

ABSTRACT OF A THESIS

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AMERICAN HISTORY TAUGHT IN REVERSE  
VERSUS THE  
TRADITIONAL CHRONOLOGICAL METHOD

Submitted by  
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In partial fulfillment of the requirement  
for the degree of Master of Arts  
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ABSTRACT OF A THESIS

As an experimental problem the writer chose to compare two methods of teaching American history to the three history classes of which he was the sole instructor. The two compared methods were the traditional, chronological, textbook method and a backward, unit method.

No attempt was made to equate the groups at the beginning of the experiment. One class made up of 34 students was taught by the traditional forward method and was the control group for the study. Two other classes, each having 37 students, were used as the experimental groups and were taught by the "reverse" or backward method. By a preview of grades and a pre-history test the writer was quite certain that the experimental groups were at least no better in mental ability than the control group, this to insure that the experimental group would not be superior regardless of method.

For each student in the experiment three scores were derived early in the course of the study, to be used as a basis of comparing student abilities. These were I. Q., based on Terman Test A, average grades for the first three years of high school, and a pre-history test grade based on a standardized test of high validity and reliability. These were given at various times scattered throughout the year, but the same tests were obviously not given all groups at the same time. Groups II and III, the experimental groups, were always administered the same test during the same day. In the preliminary analysis these six tests were analyzed as a criterion of measurement separately, as were all the nine tests.

However, in the final statistical analysis these six tests were used as a composite battery as criterion one for achievement measurement. These tests were of similar difficulty, form, and time of taking, and each covered a short time of from four to eight weeks of study.

Three other tests of achievement measurement were used. The two American history Every-Pupil Scholarship tests for January 8 and April 8 sent out by Emporia (Kanas) State Teachers College were given both groups in the study. These were used separately in the preliminary analysis and as a composite battery making up criterion two in the final statistical comparison of the methods.

The other test used was the sequel to the pre-history test, which was a standardized test of high reliability. It was used exclusively as an achievement criterion throughout the experiment.

The general outline for each compared group was devised in advance. Particularly the organization of units in the order to be taught were arranged for the experimental group. The control group was taught by the chronological sequence method, following the general outline of a newly adopted textbook. It was impossible to keep the two methods unlike with respect to library facilities, map references, and an American history picture series shown during the year, but in so far as comparison to the time arrangement and method of approach was concerned they were mutually exclusive.

The first process in the analysis resulted in some preliminary conclusions. In constructing the averages for all groups on the four criteria of ability and the nine criteria of measurement some definite conclusions were available. The control group

was substantially superior to both experimental groups on all four of the criteria of measurement. The first experimental group was only slightly superior to the second. On the achievement criteria also the control group was superior to Groups II and III, with Group II again slightly superior to III. On one achievement test the average score for II was slightly higher than for I, the control group. The only real conclusions resulting from the preliminary analysis were that the groups were not at all equal and that superior ability groups were relatively superior in achievement. Thus it was imperative that to gain any scientific results by means of the study further statistical analysis was necessary so that inequalities between groups could be removed.

The procedure necessitated the construction of a weighted index of ability for each student. To accomplish this it was necessary to determine the relative weights to be assigned to the several criteria of measuring achievement in order that these criteria might be combined in such a manner for each pupil to provide the most valid achievement index. The application of the method of least squares was employed. In the computation of this formula, it was found that one of the four criteria of ability measurement was a negative quantity. Therefore, that criterion, the mental ability test procured from Manhattan, Kansas State College, was eliminated from the consideration, since the presence of a negative value here indicated that this test was not a valid test to use in conjunction with the three other criteria as a measurement of achievement of history.

When the least squares formula was applied to the other three criteria and reduced to a statistic usable for any one of the



nine achievement grades, it was found that the weights for building the index score for I. Q., three-year average, and pre-history test were .04, .596, and .52 respectively.

We were then able to compute the real equated comparisons in the experiment. The index scores for each of the 108 pupils in the experiment were thus computed, based upon the above-mentioned values for building the scores. We had made it possible to remove the apparent inequalities between students and groups.

It was then possible to devise the achievement quotients for all students on any test or battery of tests. At this point it was deemed advisable to combine some of the achievement scores rather than to consider each of the nine separately. We thus combined the battery of six tests composed by the writer, to constitute criterion one for the further analysis. We combined the two scholarship tests (they had already been reduced to the basis of a 100 total score) as a second criterion, and we used the final standardized test as a criterion by itself. This was due to its importance as a final as well as that it was not similar to any other. After removing the individual discrepancies in achievement due to fundamental differences in ability and then constructing the actual achievement quotients which indicated their achievements, we were ready to perform the original objective as outlined in the problem. We proceeded to compare the results of achievement by the two methods based upon a statistical procedure known as analysis of variance. By this analysis the writer measured the significance of the variation in achievement based upon the previously devised quotients. By this means we computed the variation in achievement due to several causes. It was proved beyond a doubt that there was

variation in the difficulty of tests. (The statistic being 226.5 when 3.03 shows significance.) On the more important analysis involving method, we found that the variation in result attributable to the combined influence of method of teaching and the time available in class (Group III had one-half period per week less than Groups I and II) was a slightly significant statistic. The statistic was 3.16, and greater than 3.03 showed significance. We could not yet conclude whether the method of teaching or time allotment was either solely a significant factor.

We thus proceeded further to break down the causes of variance. To do so we employed the "t" test. From the results found when comparing the control group to the combined experimental groups and when comparing each group separately on any one of the three achievement criteria, no significant variation was found due to method of teaching alone. However, one significant statistic resulted in comparing average achievement for Group III with Groups I or II on the final test criterion. A significant variation of 3.07 based on a comparison of Group II and III (both experimental groups) was the result. It was concluded that method of teaching is not exclusively a significantly variable factor, but that the time allotment in class was a significant factor of variation. 1.96 is significant for one variable.

The results were further broken down into a comparison of the superior and dull division of each group. No significance resulted from this analysis except that the slow division of the control group achieved significantly higher than the slow division of the experimental groups. This was true of Group II as well as III; thus the variation was attributed to method of teaching and

not solely to the time allotment variation as was true of groups as a whole, as previously shown. There was some indication that the superior division of Group II achieved higher than the superior division of Group I, but the difference, though present, was not of an extent great enough to be statistically significant.

As shown by the findings of this experiment, we thus concluded in answer to the two main questions outlined in the original problem that:

1. There is no significant difference in achievement resulting from the conventional, chronological method and from the backward, unit method of teaching American history.
2. The conventional method is slightly superior to the experimental method for the slow students. If there is a difference in the methods for the superior student, it is in favor of the "backward" method.

A third question answered, though not originally planned, was in connection with time allotment in class. Evidence indicated that class time allotment was a more significant variant than method of teaching.

Though rather conclusive results are realized through the application of statistical methods, there are certain weaknesses and limitations to this study. It is now definitely realized that provision should have been made to utilize some available device for the testing of student interest as well as for the testing of historical information alone. This suggests the second weakness; namely, that the study was based on the effectiveness of method as judged by achievement of information and content as the desired end. Obviously, intangible results such as citizenship and attitude are of importance. The writer recognizes that the two methods were not as exclusively different as was desired. This was due to the use of similar school supplies, facilities, and teacher personality. There was a weakness



in the ability measuring criteria. The student's three-year average of grades was used as a measurement, yet this average is generally passing (75 to 100) for most high school students. Thus, this criterion of measurement had a leveling effect. The last recognized limitation in this study concerned the mental maturity of the students. This factor was involved both in the matter of its contributing to the ability indexes of the pupils, as well as in the fact that the degree of mental maturity contributed by the course, was not measured accurately. It was an important element and could be measured neither as it affected ability nor as a part of achievement.

The implications of the study are merely a continuation of the previously recognized conclusions. We realized from the findings that the experimental method has possibilities as a method of teaching history, that if the method were used further it might prove of value for the superior groups in a homogeneous set-up, and that we should be concerned about the available time for class in such an academic subject as history.

The usefulness of this method should be further studied. Further proof of its adaptability should rest on a study based upon larger groups with more than one teacher using both methods. The study is suggestive of need in connection with schedule adjustment. Future research should deal with the important contributions of such a method based upon interest, attitude, mental maturity, citizenship, and other intangibles which are undoubtedly of more real worth than mere gaining of formal and abstract knowledge.



THESIS

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AMERICAN HISTORY TAUGHT IN REVERSE  
VERSUS THE  
TRADITIONAL CHRONOLOGICAL METHOD

Submitted by

H. Guy Hayes

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FORT COLLINS, COLORADO

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COLORADO STATE COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS

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..... July 29, ..... 1941 .....

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY  
SUPERVISION BY H. Guy Hayes

ENTITLED American History Taught in Reverse Versus  
the Traditional Chronological Method

BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE  
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CREDITS 3

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must be obtained from the Dean of the Graduate School.

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## Chapter I

### INTRODUCTION

#### Reasons for studying history

The importance of teaching the happenings and developments of the past ages has long been recognized. Scattered references from ancient and Biblical history clearly indicate that earliest civilized people appreciated the civic and religious value of history.

In America history gained early recognition in the schools. The first textbook in United States history appeared in 1787. In 1827 the state of Massachusetts required the teaching of American history in the larger towns, and by 1830, 15 textbooks had become available as aids in teaching the subject. Emphasis on the subject continued to grow until by 1900, 33 of the 44 states prescribed American history as a course in the schools. By 1910, 70% of the American elementary and secondary schools required the teaching of history. Since that time less attention has been given to history as a separate course and increased emphasis has been given to the social studies as a whole (17:1131).

