Degree of M. A.
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Mable C. Tenhaaf
1940

THESIS



A COMPARISON OF THE RESULTS OF TEACHER-DIRECTION
AND TEACHER-ASSISTANCE IN THE PRESENTATION
OF AMERICAN AND ENGLISH LITERATURE TO HIGH SCHOOL CLASSES

by

Mable Cornelia Tenhaaf

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1940

THESIS

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CHAPTER I

A DESCRIPTION OF TEACHER-DIRECTION AND TEACHER ASSISTANCE,
TWO METHODS OF PRESENTING LITERATURE TO HIGH SCHOOL CLASSES

CHAPTER I

A DESCRIPTION OF TEACHER-DIRECTION AND TEACHER-ASSISTANCE, TWO METHODS OF PRESENTING LITERATURE TO HIGH SCHOOL CLASSES

Statement of the problem. The problem proposed for consideration in this thesis is a comparison of the results of teacher-direction and teacher-assistance in the presentation of English and American literature to senior high school classes. The experiment was made to discover whether the two methods of procedure would produce measurable differences in results.

No attempt has been made to justify the study as a contribution to general educational practice. It was undertaken with the sole purpose of meeting a definite need in the writer's own work. Experiments which, even though similar, might be performed under slightly different circumstances might produce results quite different from those that have been given here.

Origin of the problem. A generally accepted principle of teaching is that the pupil learns to do a thing by actually doing it, and that learning is effective to the degree that the pupil participates in the activity. If this is true, pupils might, perhaps, be expected to gain as much from studying literature by themselves as from having it explained to them by the teacher. Many pupils, however, have said that they could not understand some of the selections they were supposed to study unless these were read and explained by the teacher, or that they did not get as much enjoyment from the selections which they read by

themselves.

Out of this apparent contradiction grew the problem which the writer tried to solve to improve instruction with future classes. There were no preconceived ideas as to what the results would be, nor was there any preference for a particular method of teaching. The only interest was to discover, if possible, the relative effectiveness of (1) individual study by the pupils under the direction of the teacher, and (2) interpretation and explanation by the teacher to the pupils so that the method which produced the better results might be used with other classes.

Review of the literature in the field. Few studies have been made of comparative methods of teaching English. Buswell¹ says,

Approximately sixty reports were found which attempt to make more or less direct comparison between one method of teaching and another... Fourteen studies were found to illustrate the method of two group comparisons as related to reading and language.

Spelling, writing, social science, natural science, and mathematics were the other subjects listed as included in the reports. Apparently there were no studies dealing with comparative methods in teaching literature, for none were mentioned among the sixty.

Studies relating to any phase of literature are, indeed, very few. Smith² stated in the Review of Educational Research for February, 1938,

There are only three studies in the teaching of literature as opposed to seventy-three in the field of reading, within the last four years, except as some of the fifteen in extensive reading may be said

¹G. T. Buswell, "Methods of Teaching." Review of Educational Research, 3:316-317, October, 1933.

²Dora V. Smith, "English Language, Reading, and Literature." Review of Educational Research, 8: 25-33, February, 1938.

to involve literary appreciation.

Of the three studies mentioned by Smith one by Carroll³ dealt with various ways of reading novels, one by Moran⁴ dealt with the construction of tests for measuring poetry aptitudes of teachers of English, and one by Block⁵ with a comparison of two methods of teaching English literature to make it seem more vital to the pupils. This last is really a study of pupil interests in reading.

The methods used by the present writer suggest a slight similarity to Payne's⁶ study made for a doctor's thesis in the field of science, a comparison of the lecture-demonstration and individual laboratory methods. Undoubtedly many such studies have been made, but the results have not been published.

Sources of data. The experimental method of research was employed in procuring the data used in this study. During the second semester of the school year 1938-1939 the writer conducted an experiment in the eleventh and twelfth grade English classes at Ottawa Hills High School in Grand Rapids, Michigan. The data used in this thesis were obtained from the results of this experiment. The classes were taught by the same teacher; the same textbook was used; the supplementary material

³Elinor W. Carroll, "How Do Good Readers Read Novels?" English Journal College Edition, 23: 157, February, 1934.

⁴Mary E. Moran, "Construction of Three Tests Designed to Measure Certain Poetry Aptitudes of Teachers of English at the High School Level Holding an A.B. or B.S. Degree or Better," Teachers College Journal, 6: 152-167, March, 1935.

⁵Virginia L. Block, "Can We Vitalize English? A Controlled Experiment with Two Methods in English," English Journal, 25: 633-652, October, 1936.

⁶Virgil F. Payne, The Lecture-Demonstration and Individual Laboratory Methods Compared. Unpublished Doctor's thesis, University of Kentucky, 1932. Pp. 27.

and the objective tests used were the same. Every effort possible was made to eliminate all but a single variable, a difference in methods of study.

Delimitation of the problem. The objectives of a course in literature are many and varied. The writer believes that certain skills in reading should be acquired, definite habits of reading and study should be formed, desirable attitudes encouraged, and, in spite of the frequent protests against teaching literature merely as so many facts, certain definite facts must be learned before intelligent appreciation is possible. There is considerable difference of opinion as to the number of these objectives which it is possible to measure adequately. For some which it may be possible to measure no satisfactory tests are available.

In reality, there are as yet few evaluation instruments available for literature which meet the requirements for such instruments....A cursory examination of the literature tests now available commercially will quickly reveal the general inadequacy of such instruments for the larger purposes of evaluation.⁷

Other problems arise from the fact that many portions of such tests as are available are not adapted to the textbooks which may be in use or to the grade level where they are desired.

Because of these difficulties the experiment was limited to one phase of the problem, the measurement of the facts learned. Do pupils master more facts about literature when they study them out for themselves under the direction of the teacher, or do they master more facts when the teacher explains and interprets the literature for them? This

⁷Carlton C. Jones, "Evaluating Achievement in Literature," Educational Methods, 15: 416-421, May, 1936.

was the question which the writer tried to answer. Skills, habits, and appreciations were not forgotten, but no attempt was made to measure these other objectives.

Definition of terms. The terms "teacher-direction" and "teacher-assistance" can, perhaps, be best explained by relating what the work of the teacher was in each group. During the study part of the class period the teacher gave to the directed group suggestions for study, questions to be answered and comparisons to be made, and provided references to additional material. This supplementary material was used to show the pupils how to analyze selections, but care was taken to use nothing on which the class was to be tested later. For the assisted group the teacher read with the class the material on which they were to be tested, analyzing and explaining the selections and answering whatever questions the pupils cared to ask. Pupil participation in the assisted group consisted of listening to the teacher's explanations, asking questions about things not understood, and taking part in frequent informal discussions of topics being considered. During the first twenty-five minutes of the class period the same method was followed with the two groups. Usually there was first a brief review, sometimes oral and sometimes written. This was followed by the assignment. The rest of the twenty-five minutes was used for recitation or class discussion, care being taken in both classes to avoid the topics on which the pupils were to be tested later. The pupils were directed or assisted only during the thirty-minute study portion of the class period.

CHAPTER II

AN EXPLANATION OF THE PROCEDURE USED IN CARRYING OUT
THE EXPERIMENT

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AN EXPLANATION OF THE PROCEDURE USED IN CARRYING OUT THE EXPERIMENT

A. THE PLAN USED WITH GROUPS A AND B, THE TWO CLASSES IN ENGLISH LITERATURE

Time of meeting. Two of the five classes used by the writer in this experiment were in the 12A grade. One class met the third period in the day, the hour just preceding the lunch period, and the other met the sixth period, the middle of the afternoon session. Whether the time of meeting influenced the results in any way was not determined. The number of interruptions was about the same in the two classes.

Test material used. English literature of the nineteenth and twentieth centuries was taught to these 12A classes. There were eight units of work, each requiring approximately two weeks. For each unit there was an objective test of about one hundred questions prepared by the authors of the textbook. By selecting two hundred questions--one hundred true-false, fifty multiple choice, and fifty matching--from these unit tests, an objective-type test for the work of the entire semester was prepared for use as a pre-test and also as a re-test. Because this was not a standardized test, the writer checked the reliability of the results by finding the coefficient of correlation between the odd and even answers. It was .91 ± .015.

Eight unit tests were given during the semester, but the scores

were not included in the data because absences and other irregularities served to make the reports incomplete. Although the same unit tests were used with both classes, there was very little opportunity for the second class to receive help from the earlier one, for the tests were usually dictated. The pupils knew, also, that the papers for the two classes were stacked and marked according to a normal distribution curve so that any help given the afternoon class would tend to lower the marks of the morning class. The test scores were posted for each test so the pupils could see where they ranked in the group of fifty-six. Interest in the test scores motivated the work to a degree which had not been anticipated by the teacher.

Procedure used with group A. In the morning class the first twenty-five minutes was used for review, for assignments, and for recitation. At the beginning of the semester during the thirty-five minute study portion of the period the teacher read to the pupils selections from supplementary material. These selections were then discussed with the class to discover the meaning, the author's purpose in writing, elements of style that should be noted, the relationship of the material to other writings studied or to present day situations. Pupils were helped to recognize significant items about an author or period. After the first few weeks the pupils studied without this help. The teacher still provided additional references and gave the pupils suggestions for study, however. At no time was the material on which the pupils were to be tested analyzed for them. For convenience this teacher-directed class has been called group A.

Procedure used with group B. In the afternoon class the same pro-

cedure was used for the first twenty-five minutes as was used with the morning class. During the last thirty minutes, however, the teacher did not use supplementary material as was done with the morning class. Instead, material on which the pupils were to be tested later was read and discussed. This procedure was followed throughout the semester. For convenience this teacher-assisted class has been called group B.

