

A STUDY OF THE ACHIEVEMENT OF PUPILS WHO STUDIED  
THE HAROLD RUGG'S FUSED COURSE IN SOCIAL  
STUDIES AS COMPARED WITH THOSE WHO  
STUDIED SEPARATE HISTORY AND  
GEOGRAPHY COURSES

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## I. INTRODUCTION

### A. General Statement

Occasioned by the fact that there is much discussion as to the great value of the Harold Rugg's social studies textbooks in comparison with the traditional type of textbooks, the writer carried out, in a scientific investigation, a program of tests. The results of these tests indicate in some measure the relative achievements of pupils who have studied the two types of textbooks.

### B. The Problem

1. Selecting the Problem. In the winter of 1930 when the social studies committee of the Terre Haute schools met with their superintendent, George C. Carroll, for the purpose of adopting objectives and a textbook in social studies, the writer became interested in the problem: "How does the achievement of the pupils who studied the Harold Rugg's fused course in social studies compare with the achievement of the pupils who studied the traditional type of textbooks?" The Rugg textbooks were adopted by a committee composed of the superintendent and the principals of the Terre Haute Junior High Schools. Since that meeting, the teachers have been divided in their opinions as to the

best textbooks for the seventh and eighth grades. Those advocating the fused course believe that the pupils who study it will not only be able to rank higher in solving life situations and problems of the day, but that they will rate equally well in factual history and geography which the separate courses emphasize.

The writer began a study of social studies courses<sup>1</sup> and found that Rugg, Hatch, Hull, Horn, Judd, Schweppe, and Snedaker were a few of the leading educators who advocated the fused courses. These writers maintained that the older textbooks taught knowledge for its own sake while the newer textbooks taught knowledge plus correlation with life.

In order to discover how the two different groups in her community rate, the writer decided to make a scientific investigation of the question.

2. Statement of the Problem. This problem was a testing program to determine the achievement of pupils who studied the Harold Rugg's fused course in social studies as compared with those who studied straight history and geography courses.

3. What Advocates Think About It. Our list of "frontier thinkers", who were consulted for contemporary problems, contains the foremost names of modern times in the field of social studies, such as, Lippmann, Beard,

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<sup>1</sup> Harold Rugg, "The Social Studies in the Elementary School," The Twenty-Second Year Book, (Bloomington, Illinois: Public School Publishing Company, 1922).

Gibbons, and Bryce.

These leading educators believe that the traditional type textbook is an encyclopedia curriculum with too many unimportant facts to remember while the location of important centers of world trade and political controversy are not emphasized. A systematic research made by these educators points toward the development of a citizenship curriculum based upon the immediate social needs, as well as, the immediate learning needs of boy and girl citizens.

Harold Rugg makes this statement, "Progress in curriculum making will come only by making a clean sweep of what we now have in the curriculum, ignoring the materials of the present course (including later only those parts that conform to our criteria), and building a whole new program on a scientific basis of principles of selection, grade placement, and arrangement". He makes no attempt to merge the established subjects with present day social problems. His method of procedure is to start with no prejudice against the established order and then on the basis of data obtained from scientific research, work out the chief problems of our time.

4. The Threefold Purpose of This Research. It is the purpose of this research to: (1) ascertain the mental equipment of the Woodrow Wilson eighth grade pupils in social studies, (2) ascertain the mental equipment of the Harrison township eighth grade pupils in social studies, and (3) compare the mental equipment of the two groups.

5. Limitations of the Problem. The limitations of

the problem of this study were the following: (1) previously the Woodrow Wilson Junior High School had not taught the fused course, (2) the Harold Rugg's textbooks were difficult for junior high school pupils, (3) comparisons in the study were made on the basis of one set of measures only; that is the testing program was not carried out with other groups and there were not any standard norms with which they could be compared, and (4) there was the impossibility of equating the minor variables in the two groups.

## II. STATUS OF RESEARCH IN THE FIELD OF SOCIAL STUDIES

### A. General Statement of Work Done in Social Studies

1. Evolution of Social Studies. Forty years ago the pupil derived his instruction in citizenship and social studies from a textbook approximately four-fifths of which was concerned with political and military affairs. Almost every inch devoted to the Civil War dealt with campaigns and battles, and the author of the textbook regretfully informed his little readers that the limits of space did not permit him to mention hundreds of minor battles and skirmishes. Invention, industry, science, and the arts were given the barest mention. The textbook gave little preparation for an intelligent interest in such things as the following: "civil service reform, regulation of railways, control of trusts, income tax, free silver, injunctions in labor disputes, questions coming under the head of 'imperialism', popular election of senators, conservation of natural resources, parcel post, postal savings bank, valuation of railways, woman suffrage, the perplexities of the World War, the League of Nations, farm relief, Panama Canal tolls, relations with Mexico, the rise of the United States to the position of the first military power in points of expenditures

for preparedness, the renunciation of war, restriction of immigration, and limitation of armaments". It was not until 1908 that a high school textbook appeared which contained a chapter on the immense changes in human life brought about by the steam engine and machinery.

2. Rise of Social Studies as Independent Units.

While historians were busy with politics, battles, and diplomacy, our social and international life was being transformed by inventions, legislation, and industrial activities. Economics, sociology, anthropology, and political science broke the monopoly of history in the college and university. Young men and women discovered new and amazing facts that were not mentioned in the history textbooks. They became interested in the living present; and when they went out to teach, they carried with them a widened interest. A ferment began among teachers and the makers of study programs; it was recognized that in a democracy the schools can not keep aloof from the pressing problems of choice and conduct. Civics broadened and lost its formal character in a quest for deeper and more fundamental truth. Economics won a place in the high school on the plea that the individual must be prepared for his vocation. Sociology, likewise, gained entrance on the ground that man is not merely a political and an economic animal, but a member of a family, a community, a church, and many associations that are not primarily concerned with politics or money-making. In the process, history was materially reduced in compass, the course in English history disappeared almost entirely, and European history was reduced in many schools to one year.

3. Movement Toward Amalgamation. The wisest among the historians, economists, and sociologists discovered that they were not teaching separate subjects but aspects of the same thing. Those who put aside their professional pride realized that these apparently divergent themes had one grand object, namely, to throw light on the way of life in which the boys and girls must walk. As a result, we speak of the "social studies". There is still indefiniteness in regard to content and methods, but further study should enable us to reach a solution.