The history teacher today has the very difficult task of teaching pupils to think for themselves in a rapidly changing world. As a result, any new, scientific

approach to the teaching of history, in the face of present-day demands, becomes a pertinent contribution. The traditional textbook content, presented primarily in a Socratic question and answer method, still prevails. Yet history is a study of human relationships and human developments. A study of past happenings is an effort to understand the present better and to forecast the future.

The secondary school of today is no longer offering its courses in history in an effort to train minds to master facts. It is today taught in an effort to promote good citizenship, to train students in real experiences which will carry over into the student's adult life, and to practise better governmental and civic endeavors. This general trend of objectives is corroborated by Murra (17:1134) in 1941 when he states that:

Between 1888 and 1927 the aims in teaching American history shifted their focus from mental discipline to citizenship. In the same period there was an increased emphasis on the "social aims" of American history and upon the specific objective "to understand the present in the light of the past."

The Fourteenth Yearbook of the Department of Superintendence (18:11) stated in this connection that "history seeks to find the unity of social relations in time development."

The importance of a more real objective and approach to the study of this subject is made clear from the statement of a recent high school graduate (5:2) when he states that:



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The legacy of American youth should be an unbiased perspective of America, its hopes, and aspirations, and a sublime faith in its destiny in a world of confused nations. Only when we school students are made aware of the real contingencies facing us and their real background and scope will we effectively discharge our obligations to the social order.

#### Reasons for selecting the problem

A thoughtful person is forced to become skeptical as to the validity of the present history teaching on the basis of curriculum, method, organization, and objectives. It is evident that a knowledge of the past is a requisite to proper understanding of the present and the future; that the understanding of the present is becoming more and more complex; and that teachers fail to utilize proper media in showing the relationship between past, present, and future in the most effective manner. Wilson and Murra in 1938 (25:150) stated in this connection:

Researches in psychology and in learning have focused attention upon the arrangement of material in related bodies, if it is to be interpreted by young learners.

It has for some time appeared evident to the writer that the effectiveness of the teaching of United States history might be improved in content, in method, and in organization. This desire to achieve better results from history instruction presented the basis for this study. If history, even as any other subject, has value only as it is associated with known, related knowledge, it becomes evident that enhanced value will be derived from courses in history only in proportion to



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this relationship and association with other knowledge.

Wilson (25:150) is quoted in 1934 as follows on this subject:

The emphasis on arranging content with a view to grouping related elements has necessitated the overstepping of traditional subject-matter boundary lines. This movement has flourished in the field in the past 15 years, owing its general stimulation and basic theory to research in educational psychology.

It seems obvious to the writer that association and relationship can be based psychologically only on something already known. If that be the case, history of the past should be associated with present-day happenings in an effort to explain why things have become what they are. Thus we have the foundation for the backward method of teaching history used in this study. The backward method begins with conditions, personages, and movements in the pupil's living present. From the present as the starting place we look backward, step by step, for the causal relationship and the background of the pupil's known, familiar world.

The belief that history instruction might be measurably improved provided the basis for this study. An experiment was therefore planned to determine whether any evident difference resulted from teaching United States history by two methods.

#### The setting

This study was conducted personally, by the writer, in connection with the teaching of American

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history in the Dickinson County Community High School during the full school term of 1940 and 1941. The writer was the sole instructor in this subject, having three classes of American history in which were enrolled, exclusively, the seniors of the high school. The subject is required for graduation. There were 108 pupils in the three classes, whose records are complete and usable. There was no attempt to change students from one class to another in an effort to equate the groups or to make them aware that they were the subjects of experimentation.

The school is in a rich farming community, and the student body is composed of about 70% rural students. The town of Chapman, Kansas, in which the school is located, has a strong Catholic constituency of direct Irish descent. The rural students tend to be predominantly of German and Pennsylvania Dutch descent. The students are brought from areas as far distant as thirty miles, this being one of the largest and richest districts, based on student per capita wealth, in the state of Kansas. There is no apparent reason why the students should not be considered to fall quite at random in the three groups, so that all three classes may be assumed to contain a fair representation of the different types of student abilities.

There was little publicity given the experiment, though all teachers and students alike cooperated to a maximum degree wherever it was possible to do so in

connection with the study.

### The problem

The problem was to determine whether certain objectives of history teaching (knowledge of history and the creation of proper habits and attitudes toward useful citizenship) were better attained from the traditional, chronological, textbook method of teaching, or from a backward, unit method.

The study is an attempt to answer the following questions:

1. Is one method superior to the other in teaching the total aggregate of information included in a course in United States history?
2. Is there any evident difference in the effectiveness of the two methods for the superior and the slow student?

### Delimitations, definitions, and assumptions

The study was limited to a comparison of only the two methods, forward and backward. It included only the classes of the writer, and records of the results were kept solely by the writer. The teaching procedure was somewhat disturbed, at times, by routine school affairs and unavoidable occurrences.

The traditional method is construed to mean teaching by lecture, question-and-answer, textbook, library, and various other media, yet always following through chronologically from the Discovery period to the present.



The reverse method assumes that present-day conditions are suggestive of areas of study which, when developed as to their cause and underlying background, will constitute subject-matter and relationship knowledge similar to that covered in the usual method of procedure.

The "evaluation" assumes that a valid and reliable comparison of the two methods resulted from the study.

However, there are certain elements in the procedure which made it difficult to keep the methods as distinct and different as was desired. Such contributory elements as the personality of the teacher, common library facilities, similar textbooks, and reference to current and periodical literature were similar for both methods. These factors will be fully explained in the "method of procedure."



## Chapter II

### REVIEW OF LITERATURE

#### General progress of research in history and the social studies

Our attention has previously been called to the early recognition of the importance of historical knowledge and its inclusion in the school curriculum. As the place of the social sciences in the school program became more permanent, the study of method of instruction, subject content, and general aims and purposes naturally became a field in which scientific research was applied. As a result, we have much information which directly and indirectly applies to the study involved in this experiment.

Murra (17), in 1941, divided research in the field into three general periods. Period I, 1890 to 1916, was characterized by emphasis upon theories, formal methods, curriculum proposals, statements of general and somewhat unrealistic objectives, and descriptions of extant curriculums. Period II, 1916 to 1933, was characterized by Herculean efforts toward objectivity. Research was concerned with dozens of techniques for the selection of curriculum content, varied forms of curriculum organization, textbooks, courses of study, history and status of the curriculum, comparative methods, objective tests,

equipment supervision, vocabulary studies, teacher preparation, and problems of learning. Period III, since 1933, has been characterized by an increasing emphasis upon the social setting, social rather than individual objectives, testing outcomes beyond information, and continual study of curriculum organization. This section of Murra's study is concluded with the recognition that:

Greater stress is being placed upon social setting, characteristics of pupils, attempts to measure intangible outcomes, and the opinions of both teachers and pupils. Less faith is being attached to statistical studies, and more reliance is being placed upon judgments of values. (17:1131)

Because of the recency of this survey, provided by Murra and his collaborators, who are authorities in the field, the foregoing paragraphs should suffice as an orientation to research dealing with method of instruction in history and the social studies.

#### General weaknesses and limitations of previous research

The general consideration of the matter with which we are dealing offers voluminous material for study and conclusions. An exhaustive survey would necessitate thorough consideration of both method of instruction, and social studies as a field. As a result, a survey of only the more recent authoritative works will be quoted. These, it has been found, constitute corroborative summaries of the literature in the field.

In this connection Hodgkins (17:1143) is quoted in a 1941 summary as follows:



On the whole, experimental studies in comparative teaching methods have been rather inconclusive thus far. Even where difference might seem large enough to be statistically significant in favor of one method or another, allowances must generally be made for complicating factors, such as imperfectly equated pupil groups, differences in the skill and enthusiasm with which different methods are handled, and inability to test some of the important outcomes.

Engelhart's (12:555-63) general survey of the experimentation up to 1939 was verified by the conclusions of Murra. Many of the results surveyed indicated weakness in experimental methods due to lack of sufficient time duration and of measurement of all relevant factors in the experiment (21), and in experimentation which fails to obtain adequate control of instructional procedures and experience, skill, and zeal of the teachers (16).

The 37th Yearbook of the National Society for the Study of Education devoted a chapter to the social studies research up until 1938. In this report Wilson and Murra (25:152) corroborated the previous findings to which attention has already been directed. Their summary concluded:

The number of factors related to method and the difficulty of controlling them have handicapped experimentation and have reduced the conclusiveness of much that has been done. Moreover, the personality of the investigator is itself a phase of method -- a fact that has caused much "research" on method to be little more than a collection of evidence for pre-accepted hypothesis....Many of these studies (during the past generation, and especially during the 20's) involved comparisons of one method with another. Such studies contributed much to the general dissatisfaction with the traditional method of textbook recitation, but were by no means objectively conclusive in themselves.



We must conclude as Hodgkins (17:1143-4) does in the following quotation:

Experiments or groups of experiments involving enough pupils and enough variety of conditions to warrant conclusions of broad and general applicability are rare -- and necessarily rarer in the social studies than in some other fields in which objective testing is more readily able to cover the desired outcomes.

It would appear that anyone choosing to experiment in this area of instruction is confronted with many difficulties, which lead to lack of validity and of reliability in the outcome. It behooves the experimenter to steer clear of those difficulties which have previously yielded unreliable and insignificant results.

The backward method of teaching history

There is a limit to the extent to which anyone has previously used the "backward" method or anything similar to it. Likewise, there is a limit to the conclusiveness resulting from the few experiments.