TABLE I

A COMPARISON OF THE MEANS OF GROUPS A AND B, TWO CLASSES IN ENGLISH LITERATURE, IN AGE, I.Q., AND HONOR-POINT RATING

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	A	28	17- 6	113.85	2.42
Teacher-assisted	B	28	17- 4	115.89	2.50

Comparison of the records of groups A and B. Because of problems in administration only a few changes in the membership of the classes could be made. It was possible to adjust the numbers so that there were twenty-eight pupils in each class. Table I shows the record of the two classes. The ages, I.Q.'s, and the record of marks for previous semesters for finding the honor-point rating for each pupil were obtained from the cumulative files which are kept in the school office. The intelligence tests in most cases had been given in the tenth grade. In a few cases I.Q.'s from tests given in the seventh grade were used. In figuring the honor-point ratings all the marks except those given

in physical education and music were counted. These were omitted because they do not give five hours of credit a semester as do the marks which were used. In the system of marking used A equals four points, B three, C two, and D one. Marks for the ninth grade and above were counted. In group A* the I.Q.'s ranged from 132 to 90; in group B** the range was slightly less, from 131 to 92. In honor-point rating the range for group A was 2.50 and for group B 2.90. Marks in English for the previous semester were at first considered as a basis for comparison, but the total honor-point rating seemed a more desirable measure.

TABLE II

A COMPARISON OF THE MEANS OF GROUP A AFTER ADJUSTING ON THE BASIS OF I.Q.'S AND GROUP B IN AGE, I.Q., AND HONOR-POINT RATING

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	A Adjusted	26	17- 5	115.61	2.55
Teacher-assisted	B	28	17- 4	115.89	2.50

Comparison of the records of group A adjusted on the basis of I.Q.'s and group B. As one check on the experiment group A was adjusted to match more nearly group B in I.Q.'s. By drawing out the records of two pupils from group A the mean I.Q. became only .28 lower than that of group B. The difference in honor-point rating was, however, increased slightly.

*See Page 29 in the Appendix.

**See Page 30 in the Appendix.

TABLE III

A COMPARISON OF THE MEANS OF MATCHED PAIRS OF PUPILS FROM GROUPS
A AND B IN AGE, I.Q., AND HONOR-POINT RATING

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	A Pairs	13	17- 4	117.00	2.73
Teacher-assisted	B Pairs	13	17- 6	116.53	2.73

Comparison of the records of matched pairs of pupils from groups A and B. As a further check individual pupils from group A were paired with individual pupils from group B in age, I.Q., and honor-point rating. Except in one case* the age difference was six months or less. The pair which was an exception differed in age by a year and three months, but it was included because there was a difference of only one point in I.Q.'s and a difference of .01 in honor-point ratings. The I.Q.'s of the matched pupils did not vary by more than three points nor the honor-point ratings by more than .13 except in two cases. In one case the difference was .22 and in the other .18. The mean I.Q. for the pairs from group A was .47 larger than that for group B. In honor-point ratings the matched pairs from the two groups were identical. No attempt was made to match boys with boys and girls with girls, for the numbers were too few and the differences in the scores made on the tests did not seem significant.**

*See Page 32 in the Appendix.

**See Page 43 in the Appendix.

B. THE PLAN USED WITH GROUPS C, D, AND E, THE THREE CLASSES
IN AMERICAN LITERATURE

Procedure used with groups C, D, and E. In the three 11A classes used in this experiment the writer taught American literature of the period since the Civil War. Of the class hour twenty-five minutes was used for recitation and thirty minutes was used for study just as with the twelfth grade classes. One class, designated group C, met the first hour in the morning, and another, group D, met the first period after lunch. In both of these classes the teacher directed the study as was done with group A in the twelfth grade. The third class, group E, met the last hour in the day. In this class the teacher assisted the pupils as was done for the B group in the twelfth grade.

Several factors beyond the writer's control may have influenced the results with these classes. Numbers could not be adjusted as had been done in the twelfth grade. In group C there were twenty-nine pupils; in group D there were twenty-four; and in group E there were thirty-two. Group D met in the English room where the tables were usually arranged in a hollow square and the teacher sat with the group. At one end of the room was a stage which could be used whenever desired. A piano was available for use when the class studied folk songs. There were very few interruptions in this class. All of these factors made possible an informality and ease which were not present to the same degree in the other classes. They also permitted the teacher to give the pupils more individual attention. How much the results of group E, meeting the last hour in the day, may have been influenced by fatigue there was no way of determining. There were also many more absences in this class than in

either of the other two classes.

Test material used. As in the twelfth grade an objective-type pre-test was given, and a re-test was given at the end of the semester. There were fewer units of work in the eleventh grade than in the twelfth because literature constitutes about half of the work in English for the 11A grade but practically all of the work in English for the 12A grade. The test, which was prepared in the same way as the one for the English literature classes, was less satisfactory. It contained only 150 questions instead of 200. The coefficient of correlation between the odd and even answers for this test was $.53 \pm .0227$, not quite as high as the test for the twelfth grade had been.

Comparison of the records of groups C, D, and E. Table IV shows the records of the classes in American literature. As in the case of the English literature classes the information was obtained from the cumulative files in the school office. Nearly all of the I.Q.'s were from tests given in the tenth grade. A few were from tests that had been given in the seventh or in the eighth grade. In finding the honor-point rating all the marks except those in music and physical education were used as for the English literature classes. The marks of the five preceding semesters were considered. The mean I.Q.'s varied by only 1.52 in the three classes. In group E, however, there were two pupils who had I.Q.'s of 77 while in each of the other two groups the lowest I.Q. was 84, seven points higher. In group C there was a mean honor-point rating of 2.35, in group D a mean honor-point rating of 2.53, and in group E a mean rating of 2.31. Thus in mean honor-points these three classes differed by only .22.

TABLE IV
MEAN AGE, I.Q., AND HONOR-POINT RATING OF GROUPS C, D, AND E

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	C	29	16- 6	107.44	2.35
Teacher-directed	D	24	16-10	107.16	2.53
Teacher-assisted	E	32	16- 7	103.63	2.31

Comparison of the records of groups C, D, and E as adjusted on the basis of I.Q.'s. As a check on the experiment the classes were adjusted on the basis of I.Q.'s as was done with the twelfth grade classes by

TABLE V
MEAN AGE, I.Q., AND HONOR-POINT RATING OF GROUPS C, D, AND E
AFTER ADJUSTING ON THE BASIS OF I.Q.'S

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	C Adjusted	23	16- 6	107.92	2.39
Teacher-directed	D Adjusted	22	16-10	107.87	2.48
Teacher-assisted	E Adjusted	29	16- 8	106.17	2.35

drawing out the records of one pupil from group C, the records of two pupils from group D, and the records of three pupils from group E.

Table V shows the records of groups C, D, and E after these adjustments had been made. The mean ages of the groups varied only four months and the mean I.Q.'s only .30. The honor-point ratings differed by .13. After adjusting, group E, the teacher-assisted group, had the highest mean I.Q. but the lowest mean honor-point rating among the three groups.

Comparison of the records of matched pairs of pupils from groups C, D, and E. As was done with the classes in English literature, individual pupils from the groups were paired for a further check on the experiment. Pupils from groups C and E were matched, pupils from groups D and E, and pupils from the combined C and D groups were matched with pupils from group E. Table VI shows the record of the matched pairs of pupils from the three groups. Again the pupils were matched on the basis of age, I.Q., and honor-point rating, and no attempt was made to match boys with boys and girls with girls. In mean I.Q.'s the matched pairs from groups C and E varied .08; those from groups D and E varied 1.42; and the pairs from the combined C and D groups and group E varied .55. In honor-point ratings the matched pairs from groups C and E were only .01 apart; those from groups D and E were .04 apart. The mean honor-point rating of the pairs from the combined C and D groups was .01 higher than the mean rating of the pairs from group E.

TABLE VI

MEAN AGE, I.Q., AND HONOR-POINT RATING OF MATCHED PAIRS
OF PUPILS FROM GROUPS C, D, AND E

Group	Class	N.	Age	I.Q.	H.P.R.
Teacher-directed	C Pairs	13	16- 6	113.07	2.45
Teacher-assisted	E Pairs	13	16- 5	113.15	2.44
Teacher-directed	D Pairs	12	16-10	109.41	2.23
Teacher-assisted	E Pairs	12	16- 8	110.83	2.32
Teacher-directed	C,D Pairs	20	16- 8	111.70	2.39
Teacher-assisted	E Pairs	20	16- 6	112.25	2.33

CHAPTER III
AN ANALYSIS OF THE RESULTS OF THE EXPERIMENT

CHAPTER III

AN ANALYSIS OF THE RESULTS OF THE EXPERIMENT

A. A COMPARISON OF THE RESULTS IN GROUPS A AND B, THE TWO CLASSES IN ENGLISH LITERATURE

At the beginning of this study the writer hoped to discover whether the two methods to be employed in the experiment would produce results of measurable difference. In no part of the experiment were the differences in results as great as had been anticipated; indeed, in no case could the difference be called significant, for in no case did the critical ratio equal 3. Lee⁸ says, "Statisticians state that the ratio should be 3 before a true difference between the results is considered to exist."

Comparison of the results for groups A and B. Table VII shows how the results for groups A and B, the two classes in English literature, compare. Group A, the teacher-directed class, made a mean gain of 99.32, and group B, the teacher-assisted class, made a mean gain of 100.21. The mean gain for group B was 1.89 more than the mean gain for group A. That the difference which seemed to exist between the gains made by these two groups did not constitute a significant difference is indicated by the critical ratio of .14. A critical ratio as low as this would indicate that there were fewer than fifty-eight chances in one hundred that the difference is significant.