#### B. Aims in the Social Studies Course

An objective of social studies is the development of intelligent citizens, but there is great controversy as to what intelligent citizenship is and as to just how the social studies should be taught to produce it. The survey sponsored by the Carnegie Foundation and being conducted by the American Historical Association may be expected to give us facts concerning objectives and content in place of the unsupported theory that has been so prevalent. Desirable outcomes as recognized at present are: (1) the habit of continuous, systematic memorization, (2) ability to select and find information essential to the understanding of a problem, (3) ability to read critically, (4) ability to think to the point, to organize information and ideas around main themes, and (5) ability to discern and interpret the forces, motives, and underlying tendencies operative at any

period towards a definite end. As to "attitudes", it is unwise for the school to select and expurgate facts and to indoctrinate pupils with attitudes for the sake of developing loyalty to established institutions.

C. Harold Rugg's Philosophy of the Social Studies  
in Contrast to That of the Traditional  
Point of View

1. The Traditional History. The traditional plan is indicted on two general counts: (1) inadequate materials, and (2) insufficient provision for pupil activity.

2. Our New Philosophy. We realize that to make a curriculum for boys and girls who must live in a complicated and troubled civilization, it will be necessary to bring them into contact with the most critical problems of society. The old presentation of materials failed to prepare our pupils for issues even of that day. Surely, new methods, procedures, and materials must be used if we are to prepare our pupils for the more insistent and permanent problems. Rugg does not expect immature pupils to solve these problems, for, as he points out, adult society has failed to solve them. We must, above all things, develop an attitude of tolerance and unpartisan, open-minded review of the evidence of both sides of a question. Herein lies the greatest need of our pupils, and, for a large part, of ourselves. Rugg has come closer to the ideal of education in this field than anyone else. Many years ago Ruskin said, "Education is not teaching people to know what they



do not know. It is teaching them to behave as they do not behave."

#### D. Psychological Basis for the Social Studies Course

For a psychological basis of the social studies course, Harold Rugg<sup>1</sup> advocates the following: (1) the pupil learns only by active assimilation, (2) the situations of the school must be real and dramatic, (3) learning proceeds through the gradual accumulation of experience, (4) every avenue of learning should be employed, (5) maximum growth is understanding, (6) the pupil must acquire systematic and economical practice on the skills, (7) learnings develop simultaneously, (8) intensive study of a few things is necessary, (9) attention should be centered upon one thing at a time, and (10) courses should be organized around "understanding units".

#### E. The Old Curriculum

The inadequacy of the old encyclopedic curriculum is well known. Only recently, Mars, at Leland Stanford, tested one hundred and twelve second and third year college pupils with an easy and fair examination. Forty of

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<sup>1</sup>  
Harold Rugg, *Teacher's Guide for an Introduction to American Civilization*, (Chicago: Ginn and Company, 1929).

the pupils tested knew the capital of Switzerland, ninety-four could not locate Singapore, and only three had a grade of seventy per cent on the entire test. Surely, their earlier training was of little value to them. Our most intelligent young people are ignorant of the location of important centers of world trade and political controversy; nor do they know with any greater precision other types of socially valuable information. Why? Almost without exception the failure may be traced directly to the character of the material studied. A recent study shows that each of the five most frequently used geographies mentions from five to six hundred important cities with only a few lines devoted to each city. Is there much hope that any of them will be remembered?

#### F. What We Should Teach

Comenius wanted to teach all men all things. It was, of course, impossible in his day; it is impossible now. Since it is undesirable as well as impossible to teach all the facts of location, what ones shall be taught? Rugg and Hockett report their procedure and findings in studying this important question. After reviewing previous studies in the field, they outline seventeen objective criteria used in the determination of map locations. These criteria include statistics of clearing house exchanges, statistics of trade, statistics of population, area of territory, frequency with which writers in critical magazines employed the

location facts in their writings, value of total commerce of world ports, and the like. The use of such objective criteria produced a list of truly important place names; for example, forty cities of the United States were arranged in order of their relative importance. In the same manner foreign cities, countries, regions, states of the United States, islands, bodies of water, rivers, mountains, ports, railroads, etc. were arranged in the order of their importance. After these rankings had been made, the following three factors were used in determining which locations to teach: (1) the relative importance of location facts with the other materials of the social studies field, (2) the time required to learn these facts because of their ease or difficulty, and (3) the ingenuity of the curriculum makers in organizing the materials of instruction through which location facts are learned. Working from these principles, Rugg made a preliminary selection of the minimum location facts which he later included in the experimental material. The final result was the elimination of much unnecessary material. No longer will our pupils be expected to know the location of Oropo, Potosi, and Tucuman; but they will be expected to learn about Rio de Janeiro, Buenos Aires, Santiago, and equally important places.

### III. TECHNIQUE IN SOLVING THE PROBLEM

#### A. Selection of Schools and Teachers

1. Schools Chosen. In order to carry out the testing program, it was necessary to test a group of pupils who had studied the fused course and a group who had studied the straight history and geography courses. Woodrow Wilson Junior High School pupils were chosen for the former type and Harrison Township School pupils for the latter.

2. The Teachers. The teachers' qualifications in the schools which were used in the experiment were practically on the same level as shown in Tables I and II, pages 13 and 14. All of the teachers in both groups (except one in the township) have an A. B. or B. S. degree; one in each group had an A. M. degree.

The two schools named had departmental work. The teaching load of each teacher was about the same; they taught forty to fifty minute periods and had eight classes a day with twenty-five to thirty pupils in each class. Tables I and II show that the total number of years taught by the Woodrow Wilson Junior High School teachers was ninety-seven while the total number of years taught by the Harrison township teachers was one hundred and nine. The total number of years of experience in teaching history of the Woodrow Wilson Junior High School

TABLE I

INFORMATIONAL TABLE CONCERNING EDUCATIONAL CONDITIONS  
IN HARRISON TOWNSHIP SCHOOLS IN REGARD  
TO SOCIAL STUDIES\*

Teacher	Number of Years Experience in Teaching	Number of Years Experience in Teaching History	Teaching Major	Teaching Load	Size of Class	Length of Period	Educational Qualifications	Length of School Term	Equipment
A	22	21	Geography and English	8 hrs.	25	40	A. M. M. A.	9 mos.	Maps
B	26	10	Geography and English	8 hrs.	30	50	B. S.	9 mos.	Globes
C	19	12	Science and History	8 hrs.	30	40	A. B.	9 mos.	Charts News Reels
D	12	10	History	8 hrs.	30	40	A. B.	9 mos.	Lantern Slides
E	16	10	History and English	8 hrs.	35	40	B. S.	9 mos.	Speakers
F	14	3	History and Science	8 hrs.	25	40	B. S.	9 mos.	Speakers
G	2	2	History	8 hrs.	30	50	Two Yrs.	9 mos.	Plasticine

\*The social studies course in Harrison township schools includes geography and history as separate courses.