In 1931 Professor Crawford of the University of Southern California and Principal Walker of the Downey, California, Junior High School carried on "an experiment in teaching history backward". Their findings (7) are here recorded with some degree of completeness because of the relative importance of this reference. The subject taught was junior high school American history. There were two sections which were taught for a period of twelve weeks: that period was divided into two periods

of six weeks each. Efforts were made to equate the stu-<sup>17</sup> dents in all matters which might affect the outcome. As a result the "backward" method might be fairly compared with the traditional "forward" method. Two units were taught, namely, "transportation" and "communication", each one having a duration of six weeks. Differences in student abilities were removed by a rotation in which Group I was taught for six weeks by the control method and for the following six weeks by the experimental method. Similar procedure was followed for Group II, except that it was carried on in reverse order. The experiment was designed to measure both immediate gain and retention of information. At the end of each six weeks period the same test was given both groups. This was the measurement of comparison upon which amount of information acquired was based. Another test was given two months after the experiment closed in order to measure retention of information. All tests not of an objective nature were graded by a teacher who did not know of the experimental test in progress.

During the first period the experimental group began with a currently important aeroplane endurance flight and proceeded backward through the development of "transportation" and finally to the voyage of Columbus. The other group was taught the same material by the forward method, beginning with Columbus' voyage. During the second period the groups were reversed, and the control

group became the experimental group for the unit of "communication". This began with the study of a current invention such as television and worked back through development of the radio, Marconi's telegraph, and finally to Franklin's printing press. The other group began in the early period and proceeded in chronological sequence.

The results were favorable to the backward method throughout. For the "backward" group the mean result in achievement of immediate information was 7.33 higher than for the "forward" group. For retention of material the mean result was 3.01 higher for the "backward" group. Statistically this signified that if the experiment were repeated indefinitely under the same conditions there was a 480,000 to 1 chance that the "backward" group would always prove superior. Similarly, there was a 62 to 1 chance that, in retention, the experimental group would prove superior. The experimenters recognized the limitations of the study due to small numbers and short time involved, and also they understood that characteristics, enthusiasm, and preparation of teachers would influence the results. It was also recognized as entirely possible that other units of study would not subject themselves as readily to the "reverse" method. The investigators believed that the effective results were suggestive and were deserving of more careful consideration of the experimental method.

Henderson (14), in 1933, suggested the use of



a similar method of approach to the subject. It was the result of a student's suggestion, namely that he wished history would be taught "the other way around". As a result a group of ten units was arranged, all of which were approached in reverse, that is, beginning with the topics on current events. The writer not only continued to use the method, but became very enthusiastic about it and recommended extended adoption of the approach.

In 1936, Dresden (10) presented her experience with "teaching history backward". She suggested that it is possible to begin with a dramatic episode of the present and, while the students are discussing this, show them that they do not fully comprehend the situation because they do not see what is back of it. In her own words she clearly presented (10:37) the plan and at the same time justified its success:

While they (the students) are still eager, work back, keeping the current problem always before them, but illustrate that it has a background. Show that this period is only the natural result of a preceding period, that in turn developed out of an earlier situation and so on, until the pupil of his own accord sees that history is a constantly developing progression -- each part dependent on the other, and all making for unbroken continuity....he (the pupil) wants to know why and how, not because his teacher told him to, but because the movement is so dramatic that it demands every detail, or because he fears making a foolish prognostication and embarrassing himself before his peers....If a student works back from today to certain facts he realizes they are not isolated, but a foundation for the present.

A review of this study yields valuable suggestions as to the procedure, the units, and the goals. The formulating of an outline as a prerequisite was suggested.

The enthusiasm of the author for the plan was perhaps merited. She made her strongest point in its favor in the fact that it was an ideal approach to the study of and the recognition of the importance of current events. This was justified on the basis of four recognized factors in the teaching of history. These were traditional subject-matter, the current situation, the pupil, and the teacher. Of these, the only real variable was the current situation. As a result the writer believed that:

"Only by the backward method is it possible to send forth students...interested in the current situation and who realize that history has a real value in its interpretation".

#### Other related literature

Other articles of information and research studies were found useful in answering the problems to be solved and in contributing suggestions for content, organization, and procedure. The studies by Crawford and Walker (7), Dresden (10), and Henderson (14) were helpful in suggestions for the outline of topics and units, for material to utilize in approaching the "backward" method, measuring devices, record-keeping, and other matters to promote or refrain from in developing the procedure.

The summary presented by Engelhart (12:555-8), in suggesting devices used in the experimental procedure, was very helpful. Particularly applicable was his suggestion that:

An experiment need not be restricted to the



investigation of the effect of one change in a single experimental factor....different changes...may be studied through the use of different and not necessarily equivalent groups.

Further, he suggests that the ideal experiment reduces the non-experimental factors to as nearly "zero" as possible so that variation will be due to the measurable experimental factor.

Other studies which compare methods of teaching were found useful to the study. Dynes (11) compared two methods of studying history with the variation due to methods of study. He sought to test the amount of material learned in a given length of time, the retention of the material, and the effect of the experiment on the study habits of the students. He concluded that the method of study has little effect upon the results obtained.

Reference is here made to a study of two methods of teaching high school algebra. Drake's (9) study in 1935 was applicable, since it suggested certain procedures valuable in the present study: measurements for comparing students' abilities, tabular arrangements, suggested limitations and errors which cannot be controlled, and the factors of value for which the experimental procedure does not provide measurement.

In 1937 Warren (22) developed a course of study for high school American history on the Morrison plan basis. Whaley in 1933 (23) developed a "vitalized" twelfth grade social studies program which attempted to



remove the emphasis on formal discipline. An intensive study of a few major problems rather than a superficial survey of many was the plan of the course. The results showed improved pupil interest, opportunity for cooperative planning, and a much improved teaching procedure.

Many studies have compared the traditional question-and-answer method or study-recitation method with some new project, socialized, or unit method of approach. Alderman (2) as early as 1922 compared the lecture method with the question-and-answer method with the results insignificant for either method. However, there was some evidence that the lecture method was more adaptable to the brighter students and the question-and-answer method better for the duller students. Brooks (4) used two equated groups of seventh grade history students in 1939 to test the results of the pupil-activity method as compared with the traditional question-and-answer method. There was too little difference to justify the conclusion that either was distinctly better, but the pupil-activity method seemed better for the higher level of students, and the procedure seemed to promote maximum student application and to be more adequate in developing initiative and technique of research, and the students seemed to favor it. Esson and Cole (13) in 1929 compared groups of students in ten high schools as to effectiveness of the "contract" method versus the ordinary method. The results were only slightly in favor of the "contract" plan, but it could be

termed a satisfactory method of teaching history. In 1929 Kelley (15) compared the "traditional" method with a "socialized-activity-project" for ninth and eleventh grade students in history. His findings were based on small samples, and his statistical treatment was inadequate. As a result his broad generalizations are wholly unsupported by evidence. Crawford and Slagle (6) compared the formal recitation method with the "laboratory" method in their study in 1930. Economics, history, and citizenship were used as a comparative basis in the ninth, eleventh, and twelfth grades. They concluded that the "laboratory" method was superior, but the smallness of groups and the fact that the objective tests were of undetermined validity and reliability made highly questionable their findings.

An enlightening experiment was conducted in 1936 by Douglas and Pederson (8). It compared the results of the "study-recitation" method with those of a modified Morrison unit procedure. Their groups were equated at the outset. They concluded that "the unit plan is slightly superior in the hands of well-trained teachers, and that the plan is probably better suited to bright than dull pupils". Valuable suggestions as to tabular methods, testing techniques, and topical outlines were included.

### Chapter III

#### METHOD OF PROCEDURE

This study was carried on by the experimental method. On the recommendation of the mathematics adviser no attempt was made to equate the class groups taught by different methods. A perspective of abilities was taken as an initial process, to be sure that the control group was at least as high as the experimental groups in mental ability and abilities to achieve in the learning of history.

The writer taught three consecutive American history classes in the forenoon; each group had a net class period, when the schedule was followed normally, of 50 to 55 minutes in length.

#### Control group; method of instruction

The first period in the morning was selected as the control group. This class will be hereafter referred to as Group I. This group was taught by the conventional, chronological, textbook method. The general outline of the course followed a rather new textbook (published in 1937). This book was United States in the Making written by Canfield and others, published by the Houghton Mifflin Company. It was the first year this textbook was used in this school. All students were required to get a book



unless they could alternate with students in another class. This textbook follows a typical chronological outline, beginning with the Old World Renaissance, the Discovery period, American colonization, and the establishment of the American colonies as a nation, and proceeding through the Civil War for the first semester's work. The second semester continues with reconstruction, expansion, new political parties, recent wars and peace efforts, graft and reforms, twentieth century politics, and "new deal" policies. The textbook followed accepted chronological procedure, with perhaps more than ordinary stress placed on economic, social, and cultural development. It was used, however, only as a general outline. Library references were given for each new chapter or unit as followed by the text. Some of the more commonly used references were: Elson, Adams, Forman, Muzzey, Robinson Breasted and Smith. Regular reference was made to the volumes known as The Pageant of America. Study outlines and questions were dictated as part of the assignments. Notebooks were not required, but were strongly urged as a place to file outlines, questions, class notes, and discussions. Some original freehand maps, outline maps, and special oral reports were required in the course. A picture series known as Yale Chronicles of American History was shown to both the control and experimental groups. It was made up of 15 reels of moving pictures, was shown on an average of twice a month, and took about

45 minutes for showing.

Group I originally had 39 students enrolled, but because of two drop-outs and three who changed classes during the term, the experiment included 34 students in Group I.

#### Experimental groups, outline and procedure

Second and third hour classes in American history were taught immediately following the control group. They make up the experimental groups, and will hereafter be referred to as Groups II and III, respectively. As has been mentioned previously, there was no effort to equate either of the three groups. An initial survey (to be explained more fully in connection with the "testing program") showed that Groups II and III were not superior mentally to Group I. However, there was no evident reason why all three groups should not fall into approximately equal groups. Groups II\* and III were taught by identical methods but are kept segregated in the experiment because of uncontrollable influences which may have had a bearing upon the results.