⁸J. Murray Lee, A Guide to Measurement in Secondary Schools. New York: D. Appleton-Century Company. 1936. Pn. 514.

TABLE VII

A RECORD OF THE MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO
OF GROUPS A AND B, THE CLASSES IN ENGLISH LITERATURE

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	A	23	99.32	13.25	
Teacher-assisted	B	23	100.21	26.95	.14

Comparison of the results for group A adjusted on the basis of I.Q.'s and group B. When the record of group A as it was adjusted was compared with that of group B, group A was found to have made a mean gain of 1.02. Thus the results for the adjusted groups were the reverse of the results for the groups as a whole. The gain of group A as adjusted over group B was no more significant, however, than the gain of group B over group A had been before the adjusting was done. The critical ratio for group A as adjusted and group B was .16 in

TABLE VIII

A RECORD OF THE MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO
OF GROUP A AFTER ADJUSTING ON THE BASIS OF I.Q.'S AND GROUP B

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	A Adjusted	26	101.23	19.55	
Teacher-assisted	B	23	100.21	26.95	.16

favor of the teacher-directed class. Again there were fewer than fifty-eight chances in a hundred that the difference in results was significant.

Comparison of the results for matched pairs of pupils from groups A and B. The gains which were made by the matched pairs of pupils from groups A and B were scarcely more significant than were the gains which were made by the groups as a whole. Table IX compares the gains of the matched pairs.

TABLE IX

A RECORD OF THE MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO
OF MATCHED PAIRS OF PUPILS FROM GROUPS A AND B

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	A Pairs	13	97.33	16.50	
Teacher-assisted	B Pairs	13	106.62	25.39	1.09

With the matched pairs of pupils from groups A and B as with the entire classes the pupils from the teacher-assisted group made somewhat greater gains than did the pupils from the teacher-directed group. The critical ratio for the matched pairs from group A and group B was 1.09. This critical ratio was slightly larger than the ratio for these groups as a whole or as adjusted. It indicates that there are about eighty-four chances in a hundred that the results have a real significance.

In the groups as a whole and in the matched pairs of pupils from groups A and B the results favor teacher-assistance. In the adjusted

groups the results favor teacher-direction. These inconsistencies in the results of the experiment with groups A and B would seem to indicate that such slight differences as have been noted are due to chance.

B. A COMPARISON OF THE RESULTS IN GROUPS C, D, AND E, THE THREE CLASSES IN AMERICAN LITERATURE

The results of the experiment with the American literature classes are more consistent than were those for the English literature classes. Here again, however, the difference indicated is not significant.

Comparison of the results for groups C and E and for groups D and E. The results for group C, the larger of the teacher-directed groups, showed that the mean gain was 1.93 more than for group E, the teacher-assisted group. Although group C did show this slightly greater gain,

TABLE X
MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO OF GROUPS C AND E
AND OF GROUPS D AND E, THE CLASSES IN AMERICAN LITERATURE

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	C	29	47.69	16.40	
Teacher-assisted	E	32	45.91	19.10	.39
Teacher-directed	D	24	60.12	21.60	
Teacher-assisted	E	32	45.91	19.10	2.56

the difference had no real significance, for the critical ratio was only .39.

The results of the scores for groups D and E most nearly approach a significant difference. Group D, the smaller of the teacher-directed groups, made a mean gain of 60.12 as compared with a mean gain of 45.91 for the teacher-assisted group. The critical ratio for these groups was 2.56, the largest difference found. This critical ratio would indicate that there are about 99.5 chances in one hundred that the difference has significance and is not due to mere chance. Thus far the results for the groups in American literature favor teacher-direction.

Comparison of the results for groups C and D, the two teacher-directed groups. The question next arose as to whether the difference in scores between groups D and E was due to a difference in methods of teaching or to some other factor. By way of a check on this the writer next compared the scores of groups C and D, both teacher-directed groups. The results of this comparison are shown in Table XI. Group D made a

TABLE XI

A COMPARISON OF THE MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO OF GROUPS C AND D, THE TWO TEACHER-DIRECTED GROUPS IN AMERICAN LITERATURE

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	C	29	47.69	16.40	
Teacher-directed	D	24	60.12	21.60	2.52

mean gain of 12.43 more than group C. For these groups the critical ratio was 2.32. While this critical ratio is less than 3, it does indicate that there are about 99 chances in a hundred that the difference has significance. The critical ratio of 2.32 seems to indicate that the differences in results favoring group D may be due to the size of the class or some other factor rather than to the method used since the method was the same for groups C and D.

Comparison of the results for groups C and E and for groups D and E after adjusting on the basis of I.Q.'s. When the results for the adjusted groups as well as for the entire classes were considered, the scores showed that any differences that might exist were in favor of the teacher-directed groups. The scores for group C as adjusted were slightly better than the scores for group E. The critical ratio was .39, exactly

TABLE XII

MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO OF GROUPS C AND E AND OF GROUPS D AND E, AFTER ADJUSTING ON THE BASIS OF I.Q.'S

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	C Adjusted	23	47.35	16.60	
Teacher-assisted	E Adjusted	29	47.17	19.20	.39
Teacher-directed	D Adjusted	22	60.86	22.00	
Teacher-assisted	E Adjusted	29	47.17	19.20	2.32

the same as for the entire class before adjusting.

A comparison of the scores for the adjusted D and E groups showed a trend similar to the other comparisons involving results for group D. The critical ratio for groups D and E after adjusting and the critical ratio for groups C and D, the two teacher-directed groups, were the same, 2.32. Again this was not a significant difference, but it was a greater one than the results from any of the groups other than group D show. Since this difference between D, the directed group, and E, the assisted group, is the same as that between the two directed groups, it would seem to confirm the idea that the factors accounting for the difference might be factors which affect group D only.

Comparison of the results for matched pairs of pupils from groups C, D, and E. A comparison of the results for the matched pairs of pupils from the three groups studying American literature showed the same general trend as was shown by the groups as a whole and by the groups as adjusted on the basis of I.Q.'s. Although the pupils from groups C and D made slightly greater gains than did the pupils from group E, in no case was the difference in scores one of real significance. Again the critical ratio for the scores of the D and E groups was the largest, but this time it was not so large as in the other cases where the gains for group D were considered. The critical ratio of .83 indicates about 79 chances out of a hundred that the difference is significant. Only six pupils from group D were included in the pairs from the combined C and D groups, not enough to influence the results to any great extent.

TABLE XIII

MEAN GAIN, STANDARD DEVIATION, AND CRITICAL RATIO OF MATCHED PAIRS
OF PUPILS FROM GROUPS C, D, AND E

Group	Class	N.	Mean Gain	S.D.	C.R.
Teacher-directed	C Pairs	13	43.54	16.65	
Teacher-assisted	E Pairs	13	45.46	11.15	.55
Teacher-directed	D Pairs	12	54.50	19.60	
Teacher-assisted	E Pairs	12	47.83	19.75	.33
Teacher-directed	C,D Pairs	20	51.25	17.90	
Teacher-assisted	E Pairs	20	49.00	14.95	.43

TABLE XIV
SUMMARY OF THE RECORDS OF ALL GROUPS

Group	Class	N.	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain	S.D.	C.R.
Directed Assisted	A	28	17- 6	113.85	2.48	44.14	142.90	99.32	18.25	
	B	28	17- 4	115.89	2.50	38.96	139.32	100.21	26.95	.14
Directed Assisted	A-Adjusted	26	17- 5	115.61	2.55	44.50	145.27	101.23	19.55	
	B	28	17- 4	115.89	2.50	38.96	139.32	100.21	26.95	.16
Directed Assisted	A-Pairs	13	17- 4	117.00	2.73	52.38	149.31	97.58	16.80	
	B-Pairs	13	17- 6	116.53	2.73	39.30	146.23	106.62	25.30	.09
Directed Assisted	C	29	16- 6	107.44	2.35	39.41	86.83	47.69	16.40	
	E	32	16- 7	108.68	2.31	41.22	88.09	45.91	19.10	.39
Directed Assisted	D	24	16-10	107.16	2.53	30.13	91.32	60.12	21.60	
	E	32	16- 7	108.68	2.31	41.22	88.09	45.91	19.10	.56
Directed Assisted	C-Adjusted	28	16- 6	107.92	2.39	39.32	86.46	47.35	16.60	
	E-Adjusted	29	16- 8	108.17	2.35	41.31	89.41	47.17	19.20	.39
Directed Assisted	D-Adjusted	22	16-10	107.87	2.48	30.80	91.77	60.86	22.00	
	E-Adjusted	29	16- 8	108.17	2.35	41.31	89.41	47.17	19.20	.32
Directed Assisted	C-Pairs	13	16- 6	113.07	2.45	39.31	88.15	48.54	16.65	
	E-Pairs	13	16- 5	113.15	2.44	40.46	84.69	45.46	11.15	.55
Directed Assisted	D-Pairs	12	16-10	109.41	2.28	31.16	87.00	54.50	19.60	
	E-Pairs	12	16- 8	110.83	2.32	41.16	89.08	47.85	19.75	.85
Directed Assisted	C,D-Pairs	20	16- 8	111.70	2.39	35.50	87.25	51.25	17.90	
	E-Pairs	20	16- 6	112.25	2.38	39.75	88.00	49.00	14.95	.45
Directed Directed	C	29	16- 6	107.44	2.35	39.41	86.83	47.69	16.40	
	D	24	16-10	107.16	2.53	30.13	91.32	60.12	21.60	.32

CHAPTER IV

SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER STUDY

CHAPTER IV

SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER STUDY

Summary of the study. The experiment reported in this thesis was undertaken to discover whether individual study of literature by the pupils under the direction of the teacher or interpretation and explanation to the pupils by the teacher was more effective with eleventh and twelfth grade classes. Every possible effort was made to limit the study to a single variable, a difference in methods of study, but this was not completely successful.