TABLE II

INFORMATIONAL TABLE CONCERNING EDUCATIONAL CONDITIONS  
 IN WOODROW WILSON JUNIOR HIGH SCHOOL IN REGARD  
 TO SOCIAL STUDIES

Teacher	Number of Years Experience in Teaching	Number of Years Experience in Teaching History	Teaching Major	Teaching Load	Size of Class	Length of Period	Educational Qualifications	Length of School Term	Equipment
A	17	10	History	6 hrs.	30	40	B. S. M. S.	9½ mos.	Globes
B	13	8	History	6 hrs.	30	40	A. B.	9½ mos.	Maps
C	20	17	History	6 hrs.	30	40	A. B.	9½ mos.	Charts
D	19	10	Geography	6 hrs.	30	40	B. S.	9½ mos.	News Reels
E	12	8	History and Mathematics	6 hrs.	30	40	A. B.	9½ mos.	Lantern Slides
F	12	8	History	6 hrs.	30	40	B. S.	9½ mos.	Speakers
G	4	4	History	6 hrs.	30	40	A. B.	9½ mos.	Reference Library

teachers was sixty-five while the total number of years the Harrison township teachers had taught history was sixty-eight. The average for teaching history was ten years per teacher. The length of the school term in the city was nine and one-half months and in the township, nine months. The equipment in the township and the city was practically the same. In both schools were globes, maps, news reels, and charts to be used as aids in teaching.

The writer knew personally the majority of the teachers in each group tested. In general, these teachers have traveled throughout the United States, always making a point to visit historical places of interest and to give a descriptive report upon returning to school. The geography majors were especially interested in the influence of the physical conditions on the people in a locality and, thus, they gave the pupils much first-hand information. Every teacher involved in this study has traveled an average of twenty-five hundred miles or more.

The teachers of these groups are making the profession a permanent occupation and, of course, have a real interest in making it worthwhile. All of them are well liked by the pupils because school life is probably being made more interesting than home life.

The children of today also have great advantages; during their vacations many of them travel and return to school in the fall with a wealth of interesting material to relate in class.

The children of today in the township, as well as in the city, have an equal opportunity to hear radio lectures, to see news reels, and to hear good addresses sponsored by their teachers. Perhaps these supplement the textbook material and this might explain the reason for the township rating high in solving the problems of the social studies test.

3. The Period of Teaching. In the Harrison township schools, as well as, in the Woodrow Wilson Junior High School, the teachers spent a forty minute period teaching history, geography, or social studies. Nine months of school had been taught when the tests were given. The writer had tests given in both schools during the same week in order that each group would have the same length of school year.

4. The Harrison Township Teachers. The Harrison township teachers usually made out a unit of work for a period of time and with the aid of many references directed the pupils' study. In other words they socialized the recitation in such a way that the present day problems were linked with the textbook material. It is the writer's opinion that these township teachers were in advance of the textbook. They used supplementary reference books and directed study which helped their pupils to rate high in social studies.

5. The Woodrow Wilson Junior High School Teachers. The teachers at the Woodrow Wilson Junior High School were ever conscious of presenting the material in most effective



units. Their chief aim was to help the pupil to gain a clear understanding of American civilization. The elaborate background of scientific research upon which the Rugg course is based determined: (1) what to teach, (2) where to teach it, and (3) how to teach it.

## B. Selection of Intelligence Tests and Their Administration

1. Intelligence Tests. The Terman Group Test of mental ability was selected as the most reliable for testing the general intelligence of the children. It was also chosen because: (1) it is rated highly, and (2) the scoring directions are simple and objective.

2. Administration of Tests. The Terman Group intelligence tests are very simple to administer with the use of a stop-watch. There are ten series to the test and each of these is given a set time. The whole test may be given in thirty minutes.

The conditions for testing were excellent for both groups on account of: (1) their schoolroom environment was the same as usual, (2) the administrator in each case was one with whom each group was well acquainted, and (3) the children seemed to be happy and interested.

3. Instructions to Township Administrator. All instructions were given in the manual and were followed, strictly.

4. Marking the Tests. The tests were scored by

the writer and an assistant. The record sheets and directions which accompany the tests supply definite directions and answers thus making the test perfectly objective.

5. Pairing of Groups. The tests were given to one hundred and thirty-nine eighth grade pupils in the Harrison township schools and to one hundred and thirty-nine eighth grade pupils in the Woodrow Wilson Junior High School. The scores were paired; that is, the scores of one school were paired with those of the other within three points of each other, i. e., in the Harrison township group, pupils whose I. Q. was one hundred and eight were paired so that they were listed opposite the pupils of the Woodrow Wilson Junior High School group who had an I. Q. of one hundred and eight. Sometimes it was necessary to list an I. Q. of one hundred and fifteen with one of one hundred and twelve. However, in nearly every case the pairing was perfect until one hundred and thirty corresponding pairs were secured.

### C. Selection of Achievement Tests and Administration of Tests

1. Achievement Tests. The Denny-Nelson American History Test was selected. This history test consists of two parts, each having two forms of approximately equal difficulty. Part I covers the period of discovery, exploration, and colonization, ending with 1789. Part II

covers the National period of American history from 1789 to the present. Both parts include few items concerning the Constitution. The tests are wholly objective, and the test items are varied in character. The following types of test items are used: alternative-answer questions with five possible responses; matching exercises of various sorts, including the matching of cause-and-effect items and important dates and events; questions to be answered by "yes" and "no"; recall-completion items; and a few true-false statements. Part I contains seven different types. No true-false statements are included in the Pre-National period tests. The tests on the Pre-National period (Part One) have eighty points each; those for the National period (Part Two) one hundred points each. Sufficient time is allowed for the pupil to finish the test (forty minutes for each part has been found sufficient to allow about ninety-nine per cent of the pupils to finish). It was thought desirable to give ample time, as the authors felt that a test of this type should be a test of "power" rather than one of speed. The purpose of setting a time limit was mainly to prevent dawdling. The Manual of Directions contains well established norms for each grade.

The Torgerson Geography test has sixty-four points concerning factual geography. Each correct answer counts one point. The highest possible score is sixty-four. The sixty-four questions are of multiple choice type.