The fundamental difference between Groups II and III (the experimental groups) and Group I (the control group) was that II and III were taught by what is referred to in this experiment as the backward method.

A brief outline of units taught by this method, in the order taught, follows: (The complete outline is



included in the appendix.)

1. Wars America has engaged in.
  - A. World War No. II.
  - B. World War No. I.
  - C. Spanish-American War.
  - D. War of 1812, etc.  
(The Civil War was mentioned in passing but was omitted to be used with slavery and sectionalism unit.)
2. Results of wars, peace efforts, futility of war, etc. (This unit leads logically to 3.)
3. Territorial acquisition.
  - A. Treaties, purchases, compromises.
  - B. The origin of ownership of land. (leads directly to 4.)
4. Discovery, colonization, settlement, and expansion.
5. Elections. (November was the month in which this was taught.)
6. Political parties.
  - A. Purpose.
  - B. Most important ones.
  - C. Major platforms. (leads to 7.)
  - D. Important elections in American history.
  - E. Presidents, and other associated personages.
7. Tariff.
  - A. Purpose.
  - B. New Deal policy.
  - C. Political parties and their relation.
  - D. Important tariff campaigns.
8. Un-American activities, immigrations, efforts to control. (leads logically to 9.)
9. Labor difficulties and labor unions.
10. "New Deal" policies, theories of government, the origin of government, difficulties encountered, problems of creating a national unity, and earlier efforts toward common government.
11. Present-day sectionalism.
  - A. Early problem of sectionalism.
  - B. Trend toward disunity.
  - C. Civil War.
    1. Scars which remain.
    2. Reconstruction difficulties.
12. Great compromises.
13. Other great documents, wise sayings.
14. Government control over industry and agriculture.
  - A. New Deal policies.
  - B. Comparison to other isms. (leads to 16.)
  - C. Geographical influence on the development of industry.
  - D. The importance and influence of natural resources. (leads to 15.)



- E. Improvements in science and inventions.
- 15. Conservation.
  - A. Present stress.
  - B. The Roosevelt era.
  - C. Early policy, tendency toward waste.
- 16. Foreign relations.
  - A. Recent trends.
  - B. Post-war policies.
  - C. Imperialism and broadening influence.
  - D. Difficulties encountered.
    - 1. During Civil War.
    - 2. Trouble previous to War of 1812.
- 17. Transportation, inventions, aid to expansion.
- 18. Agriculture.
- 19. Amusements, sports, education, and aesthetic development.
  - A. Changes in the social practices and mores.
  - B. Leisure time, reason ascribed to technological change, etc.
  - C. Early-day customs, early literature, schools.
  - D. The importance of religion, its place now and through various periods.
- 20. The American Indian.
  - A. Status today, schools, reservations, etc.
  - B. Earlier treatment.
    - 1. Jacksonian Policy.
    - 2. Treatment during colonial times.
- 21. Money and financial control.
  - A. Business cycle.
  - B. Economic terms such as inflation, etc.
  - C. Money history.
    - 1. Free silver.
    - 2. Panics.
    - 3. Banking systems.
    - 4. Importance of early policies of Hamilton, Gallatin, and others.
- 22. Reforms.
  - A. Recent endeavors toward a higher living standard.
  - B. Amendments.
  - C. Graft and corruption.
  - D. Prison reform.

### Uncontrollable features in the study

The difficulty of making the experimental method entirely different from the control method was apparent from the beginning. Notebooks, questions, class-notes, and map work were assigned in somewhat the same

manner as explained for Group I. The same supplementary reference library was used, the same picture series was shown, and the same periodical literature was available. The discussion of current affairs, whenever they were pertinent, was carried on in all groups, similarly.

The students in all three groups were of a similar makeup. However, our school system depends on a widely scattered rural constituency. Students were allowed to arrange their schedules to begin at 8:10 and close at 3:20 or to begin at 9:00 and close at 4:10. As a result, it happened that most of the town students or those from close to school were in the first-hour class, that is, Group I. Another factor which could have affected the group makeup involves the Normal Training students, of whom there were about 30. It was necessary for these students to be enrolled in the American history class either the first or second hour, in order to keep the third hour free for Normal Training subjects. As it happened, a large portion of them were enrolled in the second group. This might have had some bearing on the problem, since the Normal Training students are better than average in ability. To offset this superiority, however, there were enrolled in Group II some five-year students (those who could not complete the requirements in four years) and some town students who worked before school. These, perhaps, offset any superiority added by the Normal Training students, for the group as a whole.



Another factor which may have had definite bearing on the question was the occurrence of assembly during the third hour on an average of once each week. This deprived the third group of from 25 to 45 minutes, or an average of at least 30 minutes of class discussion and instruction per week. It is possible that this factor may have proved a more potent variable than the methods used. For this reason, Groups II and III are treated separately, though taught by the same method, to show any difference due to this schedule or to other uncontrolled variables.

At the beginning of the school year, there were 40 and 39 students, respectively, in the second-hour and third-hour classes, but because of drop-outs and other uncontrollable happenings the experiment ended with complete records on 37 students in each of Groups II and III.

#### Ability testing

The "testing program" was of paramount importance in this experiment. The test data furnished the real basis for the scientific approach to the comparison of the two methods of teaching; and, incidentally, were the basis also for determining the importance of time in the classroom, for the tests enabled Group II and Group III to be compared.

Since there was no effort to equate the groups at the outset, it was essential that an adequate comparison be made of the three groups by as many means as possible so that the initial abilities of all groups could



be evaluated.

As a basis of comparison of the groups, initially, four criteria were used for each student in the experiment. The standardized "Terman Group Test of Mental Ability", form A, was administered to all students. This furnished a comparison by I. Q. scores. Most of the students had taken this test when they entered high school as freshman, but those students who had entered from other schools later were given the test to make these records complete.

The second criterion for comparing the students was a computation of their three-year-average of grades received thus far in high school. This figure was computed very accurately, since the high school records are kept in numerical grades.

The third criterion of comparison was a test administered the second day of school (and the first full-time class meeting), which will be referred to hereafter as the pre-history test. This was a standardized "American History Test", form A, compiled by John A. Kinneman of the Illinois Normal University, and published by McKnight and McKnight, Bloomington, Illinois. It had been successfully used by many high schools and colleges, and many authorities had offered suggestions, made recommendations, and given approval. Form B of this test was used as the final test of ability at the close of the year. This test was highly recommended for the

purpose of pre-history and final test. The coefficient of correlation, as given in the instruction sheet accompanying the test, was .884, thus showing a high degree of reliability between forms A and B of the tests. The tests are identical in form, including 100 questions each, are administered in 26 minutes, and cover all periods of American history and current affairs.

The fourth criterion of comparison was not planned at the outset of the experiment. However, toward the latter part of the year all seniors and post-graduate students were administered a test which is used by Kansas State College at Manhattan, Kansas, as an entrance test. This test was copyrighted in 1937 by Peterson and Peterson. The test is designated as "Test V, Group Test of Mental Ability". The results on this test were collected by the writer, since it was believed that every reliable comparison should be made of students and groups, in order to verify and validate the results. This addition to the experiment was interesting because of the findings resulting from the statistical procedure.

Copies of the "Terman Group Test", the Kansas State College test, and the Kinneman tests are filed in the appendix. Scores on all four of the criteria of comparison are included in the charts of complete data included in the appendix.

### The achievement "testing program"

The foregoing discussion dealt with the testing program which was used in comparing the students' abilities. The following explanation involves the records of achievement during the process of the experiment.

The procedure outline required that a battery of not less than four tests be administered to the control and experimental groups alike, as a basis of measuring accomplishment. The writer administered nine tests in an effort to make the results as reliable as possible. Six of these tests were regular objective tests formulated by the writer as instructor of the classes. These six tests are referred to, respectively, as tests I to VI. During the first semester Group I took tests I and II and were given tests IV and V as a semester test. Groups II and III were given test III during the first semester and tests IV and VI as a semester test. During the second semester and toward the end of the school term, Group I was given tests III and VI, and Groups II and III were given tests I, II, and V. These tests covered different studies and units and were administered as the students finished various subject matter units. The tests follow closely the two outlines for the two methods, but it is impossible to avoid overlapping units, especially in the "backward" method.

In addition to these six tests, three other tests were administered. Every Pupil Scholarship Tests



in American History, for January 8 and April 8, were given. These are published by the Bureau of Educational Measurements, Kansas State Teachers College, Emporia, Kansas. These are not standardized tests but are used to compare results of teaching American history in the state of Kansas. They cover, in the course of both tests, all periods of American history. These tests are objective in nature and are compiled by some accepted authority in the subject, generally some successful teacher in some high school in the state. The tests were administered to all groups under circumstances as nearly identical as possible. Group I was given Scholarship Test I during the month of March and Scholarship Test II the last week of the school term. Groups II and III were given Test I the latter part of April and Test II the same day that it was given to Group I. These tests were given under very similar circumstances in all classes. The two together furnish a very complete, objective check-up for the entire subject of American history. There is no complete adherence to any one textbook, though, from experience, the writer believes the tests follow Muzzey as a reference fairly closely.

The last day the classes met they were administered the sequel to the pre-history test. As previously described, this test took exactly 26 minutes, and though it was given the last day, when students were excited, it should have been similar for all students in all classes.

(There were a few students attending National Music Festival who took the test the following Monday, but these were distributed similarly among all three classes.)