Classes were matched as closely as possible on I.Q.'s, honor-point ratings, and chronological ages. As a further check pairs of pupils were matched on the same three points. A pre-test was given at the beginning of the semester and a re-test at the end of the semester. The gain for each pupil and the mean gains of the various groups were determined. In no case was a significant difference as indicated by a critical ratio of 3 or more found between groups.

The twelfth grade English literature classes, where the major portion of the time is spent on literature, made the following records.

1. The teacher-assisted group as a whole made a slightly greater gain than the directed group.
2. The matched pairs from the assisted group also showed a greater mean gain.
3. The teacher-directed group as adjusted, however, gained more

than the assisted group.

In the eleventh grade classes in American literature the results were more consistent but not much more conclusive than in the twelfth grade classes.

1. In every case the greater gain was made by the teacher-directed group.
2. In no case was a difference of real significance found to exist.
3. The greater gains were made by the smaller teacher-directed group.
4. The difference in scores made by the two teacher-directed groups was almost as great as the difference in scores made by the smaller teacher-directed group and the teacher-assisted group.
5. The greater gains made by the smaller teacher-directed group would seem to be due to some factor or factors other than method.

Conclusions drawn from the study. Subject to the limitations of the methods used in the experiment the writer came to the following conclusions.

1. Pupils seem to learn factual material of literature about as well by themselves as they do when assisted.
2. By wise planning the teacher should be able to organize the work in literature so as to have the pupils learn factual material by themselves, thus allowing the teacher to have more time to present background material and to develop desirable attitudes and appreciations.
3. There is need for a variety of tests for measuring all the objectives of a course in literature.

4. Other factors such as, perhaps, the size of a class seem to affect the amount of factual material learned by the pupils more than do the methods of presentation used in this experiment.

Suggestions for further study. The experiment undertaken by the writer suggested several topics for further study.

1. There is a definite need for objective tests which will measure attitudes and appreciations in the study of literature. There should be tests for measuring appreciation of the classics just as there are tests for measuring information about them. A few such tests have been made for lyric poetry, but there is a need for tests to measure various types of prose also. Such tests should be prepared for different grade levels.

2. In the American literature classes the trend of the experiment seemed to favor the directed groups. In the twelfth grade classes, where more time was spent on literature, this did not seem to be the case. It might be valuable to carry on an experiment for more than one semester, if possible, to see what effect time would have on the results.

3. Since the gains made in the smaller of the eleventh grade teacher-directed groups were greater than in the other directed group or in the assisted group, a study of the effect of class size in the teaching of literature would be interesting even though such studies have been made in several fields.

4. Knowledge of progress seemed to motivate the work to a considerable degree. There was much interest in the results of the unit tests every time they were posted. Some studies which have been made in this line do not approve of the competition which may result from letting

pupils know just where they rank in the group. In the five classes used in this experiment the writer did not find excessive rivalry nor a feeling of inferiority on the part of those with lower scores resulted from a knowledge of progress. Instead the pupils generally tried to make their own work more satisfactory. This is, of course, the subjective judgment of the writer based upon comments of the pupils from all of the five classes and from all levels of ability in the classes. Further studies in this field would seem desirable.

APPENDIX

TABLE XV

RECORDS OF INDIVIDUAL PUPILS IN GROUP A, THE TEACHER-DIRECTED GROUP IN ENGLISH LITERATURE

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
A-1.....	16-10	132	2.11	63	173	110
A-2.....	17- 0	132	2.94	33	172	115
A-3.....	17- 5	129	2.37	106	136	30
A-4.....	17- 4	127	2.10	62	167	102
A-5.....	17- 3	125	1.00	22	135	113
A-6.....	17- 3	123	1.94	37	136	99
A-7.....	17-10	121	2.37	55	136	131
A-8.....	17- 0	119	2.25	61	121	30
A-9.....	15- 4	119	2.25	41	125	113
A-10.....	17- 6	118	2.35	36	133	97
A-11.....	17- 3	117	2.00	42	139	83
A-12.....	17- 3	117	2.50	63	135	92
A-13.....	17- 1	116	2.35	67	136	69
A-14.....	15- 1	115	1.90	23	123	100
A-15.....	17- 4	115	2.73	53	139	83
A-16.....	17- 4	112	2.13	43	173	150
A-17.....	17- 0	112	2.00	22	119	97
A-18.....	17- 0	111	1.61	41	140	128
A-19.....	17- 7	111	2.30	49	122	103
A-20.....	15- 0	108	2.75	29	143	115
A-21.....	17- 6	103	2.05	37	113	76
A-22.....	17- 5	103	2.43	29	141	132
A-23.....	15- 5	103	2.75	29	132	123
A-24.....	17- 1	106	2.33	33	129	93
A-25.....	15- 0	105	2.50	23	143	120
A-26.....	15- 6	94	2.10	42	117	73
A-27.....	15- 1	92	2.37	41	112	71
A-28.....	15- 0	90	1.61	35	113	73
Mean.....	17- 6	113.35	2.13	104.14	122.00	90.32