The social studies test is composed of twenty problem-

solving questions, based on Harold Rugg's textbooks.<sup>1</sup> No standardized test has been devised for the fused course in the social studies. Tests in the social studies measure information almost exclusively, and it is extremely difficult to devise tests of principles, skills, and attitudes. (The essay type of examination can be made more reliable if sufficient thought and time are put into its construction and grading.) We now view teaching outcomes in terms of specific bodies of information, skills, habits, and attitudes instead of generalizations. As yet, only well-phrased essay forms get at more important outcomes, such as, mastery of principles, laws, workable abstractions, generalizations, habits, and skills. These can, however, be measured by objective forms and it is for this purpose that Professor Ramsey of the Indiana State Teachers College, Terre Haute, Indiana, and the writer attempted to select a group of items in order to compile a social studies test. These problem-solving type questions were selected by a process of elimination from a long objective test based on Harold Rugg's workbooks and on F. Leslie Clark's workbook in American history.

2

The group of questions of the social studies used in this program included twenty problem-solving questions; and in order to answer them intelligently the pupil must

1

The social studies test is in the Appendix, p. 40

2

See Appendix, p. 40

have not only information but the ability to know values and to interpret the world of today.

2. Administration of the Tests. All tests were given to one hundred and thirty-nine eighth grade pupils in the Harrison township schools and to one hundred and thirty-nine eighth grade pupils in the Woodrow Wilson Junior High School.

3. Marking the Tests. The tests were scored by the writer and an assistant. The record sheet and directions which accompany the tests supply definite directions and answers which makes the test perfectly objective. Each correct answer in the achievement tests scores one point. An answer was marked either right or wrong. A question not attempted was not counted.

#### D. Analysis and Interpretation

1. Table III, page 23, shows the relationship of the subjects studied by both groups:

- a. The coefficient of the correlations between history and social studies and between geography and social studies are much higher in the Woodrow Wilson Junior High School group than in the Harrison township group.
- b. The coefficient of the correlation between the I. Q.'s and social studies is also higher in the Woodrow Wilson Junior High School group than in the Harrison township

group.

c. However, the table shows that the coefficient of correlations between the I. Q.'s and history are higher in the Harrison township group.

d. With the exception of the last two coefficients in Table III, the coefficients are too low to have great prognostic value.

2. The correlation table shows that the scores are scattered over the table and this explains the low correlations.

3. Comparing Tables III and IV, page 23, there is no marked relation between subjects in either group; that is, the coefficients of the correlations are not high enough to indicate that there is a tendency for pupils to have relatively the same rank or position in any two subjects correlated.

4. There is evidence of real relationship between the intelligence quotients and history, and between the intelligence quotients and geography in the Harrison township group.

5. In comparing the coefficients of the I. Q.'s and social studies in the Woodrow Wilson Junior High School group, it is seen that there is closer relationship within this group in regard to this point. There is also some positive relationship between history and social studies, and between geography and social studies in the Woodrow Wilson Junior High School group; while there is practically no relationship between these subjects in the Harrison township group as indicated by comparing Tables III and IV.

TABLE III

CORRELATIONS BETWEEN SUBJECTS WITHIN WOODROW WILSON  
JUNIOR HIGH SCHOOL AND HARRISON  
TOWNSHIP SCHOOLS

Correlated Subjects	Wilson	Township
1. History and Social Studies	$r = .43 \pm .05$	$r = .36 \pm .05$
2. Geography and Social Studies	$r = .59 \pm .05$	$r = .35 \pm .05$
3. I. Q. and Social Studies	$r = .45 \pm .05$	$r = .25 \pm .06$
4. I. Q. and Geography	$r = .49 \pm .04$	$r = .54 \pm .04$
5. I. Q. and History	$r = .46 \pm .05$	$r = .63 \pm .04$

TABLE IV

SIGNIFICANCE OF CORRELATIONS\*

Coefficient of Correlation	Practical Interpretation
Below .50	Practically useless for forecasting purposes, (only 13% effective).
Form .50 - .60	Evidence of some relationship; possibly useful.
Form .60 - .70	Evidence of a real relationship; of limited usefulness for prognostic purposes.
Form .70 - .80	Evidence of a marked relationship; of rather prognostic value.
Above .80	Evidence of unusual relationship; marked prognostic value.

\*

Harry A. Green and Albert N. Gorgensen, The Use and Interpretation of Educational Tests, (New York: Longmans, Green and Company, 1930), p. 163.

IV. COMPARISON OF WOODROW WILSON JUNIOR  
HIGH SCHOOL AND HARRISON  
TOWNSHIP SCHOOLS

A. In Social Studies

All differences in the scores are in favor of the Harrison township group, except in social studies and here the difference is very slight in favor of the Woodrow Wilson Junior High School group. The critical ratio in Table X, page 34, shows that in eighty-nine cases out of one hundred the difference would be in favor of the Woodrow Wilson Junior High School group.

In Figure 1, page 25, the histogram shows that the Woodrow Wilson Junior High School median was 13.95 while the Harrison township median was 13.89. The Harrison township group had five more scores in the middle interval, 13-14, than the Woodrow Wilson Junior High School group, but the Woodrow Wilson Junior High School group had more scores in the two higher intervals, 17-18 and 18-19. The scores range from 6-20 in the Harrison township group and from 3-20 in the Woodrow Wilson Junior High School group.