These nine tests form the basis for comparing the achievement of the students in the various groups. It is difficult to tell to just what extent the tests measure uncontrollable factors. For example, the students who began school at 8:10 in the morning probably had more time for library work and reference to current newspapers and magazines. At the same time, the normal training students probably had much the heaviest schedules of any of the students. It is impossible to determine to just what extent the tests were affected by the maturity levels of the students. The six tests prepared by the writer followed the textbook, the library references, and the current material assigned. The scholarship tests covered the general subject and were administered to grades XI and XII. The final test possibly measured maturity somewhat in that it was used for grades XI, XII, and XIII, which includes college entrance. The final, like the pre-history, contained some reference to current affairs, the understanding of which might have been affected by the maturity of the students, their reading habits, and their home background. It was impossible to measure these varying factors, but it was hoped that the number and variety of tests administered would compensate for uncontrollable influences. The importance of the pre-history

test as an initial ability measurement, and of the final test as an achievement measurement, should add validity to the testing program. These tests are included in the material assembled within the appendix.

The procedure has been fully described. The writer has attempted to conduct the experiment with accuracy and with unbiased opinion as to the outcome. Every effort has been made to administer the tests fairly and keep varying elements from affecting the results. The number of comparisons between initial ability and achievement has been increased whenever possible in an effort to secure more reliable results. All outlines, records, and tests are complete in the appendix.



## Chapter IV

### FINDINGS AND DISCUSSION

Although the experimental procedure was rather fully described in the foregoing chapter, a brief description of the class groups and their abilities is given here for greater clarity.

#### Class groups

This experiment was carried on in three high school classes in American history by two methods, the conventional, chronological, forward method and the unconventional, backward method. Group I, which met the first period in the forenoon, was selected as the control group. It was selected as such because grades, I. Q.s, and pre-history tests showed it to be at least as high in ability as the two other groups. This group furnished 34 students whose records are complete and who, in the final comparisons, are used in this experiment as the pupils in the control group.

Groups II and III, which met the second and third periods in the forenoon, were the pupils subjected to the experimental method of teaching; that is, they were taught by what is known in this study as the backward method. The records are complete for each of the 37 students in the two experimental groups. Therefore, the experimental group consisted of 74 pupils, whose grades

and achievements contributed the basis for this study. The records on Groups II and III were tabulated separately for the purpose of convenience and in the expectation that variables might arise, even between the two experimental groups, which would prove interesting if not significant in the final outcome of the experiment.

#### Group abilities

There was no effort made to equate the three groups. However, four criteria were used as a basis for determining the abilities of the students as to mastery of facts and information and understanding of the subject content outlined as the history course. In tables A, B, and C of the appendix are complete records of all students in Groups I, II, and III. The first four columns in each chart furnished the raw scores and averages for the four criteria of ability for the 108 students in the experiment. The first criterion for comparing group abilities to achieve was the I. Q. The files in the principal's office were freely used, and from these most of the scores were obtained. These scores were the result of administering the Terman test to the students as freshmen. Any senior who had never established his rating of mental ability for the office files in this manner took the Terman test during the early part of the school year 1940 - 41, along with incoming freshmen. In this manner all I. Q. scores, based on the same test, for all students in

the experiment were acquired. The fact that some pupils took the test at a different age level than others is compensated for by the method of computing I. Q. scores, and by the rather universally accepted belief that one's I. Q. score has a minimum of variation.

The second criterion of comparison, and a very important one, was furnished by computing the average of all grades earned by the students thus far in high school. There was a high degree of accuracy in this score, since the high school's record of grades is on a percentage basis. This three-year average grade took into account a proper weighting of one-half and one-fourth units of credit.

The third criterion for comparison was the standardized pre-history test. This test was administered to all students in all classes the first full-period meeting of the groups, on the second day of school. Only one student was a late enrollee, and the test was administered to him somewhat later.

The original plan called for only the foregoing three comparisons. However, later in the year, all seniors were given a test of mental ability prescribed by Kansas State College, Manhattan, Kansas. The writer collected the scores made by the seniors of our high school in this test, and it was added as a fourth criterion of comparison of abilities of the groups of students.

On the basis of the foregoing data, a



preliminary analysis was made to determine the respective abilities of the groups based on the four criteria used. The results of the analysis are tabulated in complete form in table D of the appendix. To facilitate these comparisons the arithmetic mean, the standard deviation, and the standard error of the mean were computed for each group relative to each criterion. In each of the four criteria the control group was superior to the two experimental groups. Group II was slightly superior to Group III in each of the four bases of comparison. This preliminary analysis proved what had been conceived as a possibility at the outset of the study; that is, that the groups were not equated. The fact that all four of the means of comparison showed the control group to be of such a distinctly superior ability had weighted importance. The evidence allowed little logical reason to question the hypothesis that the groups were not equated. As a result it became apparent that the groups, and likewise the methods, could not be compared by merely analyzing the raw scores in achievement.

#### Comparison of achievement

A similar analysis was made of the amount of achievement of the three groups based on a battery of the nine tests which had been given during the progress of the experiment. Raw scores on each of these tests made by the pupils in the three classes are compiled in tables

A, B, and C of the appendix. In table D is found the results of the preliminary analysis of these test scores. The same statistical procedure was employed with these data as was used in comparing abilities of the groups. The accomplishment of Group I was superior to that of Groups II and III except in the case of one of the battery of six tests compiled by the writer. Group II was slightly superior to Group I for test III as shown by their average achievements. Group II was apparently slightly superior to Group III, as proved by this preliminary mathematical analysis. (All tests used in testing ability or achievement are included in the appendix.)

#### Conclusions based on preliminary analysis

Analysis of data thus far had proved that the control group was substantially superior in ability to both experimental groups. Similar analysis, by mathematical procedure, proved that the accomplishment and achievement in the mastery of facts and understanding of history was substantially greater for Group I, as a general rule, than it was for Groups II and III. What this preliminary analysis did not prove was whether either group had achieved to a greater degree in proportion to the native abilities and capacities expressed by each group. It was apparent, at this point, that the only reliable conclusion which could result from the initial analysis was that the groups were widely different in



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abilities and that superior groups were relatively better in the achievement of historical knowledge and information. The relationship of ability to achievement in the compared groups was not proved. To throw light upon this question necessitated subsequent analysis and the construction of a method for removing the individual inequalities. Without such a process it would have been impossible to hope for any scientific attack upon the outlined objective of this study.

#### Computing a weighted index of ability

In order to deal with the data afforded by the three groups, shown to be unequated as to ability, it was necessary to compute a weighted index of abilities. This required the meticulous mathematical process of determining how valid each of the four criteria for measuring abilities really was, after which, for each pupil in the experiment, an index could be computed. When the 108 index figures were determined, the quotient of achievement, in each achievement test, could be formulated for each pupil in each group. To devise and compute these desired indexes the following procedure was pursued:

The normal equations resulting from the application of the method of least squares were employed to determine the proper relative weights to be assigned the several criteria of achievement ability in order that these criteria might be combined in such a manner for each



pupil as to provide the most valid achievement index.

These normal equations follow with A, B, C, and D denoting the unknown weights to be given the several criteria:

A = weight for intelligence quotient

B = weight for three-year average

C = weight for pre-history test

D = weight for Test V, mental ability test

The equation:

$$\sum XY_1 - A \sum Y_1^2 - B \sum Y_1 Y_2 - C \sum Y_1 Y_3 - D \sum Y_1 Y_4 = 0$$

$$\sum XY_2 - A \sum Y_1 Y_2 - B \sum Y_2^2 - C \sum Y_2 Y_3 - D \sum Y_2 Y_4 = 0$$

$$\sum XY_3 - A \sum Y_1 Y_3 - B \sum Y_2 Y_3 - C \sum Y_3^2 - D \sum Y_3 Y_4 = 0$$

$$\sum XY_4 - A \sum Y_1 Y_4 - B \sum Y_2 Y_4 - C \sum Y_3 Y_4 - D \sum Y_4^2 = 0$$

In further explanation of the symbolism:

X = total grade score of each student in the experiment, based on percentage score for all tests

$Y_1$  = intelligence quotient score

$Y_2$  = three-year average score

$Y_3$  = pre-history test score

$Y_4$  = Test V, mental ability test score

These equations were solved, and the resulting values found for A, B, C, and D were taken as the proper weights of the four ability criteria that should be employed in the construction of indexes. After considerable labor, solutions of the above equations showed that D was a negative quantity. Statistically, the significance attached to this slightly unimportant outcome was that

this criterion D was of no relative value as an index of ability with regard to the measuring of capacity to achieve historical information and understanding. Its use might have been pertinent as a measurement criterion had it not been used in conjunction with the other three criteria. Thus, the result of these computations does not necessarily indicate that the Test V, group test of mental ability, devised and used at Kansas State College, is not an excellent criterion for the measurement of some other kinds and types of ability. This test, then, and the attendant data as a measure of ability in this experiment were subsequently disregarded.

It then became necessary to recompute the weights for constructing indexes, using only the three remaining criteria. Hence, the writer proceeded much the same as before with the same objective in mind.