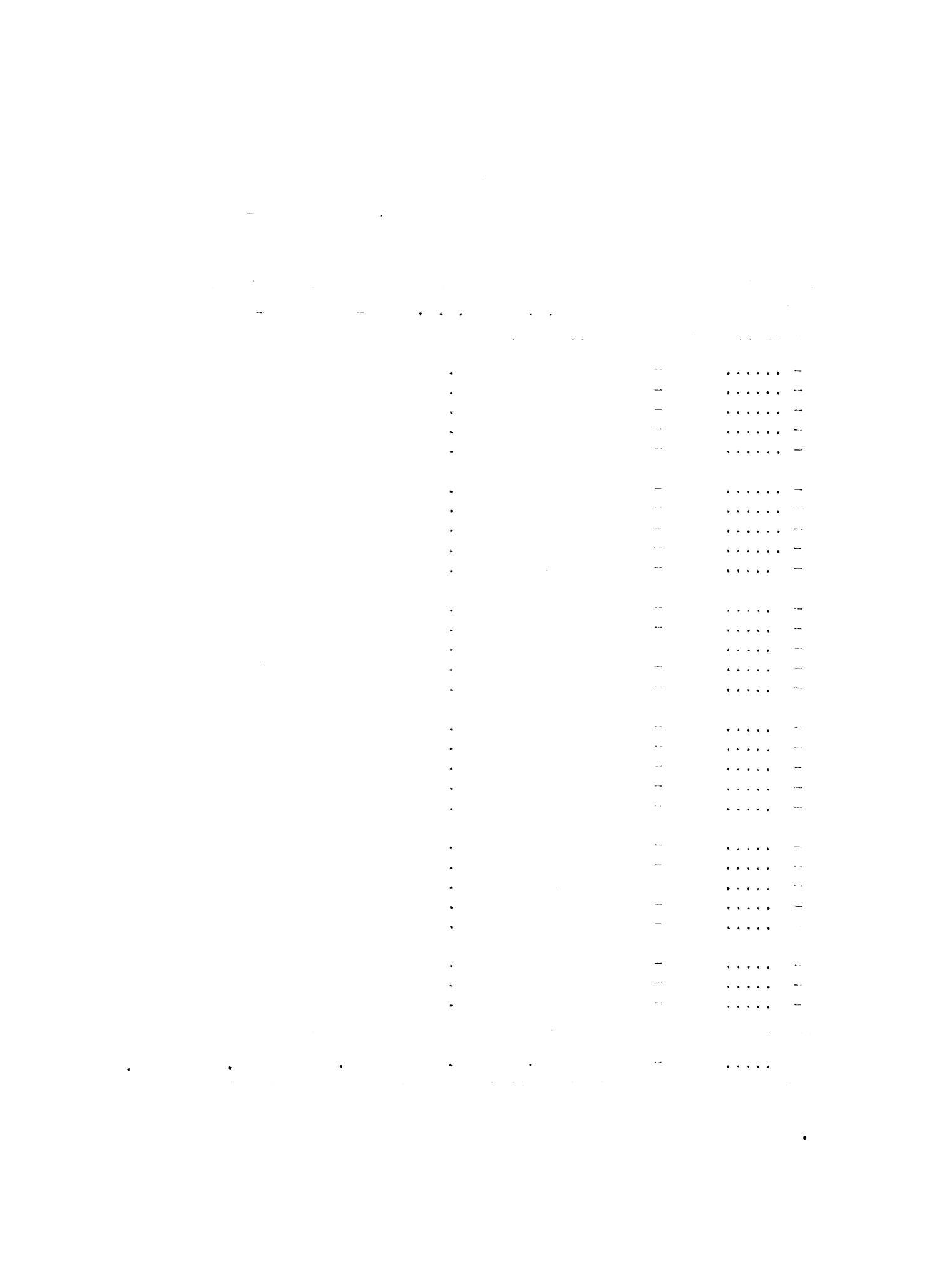


TABLE XVI

RECORDS OF INDIVIDUAL PUPILS IN GROUP B, THE TEACHER-ASSISTED GROUP IN ENGLISH LITERATURE

Pupil	Age	I.Q.	V.P.R.	Pre-test	Re-test	Gain
B-1.....	17- 0	131	2.22	55	176	123
B-2.....	16-11	120	2.19	55	177	117
B-3.....	17- 3	127	2.50	56	177	127
B-4.....	16- 5	127	2.57	58	149	91
B-5.....	17-10	126	2.00	57	170	111
B-6.....	17- 2	126	2.66	62	160	93
B-7.....	17- 1	124	2.60	59	157	123
B-8.....	17-10	123	2.62	55	151	115
B-9.....	17- 1	123	2.47	55	141	105
B-10.....	17- 7	112	1.65	13	34	31
B-11.....	17- 0	122	2.63	55	174	120
B-12.....	17- 7	121	2.59	75	162	87
B-13.....	17- 7	120	2.60	55	152	71
B-14.....	17- 3	113	2.25	15	113	100
B-15.....	17- 1	110	1.85	35	107	65
B-16.....	17- 1	114	2.15	56	110	54
B-17.....	16- 1	114	2.00	59	150	97
B-18.....	17- 4	113	2.73	15	127	105
B-19.....	17- 6	112	2.10	50	157	107
B-20.....	17- 5	112	2.05	55	153	104
B-21.....	17- 0	112	2.42	55	167	55
B-22.....	17- 4	111	2.00	52	163	151
B-23.....	17- 8	111	2.00	54	155	101
B-24.....	17- 5	104	2.11	35	141	105
B-25.....	17- 1	102	1.53	30	150	91
B-26.....	16- 2	95	1.10	34	35	21
B-27.....	16- 1	95	1.13	27	32	26
B-28.....	17- 7	92	2.47	31	120	93
Mean.....	17- 4	115.70	2.50	54.06	150.32	100.21



TABLE XVII

AGE, I.Q., HONOR-POINT RATING, TEST SCORES, AND GAIN
OF INDIVIDUAL PUPILS FROM GROUP A AS ADJUSTED

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
A-1.....	16-10	130	2.11	65	173	110
A-2.....	17- 0	132	2.94	55	123	115
A-3.....	17- 2	120	2.37	105	136	33
A-4.....	17- 2	127	2.10	65	157	102
A-5.....	17- 3	125	2.00	76	156	110
A-6.....	17- 3	123	1.29	77	126	33
A-7.....	17-10	121	2.37	55	135	124
A-8.....	16- 0	119	2.25	31	121	33
A-9.....	16- 4	119	2.05	31	130	117
A-10.....	17- 6	118	1.35	53	133	57
A-11.....	17- 8	117	2.00	52	130	33
A-12.....	17- 8	117	2.00	53	132	92
A-13.....	17- 1	116	2.05	57	130	39
A-14.....	16- 1	115	2.00	52	123	103
A-15.....	17- 4	115	2.00	53	130	35
A-16.....	17- 4	112	2.13	43	173	170
A-17.....	17- 6	112	2.00	22	110	97
A-18.....	17- 8	111	1.61	41	132	103
A-19.....	17- 7	111	2.30	46	152	103
A-20.....	16- 0	105	2.75	29	143	110
A-21.....	17- 3	103	2.00	37	117	76
A-22.....	17- 5	103	2.00	39	141	102
A-23.....	16- 5	102	2.75	29	162	102
A-24.....	17- 1	100	2.23	53	120	38
A-25.....	16- 0	105	2.00	23	143	125
A-26.....	16- 3	95	2.10	12	117	75
Mean.....	17- 5	115.61	2.05	114.5	145.27	131.23



TABLE XVIII

COMPARATIVE RECORDS OF MATCHED PAIRS OF PUPILS
FROM GROUPS A AND B

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
A-1.....	16-10	132	2.11	63	173	110
B-1.....	17- 0	131	2.02	53	176	125
A-3.....	17- 5	129	2.07	106	136	30
B-5.....	17-10	126	2.00	47	133	1'1
A-4.....	17- 4	127	2.10	65	167	102
B-2.....	16-11	129	2.19	35	173	138
A-3.....	18- 6	110	2.05	61	131	60
B-1'4.....	17- 3	113	2.05	16	116	100
A-6.....	16- 4	110	2.05	51	159	118
B-13.....	17- 7	120	2.06	53	129	71
A-11.....	17- 8	117	2.00	42	130	33
B-17.....	18- 1	114	2.00	52	130	57
A-17.....	17- 1	116	2.15	67	156	33
B-12.....	17- 4	113	2.73	54	123	56
A-15.....	17- 4	113	2.03	53	130	36
B-20.....	17- 5	112	2.05	39	133	1'1
A-16.....	17- 4	112	3.13	43	177	136
B-22.....	17- 4	111	3.00	32	163	131
A-17.....	17- 2	112	2.00	22	110	57
B-19.....	17- 6	112	2.00	43	137	24
A-19.....	17- 7	111	2.30	42	152	137
B-16.....	17- 1	114	2.15	26	110	56
A-22.....	17- 5	103	2.33	39	141	102
B-23.....	17- 3	111	2.00	24	120	101
A-2'4.....	17- 1	106	2.33	37	122	96
B-2'4.....	17- 5	104	2.11	36	141	105
Mean A... .	17- 4	117.00	2.73	52.33	140.31	87.32
Mean B... .	17- 6	116.53	2.73	70.30	143.53	106.62

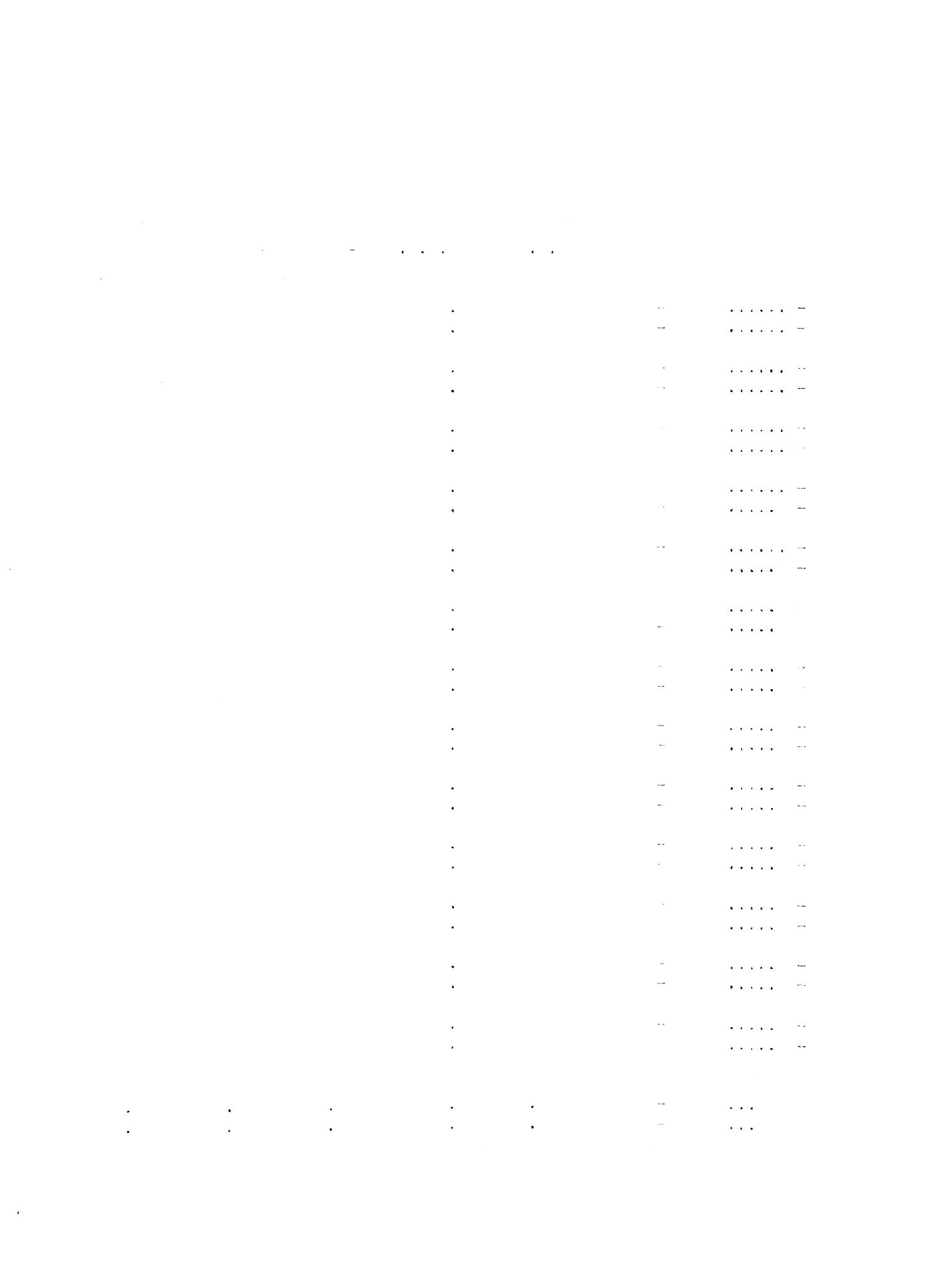


TABLE XIX

INDIVIDUAL RECORDS OF AGE, I.Q., HONOR-POINT RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP C

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-1.....	16- 0	126	1.63	74	83	49
C-2.....	16- 1	124	1.60	74	72	33
C-3.....	16- 5	122	3.07	74	70	56
C-4.....	16-10	119	2.00	47	54	47
C-5.....	16- 4	119	2.00	46	52	52
C-6.....	16- 1	118	2.15	52	66	14
C-7.....	16- 8	117	2.01	53	101	53
C-8.....	16- 6	117	2.15	51	65	14
C-9.....	16- 7	116	2.15	52	106	63
C-10.....	16- 7	116	2.00	50	63	63
C-11.....	16- 3	112	2.23	23	67	44
C-12.....	16- 9	111	2.03	50	66	15
C-13.....	16- 6	111	2.04	50	101	51
C-14.....	16- 4	110	2.76	50	107	57
C-15.....	16-10	107	2.06	50	76	26
C-16.....	16- 0	107	2.51	26	67	61
C-17.....	16- 5	107	1.75	52	70	17
C-18.....	16- 6	105	2.25	50	75	25
C-19.....	16- 2	103	2.41	71	103	51
C-20.....	16- 2	102	2.03	13	60	73
C-21.....	16-10	99	2.50	27	71	44
C-22.....	17- 3	97	2.23	19	61	48
C-23.....	16- 2	97	2.06	66	74	74
C-24.....	17- 0	92	1.93	74	75	57
C-25.....	17- 0	94	1.63	74	73	59
C-26.....	17- 1	94	2.16	41	66	55
C-27.....	16-06	92	1.90	22	52	72
C-28.....	17- 1	89	2.75	66	101	52
C-29.....	16-11	84	1.91	50	52	52
Mean.....	16- 6	107.04	2.35	59.41	86.73	47.69