Frequencies

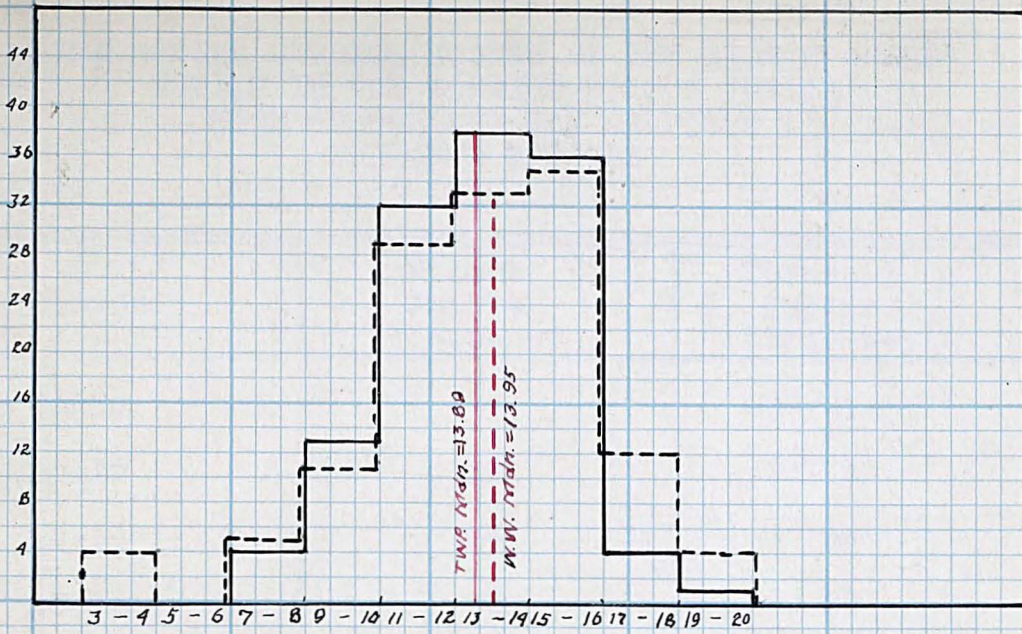


Figure 1. Frequency Distribution On Social Studies Tests

Frequencies

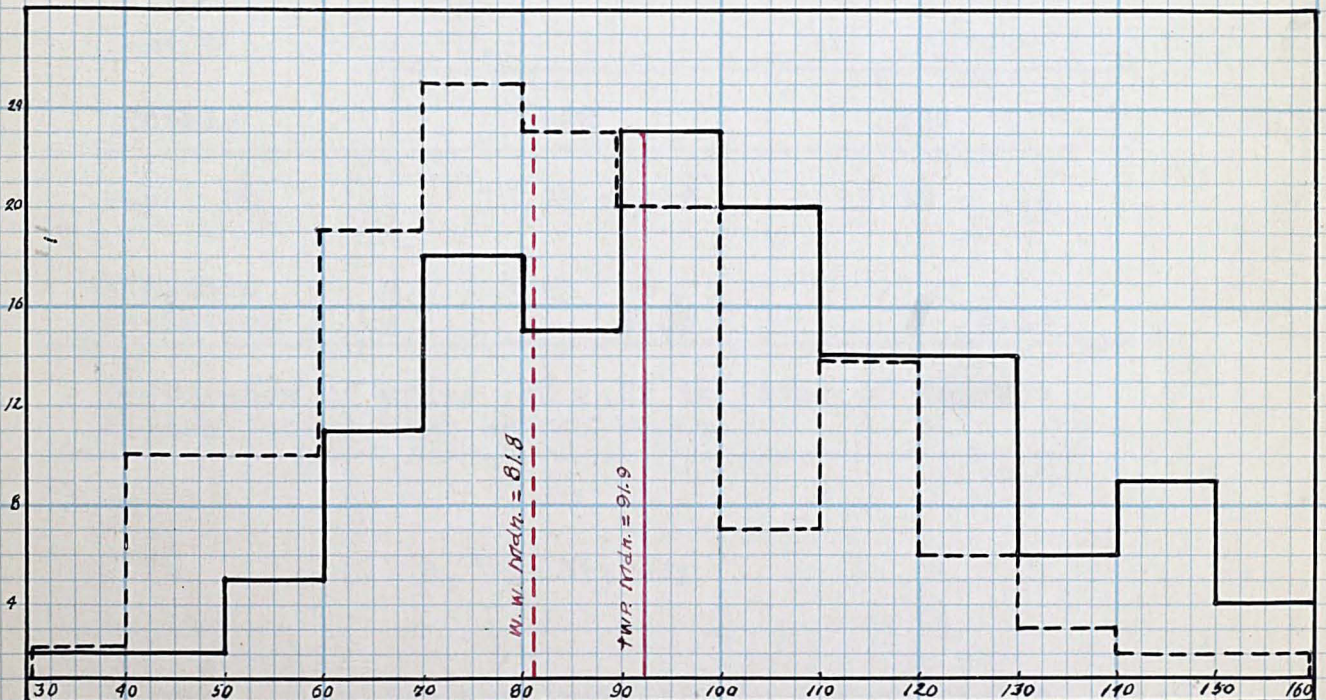


Figure 2. Frequency Distribution On History Tests

\_\_\_\_\_ Township  
 \_\_\_\_\_ Woodrow Wilson Median  
 - - - - - Woodrow Wilson  
 \_\_\_\_\_ Township Median

TABLE V

THE SOCIAL STUDIES SCORES OF THE EIGHTH GRADE  
PUPILS IN THE WOODROW WILSON JUNIOR  
HIGH SCHOOL AND THE HARRISON  
TOWNSHIP SCHOOLS

Scores	Wilson Pupils Frequency	Township Pupils Frequency
19-20	4	1
17-18	11	4
15-16	36	36
13-14	33	38
11-12	29	32
9-10	11	15
7- 8	5	4
5- 6	0	0
3- 4	1	
Totals	130	130
Mean $\pm$ PE <sub>M</sub> =	13.98 $\pm$ .17	13.58 $\pm$ .14
Standard Deviation	2.83	2.38

Difference of means  $.40 \pm .22$  in favor of Woodrow Wilson Junior High School group.

### B. In History

The scores for both schools range from 31-160. The difference of the means in history is 15.45 in favor of the Harrison township group. The critical ratio shown in Table X, page 34, indicates that in one hundred cases out

of one hundred, the difference will be in favor of the Harrison township group.

The frequency table, Table VI, page 27, and Figure 2, page 25, clearly indicate that the Woodrow Wilson Junior High School pupils did not rate as high in the factual history test as did the Harrison township pupils. Figure 2, shows that the Woodrow Wilson Junior High School pupils scored in greater numbers between 31-100 while a high percentage of the Harrison township pupils scored between 90-160.

TABLE VI

THE HISTORY SCORES OF THE EIGHTH GRADE PUPILS  
IN THE WOODROW WILSON JUNIOR HIGH SCHOOL  
AND THE HARRISON TOWNSHIP SCHOOLS

Scores	Wilson Pupils Frequency	Township Pupils Frequency
151-160	1	3
141-150	1	8
131-140	2	5
121-130	5	13
111-120	13	13
101-110	6	19
91-100	19	22
81- 90	22	14
71- 80	24	17
61- 70	18	10
51- 60	9	4

TABLE VI. (Concluded)

41- 50	9	1
31- 40	1	1
Totals	130	130
Mean $\pm$ PE <sub>M</sub> =	84.35 $\pm$ 1.39	99.8 $\pm$ 1.59
Standard Deviation	23.52	25.51

Difference of means  $15.45 \pm 2.05$  in favor of the Harrison township group.