The formula used was identical with the preceding one, however, with the exclusion of D and  $Y_4$  values. The symbolism, that is, for A, B, C, X,  $Y_1$ ,  $Y_2$ , and  $Y_3$ , was the same as previously. Thus we have:

$$\sum XY_1 - A \sum Y_1^2 - B \sum Y_1 Y_2 - C \sum Y_1 Y_3 = 0$$

$$\sum XY_2 - A \sum Y_1 Y_2 - B \sum Y_2^2 - C \sum Y_2 Y_3 = 0$$

$$\sum XY_3 - A \sum Y_1 Y_3 - B \sum Y_2 Y_3 - C \sum Y_3^2 = 0$$

The results of statistical computation were gratifying when the following values were attained:

$$\begin{aligned} A &= .362 \\ B &= 5.368 \\ C &= 4.679 \end{aligned}$$

These figures were checked for accuracy by reversing the order of unknowns computed. To gain the usable statistic for the purpose of the experimental procedure and analysis it was necessary to divide by nine each one of the derived figures. This procedure was necessary, since, in devising the X quantity in the formula, the summation of nine achievement test grades was used. Thus, to apply the quantities to construct the individual indexes with which to compare an actual test grade, it was necessary to divide each preliminary weight by the number of tests, that is, by nine. In continuing with this simple computation the writer proceeded thus:

$$A = .362/9 = .04 \text{ weight of I. Q. in building index score}$$

$$B = 5.368/9 = .596 \text{ weight of three-year average in building index score}$$

$$C = 4.679/9 = .52 \text{ weight of pre-history score in building index score}$$

This group of statistics supplies the basis for the real equated comparisons in this experiment. It is to be noted that the intelligence quotient is of relatively small importance, or weight, in determining the index of ability. Of the remaining two criteria the three-year average of grades is of somewhat the more importance. The writer proceeded to apply the foregoing statistics to each of the 108 students under comparison. From the data in columns 1, 2, and 3 of tables A, B, and C the index scores were computed, and the results are the



ability indexes for each student. These are compiled in the first score column of tables E, F, and G of the appendix. Let us give an example of the method by which this index figure was computed. We have used student 31 of Group I, whose respective scores for I. Q., three-year average, and pre-history test are 122, 97, and 58. To compute the index we found:

$$\begin{array}{rcl}
 122 \cdot .04 & = & 4.88 \\
 97 \cdot .596 & = & 57.81 \\
 58 \cdot .52 & = & 30.16 \\
 \hline
 \text{Ability index} & = & 92.85
 \end{array}$$

The index figures were compiled by this process for each student in each group. The results are found under a similar column heading in tables E, F, and G of the appendix. The indexes were arranged in descending order to be used later in a comparison of the superior and dull divisions of each group. This type of index figure is a statistic which shows the relative ability of a student to achieve, as measured by the means employed in this experiment. It was these indexes which furnished the basis for constructing what might be called the achievement quotients of the students for each test. One is now in a position to remove the measurable inequalities between groups of students, the hazard that had thus far blocked any hope to attack scientifically the principal objective of the study.

#### Achievement quotients

The next step was the actual process of

finding, from the ability index, the achievement quotient of a given student on any test or combination of tests. It was believed that the six tests devised by the writer were similar in nature, difficulty, and form; thus, they were used as the first composite of achievement measurement. This then involved the finding of the average of the six test grades (all tests and scores are incorporated in the appendix) for each student, then dividing that score by the student's ability index score. The resulting statistic is called the achievement quotient for that battery of tests.

To exemplify this method we have computed the achievement quotient of student 31, Group I. The formula was:

$$100 \left( \frac{\text{grade on any test}}{\text{ability achievement index}} \right) = \text{achievement quotient.}$$

$$100 \left( \frac{97.333}{92.85} \right) = 104.8 \text{ (entered in column 2 of appendix table E.)}$$

(97.333 is the average for student 31 on the battery of tests prepared by the writer. Note table E of appendix.)

Like computations gave the achievement quotients for all students in the experiment relative to their composite averages on the battery of six tests.

The second achievement quotient for each individual is derived from the average of scores on the two scholarship tests. These two tests are similar in nature, and the results are similar in all classes and were thus combined and used as the basis of formulating the second



achievement quotient. (These scholarship test scores were reduced to the basis of 100 to make them comparable to other tests, all of which are based upon a possible score of 100.) The resulting achievement quotients for the pupils relative to this second achievement criterion are presented for each respective group in tables E, F, and G.

A quotient was devised relative to the final test as a single criterion of achievement. This proved a simple computation, and the results, for each respective group are compiled in the appendix tables E, F, and G.

It will be noted that the achievement quotients are highest for all groups on the battery of six tests, are relatively high on the battery composed of the two scholarship tests, and are extremely low for the final test. This is perhaps explained in the fact that much of the material in the final test was not based on any textbook content but was composed of details discussed in the course of the explanation, in the class period--details in both current affairs and general background information. Also the battery of six tests was a measure taken at the end of a relatively short time, whereas the subsequent tests were administered after longer periods of time and thus lower scores were attributed to loss of detail and the tendency to forget portions of the material. There is a probability that available time in class and available time for study and outside reading were strong



contributory factors as to the results on this test.

### Analysis of achievement quotients

By a mathematical device, the individual discrepancies in achievement due to fundamental differences in ability had been artificially removed by the construction of the achievement quotients. These quotients were evidence that ability inequalities had now been removed. The writer had proceeded to the point at which he could begin to apply correctly the data which composed the achievement scores of all students in all groups. The real findings of the experiment could now be devised. The preliminary analysis and further mathematical procedure thus far had merely allowed us to derive usable statistics. We now proceeded to apply our achievement quotients as devised; this was in an effort to answer the major problem, whether or not there is any difference between the two compared methods of teaching American history based on the available raw data collected.

We must keep in mind the fact that we did not retain each of the nine achievement tests exclusively within itself in deriving the quotients. The test scores were reduced to three criteria of achievement, one based upon an average of the battery of six writer-composed tests, another based upon the average results of the two scholarship tests (after they were reduced to the basis of 100), and the third based exclusively upon the final

test (keeping in mind that this was a standardized test, a sequel to the pre-history test).

The preliminary analysis of these three quotients gave evidence of wide variability of accomplishment relative to ability between different students in all groups. A computation of the arithmetic mean for each table of quotients for each group indicated some variability between groups. From the statistical data in the appendix, tables E, F, and G, we note this variation. The average achievements on the battery of six tests, as devised from the quotients, were: 107.51, 104.48, and 105.6 for Groups I, II, and III, respectively. Similarly, the averages resulting from the quotients based on the two scholarship tests were 93.96, 93.07, and 92.05, for the respective groups. It was evident that the variation is slight as to accomplishment among the groups with regard to either of these two average test quotients. Average quotients resulting on the final test showed more variation: these were 78.0, 77.8, and 70.3 for the respective Groups I, II, and III. Casual observation indicated a possibility of some significant results being derived from the comparison of final test scores.

From an observation of these findings it was not possible to conclude just what differences of real significance exist in the variety of possible comparisons. The preceding cursory inspection of achievement quotients and their computation merely indicates the general



conclusion that there were substantial differences between the quotients measuring achievement relative to ability of the various students in regard to the three different achievement criteria. The variation of difficulty of the tests is at this point also very evident. Any general conclusion as to the significance of variation between the composite averages of quotients in the three groups is hazardous. To proceed with the analysis on a scientific basis it was necessary to analyze the statistical significance of the variation.

#### Comparison by analysis of variance

A statistical procedure was then employed, considering possible sources of this variation to give an answer as to whether any general significant differences really existed and to provide an estimate of error for making specific tests for significance of difference. This method is known as analysis of variance. It was evident that there was variation in achievement, but it was necessary to measure the significance, if any, statistically. The mechanics of the analysis of variance is well known. R. A. Fisher's Statistical Methods for Research Workers is one of many readily available sources supplying an exposition of the details of this statistical procedure. The analysis is systematically portrayed as follows, with an appropriate symbolism:



	I Tense of Squares	II Degrees of Freedom	III Mean Variance I/II	IV F
A	$\frac{\sum T_m^2}{3N_m} - \frac{T^2}{N}$	2	$V_m$	$\frac{V_m}{V_r}$
	2707647.08 - 2706939 = 708.08		354.04	3.16
B	$\frac{3\sum T_c^2}{N} - \frac{T^2}{N}$	2	$V_c$	$\frac{V_c}{V_r}$
	2757615.45 - 2706939 = 50676.45		25338.22	226.5
C	By subtraction	N-5	$V_r$	
	87062 - 51384.53 = 35677.47	319	111.84	
Total	$\sum X^2 - \frac{T^2}{N}$	N-1		
	2794001 - 2706939 = 87062	323		

#### Horizontal columns = Sources of Variation

- A = Teaching method and available time in class
- B = Type of achievement criterion (test difficulty)
- C = Residual variation (all factors not measured)

#### Key to symbolism

- T = Grand total of all quotients
  - $\sum X^2$  = Summation of squared quotients
  - $T_c$  = Total of quotients of any of three achievement criteria classifications
  - $T_m$  = Total of quotients of any of three groups (two experimental, one control)
  - N = Total number of quotients (108 • 3 = 324)
  - $N_m$  = Number of quotients corresponding to the several groups
  - $V_m$  = Variation--teaching method and available time
  - $V_c$  = Variation--due to the difficulty of different classifications of tests
  - $V_r$  = Variation--all other variation not measured
- (All raw data for use found in tables E, F, and G.)

By mathematical computation of this formula  $V_m$  was equal to 354.04,  $V_t$  was equal to 25338.22, and  $V_r$  equaled 111.84. When we compute for  $F$  by  $\frac{V_m}{V_r} = \frac{354.04}{111.84}$ , it equals 3.16. This was an important statistic in this experiment. Using Snedecor's Table of  $F$ , it is found that a value of  $F = 3.03$  or more is significant. Thus we concluded that the source of variability, combining method of teaching and time available in class, must be concluded as significantly affecting achievement. At this point it was not established whether the method of teaching or time allotment or both must be considered a significant factor.