TABLE XIX

INDIVIDUAL RECORDS OF AGE, I.Q., HONOR-POINT RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP C

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-1.....	16- 0	126	1.63	74	63	49
C-2.....	16- 1	124	1.60	71	72	73
C-3.....	16- 5	122	3.07	74	70	55
C-4.....	16-10	119	3.00	47	34	17
C-5.....	16- 4	119	3.00	45	33	52
C-6.....	16- 1	118	3.15	59	66	14
C-7.....	16- 3	118	3.01	53	61	13
C-8.....	16- 6	118	3.15	54	58	14
C-9.....	16- 7	118	3.15	54	60	15
C-10.....	16- 7	118	3.00	53	55	3
C-11.....	16- 3	112	3.03	53	67	15
C-12.....	16- 9	111	3.00	52	60	12
C-13.....	16- 6	111	3.00	52	61	10
C-14.....	16- 4	110	3.76	52	60	12
C-15.....	16-10	107	3.00	51	70	15
C-16.....	16- 9	107	3.04	50	67	17
C-17.....	16- 5	107	3.75	50	70	23
C-18.....	16- 6	105	3.00	50	75	21
C-19.....	16- 2	103	3.04	71	10	51
C-20.....	16- 2	102	3.00	73	80	78
C-21.....	16-10	99	3.50	27	71	44
C-22.....	17- 3	97	3.00	18	61	43
C-23.....	16- 2	97	3.00	18	74	57
C-24.....	17- 0	95	3.00	20	72	57
C-25.....	17- 0	94	3.00	24	73	59
C-26.....	17- 1	94	2.16	24	66	52
C-27.....	16-6	92	1.90	22	69	52
C-28.....	17- 1	90	3.75	20	101	81
C-29.....	16-11	89	3.01	20	52	32
Mean.....	16- 6	107.04	2.75	59.41	76.73	17.30



TABLE XIX

INDIVIDUAL RECORDS OF AGE, I.Q., HONOR-POINT RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP C

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-1.....	16- 0	126	1.63	54	63	49
C-2.....	16- 1	124	1.60	54	72	53
C-3.....	16- 5	122	3.07	14	70	56
C-4.....	16-10	119	2.00	47	54	47
C-5.....	16- 4	119	2.00	45	53	52
C-6.....	16- 1	118	2.15	52	66	54
C-7.....	16- 3	117	2.01	53	101	53
C-8.....	16- 6	118	2.15	51	65	14
C-9.....	16- 7	118	2.15	42	106	63
C-10.....	16- 7	118	2.00	50	60	63
C-11.....	16- 3	112	2.03	23	67	44
C-12.....	16- 9	111	2.03	20	66	46
C-13.....	16- 6	111	2.04	22	102	75
C-14.....	16- 4	110	2.76	30	103	73
C-15.....	16-10	107	2.06	22	76	54
C-16.....	16- 0	107	2.71	26	67	61
C-17.....	16- 5	107	1.75	32	70	47
C-18.....	16- 6	105	2.25	49	75	26
C-19.....	16- 2	103	2.41	71	102	51
C-20.....	16- 2	102	2.03	13	30	70
C-21.....	16-10	99	2.50	27	71	44
C-22.....	17- 3	97	2.23	13	61	48
C-23.....	16- 2	97	1.96	66	74	78
C-24.....	17- 0	95	1.87	23	75	37
C-25.....	17- 0	94	1.63	24	73	59
C-26.....	17- 1	94	2.16	41	66	55
C-27.....	16-66	92	1.90	22	52	70
C-28.....	17- 1	90	2.75	66	101	55
C-29.....	16-11	84	2.01	50	52	52
Mean.....	16- 6	107.14	2.35	59.41	66.63	47.60

TABLE XX

INDIVIDUAL RECORDS OF AGE, I.Q., WENGER-POLK RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP D

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
D-1.....	15- 8	105	2.13	23	101	78
D-2.....	15- 4	103	2.00	25	103	78
D-3.....	15- 1	101	2.04	25	108	77
D-4.....	15-11	110	2.01	23	120	100
D-5.....	15- 7	117	1.92	23	130	107
D-6.....	15-11	115	1.92	23	120	71
D-7.....	15- 4	112	2.03	23	117	74
D-8.....	15- 2	111	2.03	21	116	53
D-9.....	15- 4	113	2.03	23	116	53
D-10.....	15-11	111	2.00	23	115	51
D-11.....	15- 1	110	2.03	23	111	58
D-21.....	15- 5	110	2.15	23	117	64
D-17.....	15- 1	109	2.05	17	111	71
D-18.....	17- 3	105	2.06	27	106	59
D-15.....	15- 8	102	2.07	23	101	59
D-16.....	17- 1	102	2.07	23	97	65
D-17.....	17- 7	102	2.06	23	95	63
D-18.....	17- 1	101	2.11	10	100	99
D-19.....	15- 4	97	2.07	23	97	33
D-20.....	15- 0	95	2.10	23	100	55
D-21.....	16-10	95	2.00	24	94	50
D-22.....	17- 6	94	1.00	23	90	51
D-23.....	15- 9	93	2.10	23	93	50
D-24.....	17- 3	94	2.05	19	100	56
Mean.....	15-10	107.16	2.03	20.13	91.32	55.12

TABLE XXI

INDIVIDUAL RECORDS OF AGE, I.Q., HONOR-POINT RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP E

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
E-1.....	15-10	126	2.34	77	105	28
E-2.....	15-10	124	2.23	75	93	18
E-3.....	15- 8	124	2.22	75	105	30
E-4.....	15- 8	123	2.26	70	93	23
E-5.....	15- 6	127	2.35	80	108	28
E-6.....	16- 2	121	2.01	44	110	66
E-7.....	16- 3	121	2.16	35	87	52
E-8.....	17- 1	120	2.09	32	86	53
E-9.....	16- 5	120	2.02	51	77	26
E-10.....	16- 4	110	2.05	31	76	45
E-11.....	15-10	116	2.00	43	87	45
E-12.....	15- 1	115	2.06	32	75	43
E-13.....	15- 3	115	1.54	25	71	46
E-14.....	15- 5	115	3.76	35	120	85
E-15.....	15- 4	114	2.02	45	121	76
E-16.....	16- 9	113	2.33	30	101	71
E-17.....	16- 9	110	2.23	51	87	16
E-18.....	16- 3	108	1.87	21	70	49
E-19.....	15- 5	103	1.09	73	82	19
E-20.....	16- 8	107	2.08	30	56	27
E-21.....	16-10	107	2.06	26	74	48
E-22.....	16-10	105	1.53	44	103	58
E-23.....	17- 5	107	1.56	33	76	43
E-24.....	16- 4	104	2.09	35	93	89
E-25.....	15- 3	102	2.39	53	75	22
E-26.....	16- 3	93	1.53	51	53	37
E-27.....	17-10	94	1.18	51	55	34
E-28.....	16- 2	91	2.46	23	72	56
E-29.....	17- 0	89	2.15	40	55	26
E-30.....	17- 2	87	1.50	37	55	28
E-31.....	16-11	77	1.12	60	66	6
E-32.....	16- 6	77	2.55	54	55	34
Mean.....	16- 7	105.36	2.31	41.22	53.09	11.81