### C. In Geography

The scores in geography range between 11-60 in the Woodrow Wilson Junior High School group and between 20-70 in the Harrison township group. The greatest number of scores in both cases range between 31-40. The difference of the means in the geography is 1.23 in favor of the Harrison township group. The critical ratio<sup>1</sup> in Table X, page 34, shows that in ninety cases out of one hundred the difference will be in favor of the Harrison township group. This is not a significant difference, but a difference probably due to sampling.

<sup>1</sup>

Henry E. Garrett, Statistics in Psychology and in Education, (New York: Longmans, Green and Company, 1932), Table XV, p. 135.

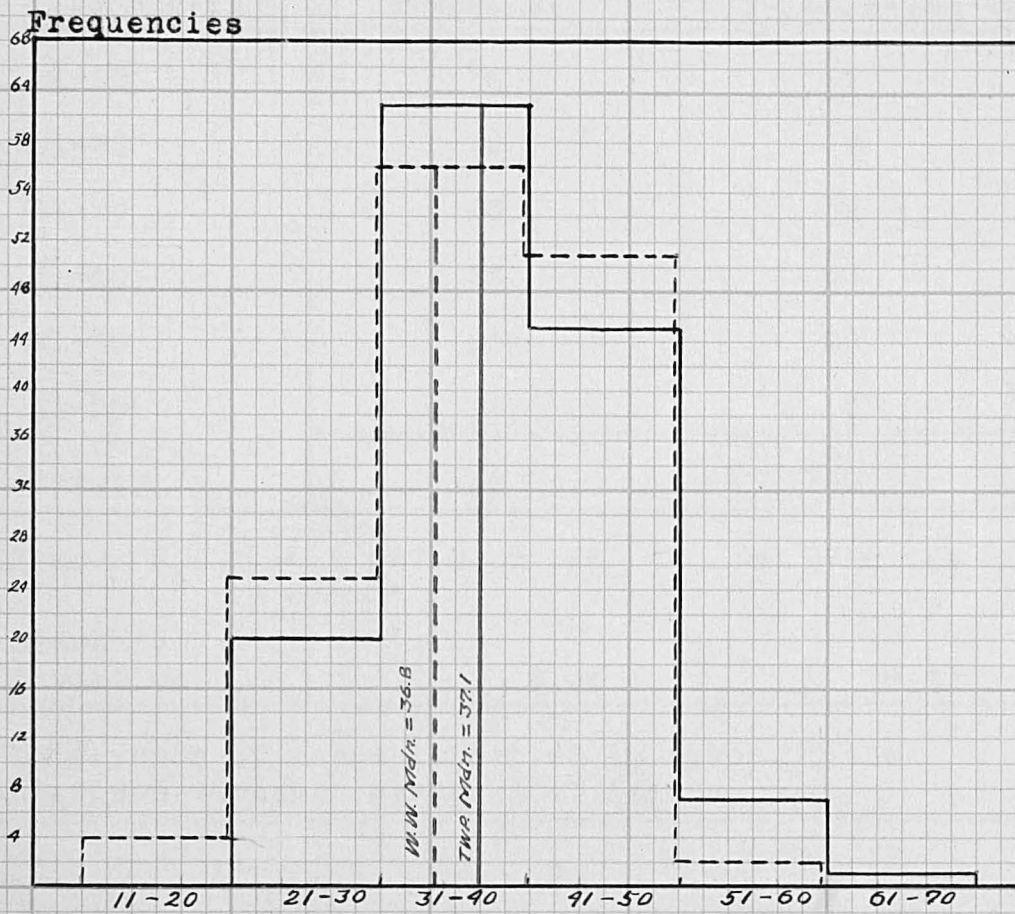


Figure 3. Frequency Distribution On Geography Tests

\_\_\_\_\_ Township  
 \_\_\_\_\_ Woodrow Wilson Median  
 \_\_\_\_\_ Woodrow Wilson  
 \_\_\_\_\_ Township Median

TABLE VII

THE GEOGRAPHY SCORES OF THE EIGHTH GRADE PUPILS  
IN THE WOODROW WILSON JUNIOR HIGH SCHOOL  
AND THE HARRISON TOWNSHIP SCHOOLS

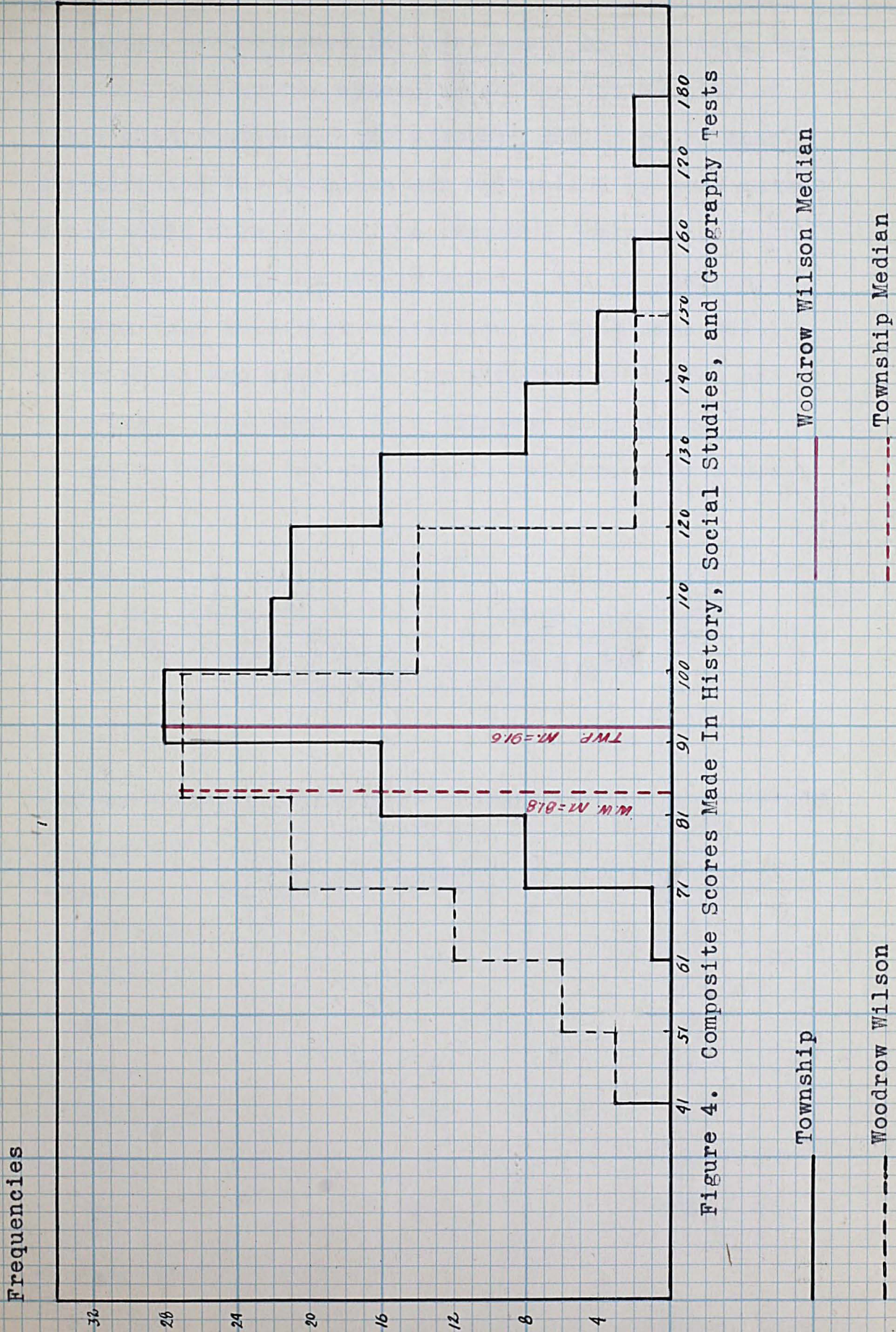
Scores	Wilson Pupils Frequency	Township Pupils Frequency
61-70	0	1
51-60	2	7
41-50	45	39
31-40	52	63
21-30	25	20
11-20	4	0
Totals	130	130
Mean $\pm$ PE <sub>M</sub> =	37.04 $\pm$ .48	38.27 $\pm$ .41
Standard Deviation	8.08	8.13