By computation  $\frac{V_e}{V_r}$  for  $F$  we found  $\frac{25338.22}{111.84}$  equaled 226.5. It was obvious that when comparing this statistic to 3.03, we established without question that there are tremendous differences in the way in which the three devised criteria measured. In other words, there was wide variation in the difficulty of the achievements given. We were rather certain of this fact from the preliminary analysis of achievement quotients. The real reason for subjecting the total variability to a variance analysis was to remove the large variation effect due to this particular source. By removing this variability due to differences in test-difficulty, it was hoped to obtain a standard error for the experiment sufficiently small to permit the detection of real differences due to method and available time.

It was now possible to proceed further with the



statistical analysis in order more fully to break down and analyze the remaining causes of variance. To test for significant differences in specific sample comparisons, the well known "t" test is employed, in which  $S \sqrt{Vr}$ , given by the analysis of variance, serves as the experimental standard error. Briefly this procedure makes possible a claim of significant difference in the case of the comparison of two population means if

$$t = \frac{|\bar{X}_1 - \bar{X}_2|}{S \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}} = \frac{|\bar{X}_1 - \bar{X}_2|}{S \sqrt{\frac{N_1 + N_2}{N_1 N_2}}} > 1.96$$

where  $\bar{X}_1, \bar{X}_2$  are the respective means of the samples of sizes  $N_1$  and  $N_2$  which may be taken to represent the population under consideration. A level of significance of .05 is presupposed throughout the study in determining significance, which accounts here for the critical value of 1.96 which "t" must exceed to permit a claim of really significant difference.

With the application of this method several comparisons were made. First, for example, comparing the control group with the combined experimental groups relative to the six-test battery criteria of achievement, we obtain  $t = 1.11$ , which is less than 1.96 and hence not significant, although any trend toward superiority is seen to be in favor of the control group.

Another comparison dealt with Group I and Group II on the basis of the criterion composed of the six-test battery. The resulting "t" value was 1.24, less than



1.96 and therefore not significant, leading to no conclusion as to definite superiority of one teaching method over the other. This comparison was made because in this case the widest discrepancy in average achievement quotients appeared. Similar results were evident in comparing Groups I and II relative to the other two achievement criteria, that is, those based respectively on the two scholarship tests as a battery and on the final test. Non-significant results were found for comparisons of Group III with either Groups I or II except in the case of criterion three, the final examination. However, in this case the average achievement quotient of Group III on the final test differed significantly when compared to those of either Groups I or II. In this comparison of Group III with Group II we obtained  $t = 3.07$ , which is definitely significant. Since this statistic is substantially more than 1.96, the critical value for significance, it follows that the backward, experimental method was less effective on Group III than on Group II. We are to conclude that time available for class discussion, reviews, summarizing, explanation, supervised study, and various other activities carried on within the class period is evidently more important than the method of teaching. The variation in amount of time in the classroom, we will recall, was about 30 minutes per week less for Group III than for either Group I or II.

Analysis of variance applied to  
high and low groups

In order to analyze the findings further the three groups were broken into three divisions each. That is, the high one-third and the low one-third of the students in each group were designated. On the basis of this division, table H was constructed, which shows the average achievement for the superior one-third in each group on each criterion, and similarly for the slow one-third of each class.

Preliminary analysis of these average quotients is interesting. The results revealed that the superior division of Group II was slightly higher than the superior division of Group I. The greatest variation was shown by averages on criterion two, scholarship test battery, which were 96.73 and 98.52, respectively, for Groups I and II. However this seeming difference was not at all significant, giving a value  $t = .404$ , which is much less than the required 1.96. Obviously since this comparison involving the widest discrepancy of results is not significant, other comparisons must lead to the same inconclusive result. It can only be concluded that there seems to be no real evidence that either teaching method produces superior achievement. From table H of the appendix we note that for the superior divisions average achievements are 95.28, 96.53, and 93.38, respectively, for Groups I, II, and III. Here again we note the fact that



Group III has the lowest mark (though not significant,  $t = 1.03$ ), but this can be attributed to the time variation as previously shown. In order to be certain that average achievement of Group II was not significantly superior to Group I, the "t" test was taken, resulting in  $t = .409$ , which is not significant. (In this we compared 95.28 to 96.53.)

There is, however, some significance attached to the division of the groups into superior and slow groups. As evidenced by the results shown in table H, not only Group III was inferior to the control group when the slow divisions were compared, but also Group II. On a statistical basis a comparison was made of the average quotients of the lowest one-third of Groups I and II. The quotients, based on all three criteria, were respectively 93 and 86.614. By computation we found the statistic  $t = 2.091$  which is greater than 1.96. From this we concluded that for the slow student it was possibly better to follow the traditional, chronological method, since the results of analysis were slightly significant in favor of that method. Group II was compared to Group I in this category in order to remove the time variation element. This comparison is probably less important than was at first apparent, based on the fact that the low one-third of Group II had much lower index abilities, and thus the comparison is not completely reliable.



### General conclusions

In answering the question, Is there a significant difference in the achievement of students under either the backward or forward method?, it was found that no significant difference was obtained. The findings appear to prove that we have failed to do what we originally hoped to prove in the design and analysis of the experiment. We can only conclude that the results are slightly in favor of the traditional forward method for the group as a whole. This tendency is, however, not enough to be statistically significant. Only general implications are apparent from the study as to whether the traditional, chronological, forward method or the backward, unit method is the more effective as a method of teaching American history.

The second problem which we planned originally to solve has been partially answered by the experiment. The problem was: Is there any apparent difference between the two methods for the superior and the slow students?

For the superior student it was impossible to prove any significant difference between the two methods. Casual comparison of average achievement by the various superior divisions revealed that experimental Group II was slightly superior to Group I on each of the three criteria (battery of six tests, two scholarship tests, and final), yet the variation was too slight to be significant and thus no conclusion can be drawn.

For the slow student, however, there is an apparent difference in effectiveness of the compared methods. Group I was significantly superior to Groups II and III. We can conclude with only slight certainty that for the dull students the traditional method of teaching history is the superior method. This conclusion is hazardous, however, because of the difference in index abilities of the slow students in the compared groups.

A conclusion is reached from the results and findings which was not originally planned for in the outline of the problem. This involved the element of time in the classroom. We can state with some degree of reliability that the Groups I and II, taught each day without time being taken from their routine class period, were able to achieve more than those who were robbed of at least one-half of one class period per week. This advantage appears evident regardless of the method used, since Group I was the control group and Group II was one of the experimental groups.

### Limitations

The results of this study are limited in many ways. One of the most important elements involved in the teaching of any subject to any group of students is that of student interest. In this study there was no provision made for measuring this important factor. The only manner in which this element was measured resulted indirectly



from the relationship between interest and success in the subject matter content, thus making itself evident on the achievement scores.

Another limitation, which is somewhat associated with the lack of interest, was the inability to measure anything but exclusive information. That is, accomplishment and achievement were judged on the basis of memorized and learned information and did not take into account such important results as pupil attitude, concepts of social citizenship, and general reaction to and appreciation of the heritage and background which is ours as citizens of America. The contribution of the course to mental maturity was not measured. It is possible that from the point of view of real contribution, these are even more essential than what was actually measured in the experiment.

A third limitation was the difficulty of providing a control group as large as the experimental group or groups. This requirement, however, is about as well met as is expected in an experimental procedure of this nature.

One of the most vital limitations in this study is based upon the probable element of similarity of the two methods of teaching. The outlines and point of approach were distinctly and exclusively different as planned, yet, because of uncontrollable factors, they were not as distinctly different as was desired. Whenever



the same teaching personality teaches both experimental and control groups, an element of similarity appears. The use of the same schoolroom devices, historical picture series, library facilities, and map assignments tends to have a leveling effect. These devices were used in each method only as the proper time arose, and any similarity resulting therefrom was incidental.

Another limitation which the writer wishes to mention concerns a weakness in the measurements of evaluative criteria of ability. It will be noted in tables A, B, and C that all students have three-year averages of grades varying from 74 to 97. It is obvious that there was more variation between the abilities of individual pupils involved in the experiment. The explanation, of course, is in the fact that 75 is a passing grade and borderline students are sometimes "given" a passing grade. In other words, the pupil's actual accomplishment is "padded" in order to make it passing, because of attitude, effort, and general cooperativeness. This is no indictment of the school's policy, since we are today discarding the old "Thou shalt not pass" philosophy. It is merely recognized that this policy is a leveling procedure. The results of the study were influenced by this limitation, since three-year average was used as a score in the ability index measurement. This final limitation is especially applicable to the comparison of the methods for slow students. This leveling process tended

to raise the ability indexes of the slow students, which caused achievement quotients, especially of Groups II and III, to be significantly lowered.

Finally, this study was limited in accuracy and validity because of the lack of successful measurement of the maturity levels of the students. In just what way and to just what extent this affected results, it is impossible to predict. Without doubt, certain students have better home background, access to current literature, and more normal living conditions. Maturity, which develops in different students at varying ages, is influenced by all of these forces. We cannot doubt the importance of this factor when attempts to measure abilities and achievements are involved.

### Implications

There are certain important implications apparent from the study. Some of them are rather well-founded, whereas others are very hazardous to mention.

There was without doubt a tendency to arrange the tests in chronological order and to form them to follow the textbook to some extent. If so, this was somewhat of an advantage to the control group. In spite of this possibility the experimental groups, especially the one having full time each week for class recitation, compared favorably with the control group.

This suggests and implies that the teacher, the



writer, who was experienced in the customary forward method, may have been more adept in that method of instruction. If, in spite of this, the control group was not able to achieve significantly higher, it would imply that possibly with practice, experience, and time for further development of procedure the backward method might become the more effective. This might be more than overbalanced by the loss of zeal and enthusiasm for the new method.