TABLE XXI

INDIVIDUAL RECORDS OF AGE, I.Q., MCNOR-POINT RATING,
PRE-TEST SCORE, RE-TEST SCORE, AND GAIN
FOR PUPILS IN GROUP E

Pupil	Age	I.Q.	M.P.R.	Pre-test	Re-test	Gain
E-1.....	15-10	126	2.34	77	105	72
E-2.....	15-10	124	2.23	75	93	43
E-3.....	15- 8	124	2.23	75	103	63
E-4.....	16- 0	123	2.26	76	93	61
E-5.....	16- 6	123	2.23	80	103	63
E-6.....	16- 2	121	2.03	78	110	66
E-7.....	16- 3	121	2.16	75	87	52
E-8.....	17- 1	120	2.03	72	92	63
E-9.....	16- 5	120	2.02	51	77	26
E-10.....	16- 4	119	2.05	31	76	45
E-11.....	16-10	116	2.00	43	87	70
E-12.....	16- 1	116	2.63	32	73	43
E-13.....	15- 3	115	1.54	23	71	43
E-14.....	16- 5	115	3.76	25	120	95
E-15.....	16- 4	114	2.92	45	121	76
E-16.....	16- 9	113	2.83	30	101	71
E-17.....	16- 9	110	2.23	51	77	16
E-18.....	15- 3	108	1.33	24	70	46
E-19.....	15- 5	107	1.09	73	85	12
E-20.....	15- 3	107	2.38	39	86	47
E-21.....	16-10	107	2.66	26	74	48
E-22.....	16-10	105	1.83	44	100	56
E-23.....	17- 5	104	1.50	38	76	38
E-24.....	16- 4	104	2.00	68	93	29
E-25.....	15- 3	102	2.30	53	75	22
E-26.....	16- 3	93	1.53	51	78	37
E-27.....	17-10	94	1.13	31	59	24
E-28.....	16- 2	91	2.46	23	72	53
E-29.....	17- 0	89	2.15	40	80	29
E-30.....	17- 2	87	1.50	37	65	23
E-31.....	16-11	77	1.12	63	66	6
E-32.....	16- 6	77	2.53	54	53	34
Mean.....	16- 7	103.66	2.31	41.22	53.00	11.31

TABLE XXII
RECORDS OF PUPILS IN GROUP C AFTER ADJUSTING

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-1.....	16- 0	129	1.63	78	93	15
C-2.....	16- 1	129	1.63	77	91	14
C-3.....	16- 5	122	2.07	74	76	2
C-4.....	16-10	119	2.02	77	94	17
C-5.....	16- 4	119	2.00	76	93	17
C-6.....	16- 1	118	2.15	72	96	24
C-7.....	16- 3	117	2.01	73	101	28
C-8.....	16- 6	118	2.15	71	95	24
C-9.....	16- 7	118	2.15	73	106	31
C-10.....	16- 7	118	2.00	70	90	20
C-11.....	16- 3	118	2.23	78	87	9
C-12.....	16- 9	111	2.03	50	95	45
C-13.....	16- 6	111	2.04	59	104	45
C-14.....	16- 4	110	2.06	50	102	52
C-15.....	16-10	107	2.06	52	76	24
C-16.....	16- 0	107	2.31	53	87	34
C-17.....	16- 5	107	2.75	52	75	22
C-18.....	16- 6	105	2.05	49	75	26
C-19.....	16- 2	103	2.01	71	102	51
C-20.....	16- 2	102	2.05	13	38	25
C-21.....	16-10	99	3.50	27	71	44
C-22.....	17- 3	97	2.27	15	61	46
C-23.....	17- 2	97	1.95	35	74	39
C-24.....	17- 0	95	1.23	33	75	42
C-25.....	17- 9	94	1.63	31	73	39
C-26.....	16- 6	92	1.95	23	62	70
C-27.....	16- 1	92	2.75	25	101	76
C-28.....	16-11	84	1.91	50	52	12
Mean.....	16- 6	107.02	2.32	59.53	86.16	47.35

TABLE XXXIII
RECORDS OF PUPILS IN GROUP D AFTER ADJUSTING

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
D-1.....	15- 6	120	0.13	29	101	72
D-2.....	15- 4	123	0.50	33	102	75
D-3.....	15- 1	101	0.37	23	96	71
D-4.....	16-11	110	0.41	25	100	75
D-5.....	16- 7	117	1.02	33	35	37
D-6.....	16-11	115	1.02	29	100	71
D-7.....	16- 4	110	0.67	23	77	54
D-8.....	16- 2	110	0.57	21	73	52
D-9.....	16- 4	113	0.53	33	64	31
D-10.....	16-11	111	0.60	33	75	44
D-11.....	16- 1	110	0.63	33	101	68
D-12.....	16- 5	110	0.15	22	117	95
D-13.....	16- 1	109	0.25	17	71	54
D-14.....	17- 3	109	0.66	27	66	39
D-15.....	17- 1	102	0.33	24	97	75
D-16.....	16- 7	102	1.66	23	61	38
D-17.....	17- 1	101	0.11	10	100	90
D-18.....	16- 3	95	0.16	25	106	61
D-19.....	16-10	92	2.00	44	94	52
D-20.....	17- 6	94	1.00	29	60	31
D-21.....	16- 9	93	0.10	23	63	63
D-22.....	17- 3	94	0.05	10	100	90
Mean.....	16-10	107.07	0.43	50.38	91.77	60.36



TABLE XXIV
RECORDS OF PUPILS IN GROUP E AFTER ADJUSTING

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
E-1.....	15-10	126	2.64	33	105	72
E-2.....	15-10	124	3.08	45	93	48
E-3.....	16- 8	124	2.90	35	103	65
E-4.....	16- 0	123	2.36	32	93	61
E-5.....	16- 6	123	2.66	60	108	48
E-6.....	16- 2	121	3.00	44	110	66
E-7.....	16- 3	121	3.16	55	87	52
E-8.....	17- 1	120	2.69	32	92	60
E-9.....	16- 5	120	2.32	51	77	26
E-10.....	16- 4	119	2.45	31	76	45
E-12.....	16- 1	116	2.66	32	73	46
E-14.....	16- 5	115	3.76	35	120	85
E-15.....	16- 4	114	2.92	45	121	76
E-16.....	16- 9	113	2.83	30	101	71
E-18.....	16- 3	108	1.83	24	70	46
E-19.....	18- 5	108	1.09	73	55	12
E-20.....	16- 8	107	2.33	32	86	47
E-21.....	16-10	107	2.66	26	74	48
E-22.....	16-10	105	1.83	44	100	56
E-23.....	17- 5	104	1.50	33	76	38
E-24.....	16- 4	104	2.09	63	93	25
E-25.....	16- 8	102	2.30	53	75	22
E-26.....	16- 3	98	1.53	51	88	37
E-27.....	17-10	94	1.18	31	85	54
E-28.....	16- 2	91	2.46	23	73	56
E-29.....	17- 0	89	2.15	40	69	29
E-30.....	17- 2	87	1.50	37	65	28
E-31.....	18-11	77	1.12	60	66	6
E-32.....	16- 6	77	2.53	54	88	34
Mean.....	16- 8	108.17	2.35	41.31	89.41	47.17

TABLE XIV
RECORDS OF PUPILS IN GROUP E AFTER ADJUSTING

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
E-1.....	15-10	126	2.64	73	105	72
E-2.....	15-10	124	3.08	45	93	48
E-3.....	16- 8	124	2.90	35	103	63
E-4.....	16- 0	123	2.36	52	93	61
E-5.....	16- 6	123	2.66	60	108	48
E-6.....	16- 2	121	3.00	44	110	66
E-7.....	16- 3	121	3.15	35	87	52
E-8.....	17- 1	120	2.69	32	92	60
E-9.....	16- 5	120	2.32	51	77	26
E-10.....	16- 4	119	2.45	31	76	45
E-12.....	16- 1	116	2.66	32	78	46
E-14.....	16- 5	115	3.76	35	120	85
E-15.....	16- 4	114	2.92	45	121	76
E-16.....	16- 9	113	2.83	30	101	71
E-18.....	16- 3	108	1.83	24	70	46
E-19.....	18- 5	108	1.09	73	85	12
E-20.....	16- 8	107	2.38	32	86	47
E-21.....	16-10	107	2.66	26	74	48
E-22.....	16-10	105	1.83	44	100	56
E-23.....	17- 5	104	1.50	38	76	38
E-24.....	16- 4	104	2.09	68	93	25
E-25.....	16- 8	102	2.30	53	75	22
E-26.....	16- 3	98	1.53	51	88	37
E-27.....	17-10	94	1.18	31	85	54
E-28.....	16- 2	91	2.46	23	73	56
E-29.....	17- 0	89	2.15	40	69	29
E-30.....	17- 2	87	1.50	37	65	28
E-31.....	18-11	77	1.12	60	66	6
E-32.....	16- 6	77	2.53	54	88	34
Mean.....	16- 8	108.17	2.35	41.31	89.41	47.17

TABLE XXV
COMPARATIVE RECORDS OF MATCHED PAIRS OF PUPILS
FROM GROUPS C AND E

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-3.....	16- 5	122	3.07	14	70	56
E-2.....	15-10	124	3.08	45	93	48
C-4.....	16-10	119	2.63	47	94	47
E-8.....	17- 1	120	2.62	32	92	60
C-5.....	16- 4	119	3.00	46	93	52
E-6.....	16- 2	121	3.00	44	110	66
C-6.....	16- 1	118	2.15	52	96	44
E-11.....	16-10	116	2.00	48	87	39
C-7.....	16- 8	118	2.61	43	101	58
E-12.....	16- 1	116	2.66	32	78	46
C-9.....	16- 7	118	3.15	43	106	63
E-7.....	16- 3	121	3.16	35	87	52
C-10.....	16- 7	118	2.50	36	92	63
E-10.....	16- 4	119	2.45	31	76	45
C-11.....	16- 8	112	2.23	28	67	39
E-17.....	16- 9	110	2.23	51	67	26
C-14.....	16- 4	110	2.76	30	103	73
E-21.....	16-10	107	2.56	26	74	48
C-16.....	16- 9	107	2.31	26	87	61
E-20.....	16- 8	107	2.38	39	86	47
C-17.....	16- 5	107	1.75	32	79	47
E-18.....	16- 3	108	1.83	24	70	46
C-18.....	16- 6	105	2.25	43	75	26
E-24.....	16- 4	104	2.02	68	93	27
C-23.....	16- 2	97	1.46	66	74	8
E-26.....	16- 3	98	1.53	51	86	37
Mean C...	16- 6	113.23	2.45	39.31	86.15	48.54
Mean E...	16- 5	113.15	2.44	40.46	84.69	45.46