Difference of means  $1.23 \pm .63$  in favor of the Harrison township group.

#### D. In Composite Scores

Figure 4, page 31, shows the score is in favor of the Harrison township group due to the exceedingly high scores they made in history. The composite scores in Figure 4 show the greatest number of scores falling between 71-140 in the Harrison township group and between 51-100 in the Woodrow Wilson Junior High School group.

In finding composite scores, individual scores



were treated according to McCall's method. The composite score was obtained for each pupil by weighting the original test scores according to the variability of their distributions. The standard deviation of each distribution was obtained and multiplied by some number which would make all of the standard deviations in the various tests approximately equal. All of the scores in each test were then multiplied by this same multiplier which was used with the standard deviation of that test. The scores thus obtained were added together to secure for each pupil, his composite score.

TABLE VIII

THE COMPOSITE SCORES IN HISTORY, GEOGRAPHY,  
AND SOCIAL STUDIES IN THE WOODROW WILSON  
JUNIOR HIGH SCHOOL AND THE HARRISON  
TOWNSHIP SCHOOLS

Scores	Wilson Pupils Frequency	Township Pupils Frequency
171-180		2
161-170		0
151-160		2
141-150	2	4
131-140	2	8
121-130	2	16
111-120	14	22



TABLE VIII. (Concluded)

101-110	14	23
91-100	27	28
81- 90	27	16
71- 80	21	8
61- 70	12	1
51- 60	6	
41- 50	3	
Totals	130	130
Mean $\pm$ PE <sub>M</sub>	$89 \pm 1.22$	$107.30 = 1.24$
Standard Deviation	20.60	21.10

Difference of the means  $18.30 \pm 1.79$  in favor of the Harrison township group.

TABLE IX

THE MEANS AND STANDARD DEVIATION OF WOODROW WILSON JUNIOR HIGH SCHOOL AND THE HARRISON TOWNSHIP SCHOOLS

Subject of Test	Woodrow Wilson Junior High School		Harrison Township Schools	
	Mean $\pm$ PE <sub>M</sub>	Sigma	Mean $\pm$ PE <sub>M</sub>	Sigma
Social Studies	$13.98 \pm .17$	2.83	$13.58 \pm .14$	2.38
History	$84.35 \pm 1.39$	23.52	$99.8 \pm 1.51$	25.51
Geography	$37.04 \pm .48$	8.08	$38.27 \pm .41$	8.13
Composite	$89 \pm 1.22$	20.60	$107.30 \pm 1.24$	21.10

TABLE X

THE DIFFERENCE IN THE MEANS AND THE CRITICAL  
RATIO OF THE WOODROW WILSON JUNIOR HIGH  
SCHOOL AND THE HARRISON  
TOWNSHIP SCHOOLS

Subject	Difference in the Means ± PE Difference	Critical Ratio	Chances in 100 That the True Difference is Greater Than Zero
Social Studies	.40 ± .22 in favor of Woodrow Wilson Junior High School group	1.8	89
History	15.45 ± 2.11 in favor of the Harrison town- ship group	7.32	100
Geography	1.23 ± .63 in favor of the Harrison township group	1.9	90
Composite	18.30 ± 1.79 in favor of the Harrison town- ship group	10	100

## V. SUMMARY AND CONCLUSIONS

### A. Summary

1. In Social Studies. In comparing the means of the two schools studied, the difference is 0.40 in favor of the Woodrow Wilson Junior High School. This difference seems very insignificant until the real difference is divided by the probable error difference. The critical ratio obtained is 1.8 and indicates, according to Garrett's Table XV<sup>1</sup>, that there are eighty-nine chances in one hundred that the true difference (the difference between the true measures) is greater than zero or that in eighty-nine chances in one hundred the Woodrow Wilson Junior High School pupils would rate higher in social studies if the test were given under the same conditions.

The value sigma represents the distance from the mean at which the curve changes from convex to concave, see Figure 1, page 25. The standard deviation ( $\sigma$ ) takes into account approximately sixty-eight per cent of the one hundred and thirty scores.

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<sup>1</sup>  
Henry E. Garrett, Statistics in Psychology and Education, (New York: Longmans, Green and Company, 1931), p. 135.

The size of the sampling (one hundred and thirty cases) is great enough to warrant fair reliability, but the probable error is found in order to be fairly certain that unmeasured cases will fall near the average. In the Harrison township schools the probable error difference was near 0.14. The chances are that the true average lies within the limits  $13.58 \pm .14$ .

The probable error difference in the Woodrow Wilson Junior High School was  $\pm .17$ , so the chances are sixty-eight to one hundred that the true average of this school lies within  $13.98 \pm .17$ .

2. In History. In comparing the means of the two schools in history, there is a great difference (15.45) in favor of the Harrison township group. By dividing the real difference by the probable error difference, the critical ratio proved that in one hundred chances in one hundred the Harrison township pupils would rate higher in factual history. Table IX, page 33, indicates the probable error to be  $\pm 1.39$  in the Woodrow Wilson Junior High School group and  $\pm 1.59$  in the Harrison township group. These probable errors measure the error made in taking a sample as representative of a larger group.

The standard deviation in the Harrison township group is 25.51 and in the Woodrow Wilson Junior High School group, it is 23.52. In Figure 2, page 25, the line skews to the left because the greatest number of scores for the Woodrow Wilson Junior High School group lies between sixty-eight and one hundred. On the other hand, the line skews to the

right for the Harrison township group due to the greatest number of scores falling between one hundred to one hundred and forty.

3. In Geography. In comparing the means of the two schools in geography, the difference is 1.23 in favor of the Harrison township group. The critical ratio this time indicated that in ninety times in one hundred the township pupils would rate the higher. The probable error of the Harrison township schools and the Woodrow Wilson Junior High School are  $\pm .41$  and  $\pm .48$ , respectively.

## B. Conclusions

General Statement. This study of the achievement of the pupils in the Woodrow Wilson Junior High School and of the pupils in the Harrison township schools has yielded some information as to their general ability in social studies.

1. The relationship between the I. Q.'s of the two groups (correlation .99) shows that the groups as paired had practically the same general intelligence.

2. The difference in the means of the social studies groups show that in eighty-nine cases out of one hundred, the Woodrow Wilson Junior High School group will rate higher in solving present day problems.

3. The difference in the means in the history scores of the two groups proves the Harrison township pupils to be very superior in answering factual type tests, such as

Denny-Nelson American History Test.

4. The difference in the means of the geography scores is in favor of the Harrison township group. Both groups, however, measure almost up to the standard norm of 40.

5. The relation between intelligence and performance is different in the two types of schools. This is probably due to the different type of textbooks, teaching methods, teaching personality, etc., since the variables, such as educational qualifications, were practically the same. See Table I, page 12, and Table II, page 13.

6. Finally, this study, when all limiting factors are considered, furnishes no conclusive evidence as to the superiority of either curriculum over the other.

## VI. APPENDIX

### A. Bibliography

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### B. Social Studies Test

Check the Correct Answer

1. Large numbers of people live in cities due to:
  - a. Railroads
  - b. Climate
  - c. Factory systems
  
2. The energy of the people in the United States is largely due to:
  - a. Railroads, highways, waterways
  - b. Large deposits of coal, iron, oil
  - c. A rich productive soil
  - d. To a stimulating climate and the native qualities of the American people
  
3. The great variety and large amount of crops produced in the United States are a result:
  - a. Of a favorable climate and rich soil
  - b. Of our location near the Bahama Islands
  - c. Of our trade with foreign countries
  
4. The United States has become a great manufacturing country because:
  - a. America's water power has been extensively developed
  - b. Americans have learned to make and use machines in place of tools
  - c. America is a great agricultural nation
  - d. America has more animals



5. Long distance instantaneous communication by electricity has affected man as follows:

- a. He has lived more comfortably and has time to develop his native ability.
- b. He has become absolutely lazy.
- c. Caused him to have less opportunity for a job
- d. Caused criminals to escape punishment

6. In the early part of the present century, more than a million immigrants landed annually to seek homes in the United States due to:

- a. Poor standards of living in the old country
- b. Great airplane transportation
- c. Advertisements of western lands
- d. The belief that great opportunities existed in America

7. The language, traditions, and customs of the people of the United States were largely determined by the English on account of:

- a. The success of English in conquering the French
- b. The social distinctions in the colonies
- c. The home life of the English colonists
- d. The democratic feeling in the colonies

8. Labor unions were formed in order to improve working conditions of the workers and this has resulted in:

- a. Industry costing less
- b. In greater understanding between capital and labor
- c. In passage of laws favorable to labor

9. Twenty years from now the United States will:

- a. Depend less upon other countries
- b. Depend more upon other countries
- c. Will not trade with other countries

10. Birmingham is situated in a region of iron and coal which causes it to become:

- a. A center of negro communities
- b. A rival of Pittsburgh in production of steel
- c. A main stop for tourists

11. Winter on the Pacific coast is warm due to:

- a. Mountains shutting off the north winds
- b. Many people spend their winters on the coast
- c. Winds from the Pacific Ocean warm the air
- d. Oranges require a mild climate

12. Cattle and hogs are raised in Nebraska and Iowa and this results in:

- a. Large tracts of land being used for peoples' homes
- b. There are great numbers of horses and mules raised there
- c. There are great wheat fields
- d. There is a great production of corn

13. We have shown our attitude toward the immigration of Chinese and Japanese by:

- a. Employment of large numbers of them
- b. Increasing our standard of living
- c. The Exclusion Acts
- d. Our goodwill toward them

14. The largest continent in the world is Asia, therefore it:

- a. Has more coal than any other nation
- b. Has more manufacturing industries
- c. Has more population and social problems to solve
- d. Has more forests

15. Western Europe is called "The front door to Europe" on account of:

- a. Its position, straight across from North America
- b. The civilization in Western Europe is on the decline
- c. It being the only entrance to her cities in Central Europe
- d. Lack of mountains in that region

16. England valued her American colonies because they furnished a foundation for a new British Empire and this has:

- a. Caused jealousy among all nations of Europe
- b. Provided great income to all peasants
- c. It secured territory in the torrid zone

17. Bootlegging now, is to prohibition what smuggling

in 1733 was to the Acts of Trade and it has caused:

- a. Much happiness
- b. Much crime
- c. Attempt to reconsider the 18th Amendment

18. After the Civil War, many gangs of slaves became free and this caused:

- a. The death of Lincoln
- b. An effort to deport them to Africa
- c. A sympathetic attitude by the Whites, who passed amendments to improve the negroes' condition

19. The principal function of government is to improve the living conditions of the mass of the people of all occupations in order to:

- a. Regulate immigration
- b. Provide all with health and happiness
- c. Make each wealthy
- d. Occupy their time

20. The laws of the United States should sometimes be changed if:

- a. They do not affect each class of people the same
- b. They prove a detriment (a drawback) to the great majority
- c. If they are too long and complicated