TABLE XXVI
COMPARATIVE RECORDS OF MATCHED PAIRS OF PUPILS
FROM GROUPS D AND E

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
D-2.....	16- 4	123	2.50	33	103	75
E-1.....	15-10	125	2.64	33	105	72
D-3.....	16- 1	121	2.84	23	94	71
E-3.....	16- 8	124	2.90	33	103	68
D-10.....	16-11	111	3.00	33	75	42
E-16.....	16- 9	113	2.85	30	101	71
D-6.....	16-11	115	1.92	29	100	71
E-10.....	16-10	116	2.00	48	87	39
D-7.....	16- 4	115	3.08	28	77	49
E-15.....	16- 4	114	2.32	45	121	76
D-8.....	16- 2	114	2.58	21	73	53
E-12.....	16- 1	116	2.66	32	78	46
D-11.....	16- 1	110	2.08	89	121	32
E-17.....	16- 9	110	2.23	51	67	16
D-14.....	17- 8	105	2.66	27	66	39
E-21.....	16-10	107	2.66	26	74	48
D-16.....	17- 1	102	2.33	54	97	63
E-25.....	16- 8	102	2.30	53	75	22
D-17.....	16- 7	102	1.66	28	61	33
E-23.....	17- 5	104	1.50	38	76	38
D-18.....	17- 1	101	2.11	10	100	90
E-24.....	16- 4	104	2.09	68	93	25
D-22.....	17- 6	94	1.00	29	60	31
E-27.....	17-10	94	1.13	31	85	54
Mean D...	16-10	109.41	2.23	31.16	87.00	54.50
Mean E...	16- 8	110.83	2.32	41.16	89.08	47.83

TABLE XXVII
COMPARATIVE RECORDS OF MATCHED PAIRS OF PUPILS
FROM GROUPS C, D, AND E

Pupil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-3.....	16- 5	122	3.07	14	70	56
E-2.....	15-10	124	3.08	45	93	48
C-4.....	16-10	119	2.69	47	94	47
E-8.....	17- 1	120	2.62	52	92	60
C-5.....	16- 4	119	3.00	46	98	52
E-6.....	16- 2	121	3.00	44	110	66
C-6.....	16- 1	113	2.15	22	36	14
E-11.....	16-10	116	2.00	48	87	39
C-7.....	16- 8	113	2.61	43	101	58
E-12.....	16- 1	116	2.66	32	73	46
C-9.....	16- 7	113	3.15	43	106	63
E-7.....	16- 3	121	3.16	35	87	52
C-10.....	16- 7	113	2.50	36	92	63
E-10.....	16- 4	113	2.45	31	76	45
C-11.....	16- 8	112	2.23	28	67	39
E-17.....	16- 9	110	2.23	51	67	26
C-14.....	16- 4	110	2.76	30	103	73
E-21.....	16-10	107	2.66	26	74	48
C-16.....	16- 9	107	2.51	26	57	61
E-20.....	16- 8	107	2.58	39	86	47
C-17.....	16- 5	107	1.75	52	79	47
E-18.....	16- 3	108	1.83	24	70	46
C-13.....	16- 6	105	2.25	49	75	26
E-24.....	16- 4	104	2.00	68	93	27

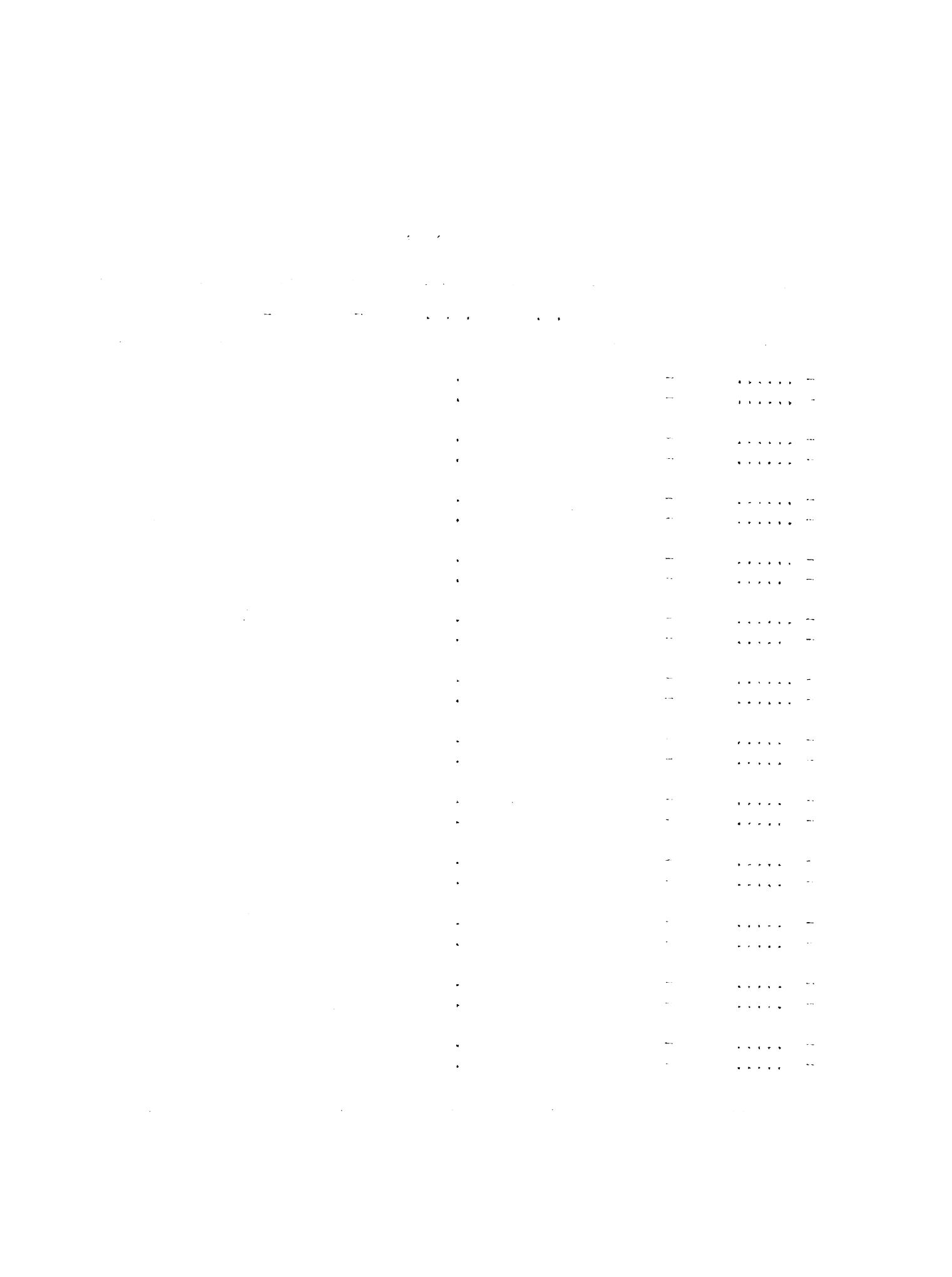


TABLE XXVII (continued)

Provil	Age	I.Q.	H.P.R.	Pre-test	Re-test	Gain
C-23.....	16- 2	97	1.46	66	74	8
E-26.....	16- 3	98	1.55	51	88	37
C-12.....	16- 6	111	2.64	23	104	75
E-16.....	16- 9	113	2.83	30	101	71
D-2.....	16- 4	125	2.50	33	108	75
E-4.....	16- 0	125	2.36	32	93	61
D-3.....	16- 1	121	2.84	23	94	71
E-3.....	16- 8	124	2.50	35	103	63
D-10.....	16-11	111	3.00	33	75	42
E-15.....	16- 4	114	2.92	45	121	76
D-16.....	17- 1	102	2.33	34	97	63
E-25.....	16- 8	102	2.30	53	75	22
D-17.....	17- 7	102	1.66	23	61	33
E-23.....	17- 5	104	1.50	33	76	33
D-22.....	17- 6	94	1.00	23	60	31
E-27.....	17-10	94	1.13	31	85	54
Mean C,D.	16- 8	111.70	2.39	55.50	87.25	51.25
Mean E...	16- 6	112.25	2.32	59.75	88.00	49.00

TABLE XXVIII

RECORD OF THE BOYS IN EACH CLASS COMPARED WITH THE RECORD
OF THE GIRLS

Group	N.	I.Q.	H.P.R.	Pre-test	Re-test	Gain	S.D.	C.R.
A								
Boys	20	111.40	2.45	45.25	130.50	86.25	16.60	
Girls	8	110.00	2.55	41.37	152.00	111.25	16.00	<u>2.13</u>
B								
Boys	13	115.24	2.40	32.77	122.92	101.62	26.10	
Girls	13	115.93	2.59	44.00	148.33	99.00	25.70	<u>.65</u>
C								
Boys	10	103.70	2.11	41.00	84.50	43.50	17.75	
Girls	12	106.70	2.53	38.57	73.55	49.82	15.20	<u>.56</u>
D								
Boys	11	111.20	2.33	27.90	86.55	57.45	13.20	
Girls	13	103.60	2.71	32.00	95.46	62.33	23.20	<u>.56</u>
E								
Boys	15	112.20	2.82	37.00	84.66	47.67	16.20	
Girls	17	105.58	2.39	44.05	91.12	46.12	12.85	<u>.56</u>

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