On test III, prepared by the writer, the average score of achievement was better for Group II than Group I. (See appendix tables A, B, and D.) This indicates that it might be possible that the experimental group would be better if proper tie-up could, through experience and practice, be attained by the teacher. This implication results from the fact that test III is over content dealing with elections, campaigns, tariffs, and political parties, and was studied at election time, November, 1940. The fact that Group II, taught by this method and of slightly lower raw-score ability, was more successful in this one criterion than was the forward method group implies possible successful results not developed to a maximum degree in this initial experimental study.

Implications are that if the teacher were as experienced and familiar with the experimental method as with the conventional method better results might accrue with the experimental units, in general.

Another important implication arises from the



analysis of the superior and dull divisions of students in each group. The variation was not significant enough to conclude with accuracy that the experimental, backward method is more effective for superior students. Yet the fact that average achievement by superior Group II is higher on all three criteria than was that of the control group implies that the experimental method might be better for the superior student. Thus it is possible that within a school large enough to have a system of homogeneous grouping the backward method of teaching might be installed with more effective results accruing.

There is a strong implication that the conventional, chronological sequence method of history instruction is more effective for the dull students than is the experimental method. This is one comparison in which method of instruction, as a sole variant, was of significance.

One of the most valuable implications rendered by the experiment is the rather conclusive proof that the time allotment in class is a more powerful factor than is the element of method of teaching. This implication is strong enough as a result of comparing two experimental groups which were taught by the same method but with one having less time in class so that we can conclude that a change in schedule should be made. Such a change would involve some plan of staggering assembly hour in a way that the unfairness in loss of time would not always fall

in the same class hour.

### Recommendations for further study

This experiment is by no means conclusive in its results. It is only suggestive of more fruitful and accurate experimentation yet to be performed. The similarity of the results, in general, suggests the possibility of developing the backward method into a useful teaching technique.

To prove its usefulness it should be set up in a manner that would allow more nearly equated groups to be compared, and these in larger numbers. To make the experiment a real comparison of the two methods, it should be conducted in similar classes of the same subject but by more than one teacher using both traditional method and the backward method. It would be an even more favorable comparison if these groups and teachers were in different schools. This might furnish the physical set-up from which a valid and reliable result would be obtained, because of the cumulative data and numbers involved. To be ideal the various classes in each group might be arranged homogeneously, thus making the comparison for dull and superior students feasible at the outset.

The teacher of a subject can be the variable factor. To make a fair study of this kind the teacher should have at least some experience in the conduct of the experimental type of instruction as well as in the usual



procedure.

The real results of this experiment were not all measured. Not until the more intangible results are measured along with mere information and facts will we really know the real worth of a method. This suggests important experimentation to be made in the teaching of a subject, and measuring such factors as good citizenship, cooperation with the group, retention of information, and other results which were not measured in this study.

Finally, the writer believes that one of the greatest omissions of this experiment was failure to measure the interest in and response to the subject taught. Future study should devise an experiment and set up criteria of measurement of this intangible element. This would fulfill a definite objective not supplied in this experiment.

Research in this field may be somewhat guided by this 1941 quotation from Murra (17:1154):

Research can never determine objectives but synthesis of opinions, analysis of social trends and purposes, and descriptions and classifications of educational purposes can be significant and influential.



## Chapter V

### SUMMARY

As an experimental problem the writer chose to compare two methods of teaching American history to the three history classes of which he was the sole instructor. The two compared methods were the traditional, chronological, textbook method and a backward, unit method.

No attempt was made to equate the groups at the beginning of the experiment. One class made up of 34 students was taught by the traditional forward method and was the control group for the study. Two other classes, each having 37 students, were used as the experimental groups and were taught by the "reverse" or backward method. By a preview of grades and a pre-history test the writer was quite certain that the experimental groups were at least no better in mental ability than the control group, this to insure that the experimental group would not be superior regardless of method.

For each student in the experiment three scores were derived early in the course of the study, to be used as a basis of comparing student abilities. These were I. Q., based on Terman Test A, average grades for the first three years of high school, and a pre-history test grade based on a standardized test of high validity and reliability. These were given at various times scattered

throughout the year, but the same tests were obviously not given all groups at the same time. Groups II and III, the experimental groups, were always administered the same test during the same day. In the preliminary analysis these six tests were analyzed as a criterion of measurement separately, as were all the nine tests. However, in the final statistical analysis these six tests were used as a composite battery as criterion one for achievement measurement. These tests were of similar difficulty, form, and time of taking, and each covered a short time of from four to eight weeks of study.

Three other tests of achievement measurement were used. The two American history Every-Pupil Scholarship tests for January 8 and April 8 sent out by Emporia (Kansas) State Teachers College were given both groups in the study. These were used separately in the preliminary analysis and as a composite battery making up criterion two in the final statistical comparison of the methods.

The other test used was the sequel to the pre-history test, which was a standardized test of high reliability. It was used exclusively as an achievement criterion throughout the experiment.

The general outline for each compared group was devised in advance. Particularly the organization of units in the order to be taught were arranged for the experimental group. The control group was taught by the chronological sequence method, following the general



outline of a newly adopted textbook. It was impossible to keep the two methods unlike with respect to library facilities, map references, and an American history picture series shown during the year, but in so far as comparison to the time arrangement and method of approach was concerned they were mutually exclusive.

The first process in the analysis resulted in some preliminary conclusions. In constructing the averages for all groups on the four criteria of ability and the nine criteria of measurement some definite conclusions were available. The control group was substantially superior to both experimental groups on all four of the criteria of measurement. The first experimental group was only slightly superior to the second. On the achievement criteria also the control group was superior to Groups II and III, with Group II again slightly superior to III. On one achievement test the average score for II was slightly higher than for I, the control group. The only real conclusions resulting from this preliminary analysis were that the groups were not at all equal and that superior ability groups were relatively superior in achievement. Thus it was imperative that to gain any scientific results by means of the study further statistical analysis was necessary so that inequalities between groups could be removed.

The procedure necessitated the construction of a weighted index of ability for each student. To



accomplish this it was necessary to determine the relative weights to be assigned to the several criteria of measuring achievement in order that these criteria might be combined in such a manner for each pupil to provide the most valid achievement index. The application of the method of least squares was employed. In the computation of this formula, it was found that one of the four criteria of ability measurement was a negative quantity. Therefore, that criterion, the mental ability test procured from Manhattan, Kansas State College, was eliminated from the consideration, since the presence of a negative value here indicated that this test was not a valid test to use in conjunction with the three other criteria as a measurement of achievement of history.

When the least squares formula was applied to the other three criteria and reduced to a statistic usable for any one of the nine achievement grades, it was found that the weights for building the index score for I. Q., three-year average, and pre-history test were .04, .596, and .52 respectively.

We were then able to compute the real equated comparisons in the experiment. The index scores for each of the 108 pupils in the experiment were thus computed, based upon the above-mentioned values for building the scores. We had made it possible to remove the apparent inequalities between students and groups.

It was then possible to devise the achievement

quotients for all students on any test or battery of tests. At this point it was deemed advisable to combine some of the achievement scores rather than to consider each of the nine separately. We thus combined the battery of six tests composed by the writer, to constitute criterion one for the further analysis. We combined the two scholarship tests (they had already been reduced to the basis of a 100 total score) as a second criterion, and we used the final standardized test as a criterion by itself. This was due to its importance as a final as well as that it was not similar to any other. After removing the individual discrepancies in achievement due to fundamental differences in ability and then constructing the actual achievement quotients which indicated their achievements, we were ready to perform the original objective as outlined in the problem. We proceeded to compare the results of achievement by the two methods based upon a statistical procedure known as analysis of variance. By this analysis the writer measured the significance of the variation in achievement based upon the previously devised quotients. By this means we computed the variation in achievement due to several causes. It was proved beyond a doubt that there was variation in the difficulty of tests. (The statistic being 226.5 when 3.03 shows significance.) On the more important analysis involving method, we found that the variation in result attributable to the combined influence of method of teaching and the



time available in class (Group III had one-half period per week less than Groups I and II) was a slightly significant statistic. The statistic was 3.16, and greater than 3.03 showed significance. We could not yet conclude whether the method of teaching or time allotment was either solely a significant factor.

We thus proceeded further to break down the causes of variance. To do so we employed the "t" test. From the results found when comparing the control group to the combined experimental groups and when comparing each group separately on any one of the three achievement criteria, no significant variation was found due to method of teaching alone. However, one significant statistic resulted in comparing average achievement for Group III with Groups I or II on the final test criterion. A significant variation of 3.07 based on a comparison of Group II and III (both experimental groups) was the result. It was concluded that method of teaching is not exclusively a significantly variable factor, but that the time allotment in class was a significant factor of variation. 1.96 is significant for one variable.

The results were further broken down into a comparison of the superior and dull division of each group. No significance resulted from this analysis except that the slow division of the control group achieved significantly higher than the slow division of the experimental groups. This was true of Group II as well as III; thus



the variation was attributed to method of teaching and not solely to the time allotment variation as was true of groups as a whole, as previously shown. There was some indication that the superior division of Group II achieved higher than the superior division of Group I, but the difference, though present, was not of an extent great enough to be statistically significant.

As shown by the findings of this experiment, we thus concluded in answer to the two main questions outlined in the original problem that:

1. There is no significant difference in achievement resulting from the conventional, chronological method and from the backward, unit method of teaching American history.
2. The conventional method is slightly superior to the experimental method for the slow students. If there is a difference in the methods for the superior student, it is in favor of the "backward" method.

A third question answered, though not originally planned, was in connection with time allotment in class. Evidence indicated that class time allotment was a more significant variant than method of teaching.

Though rather conclusive results are realized through the application of statistical methods, there are certain weaknesses and limitations to this study. It is now definitely realized that provision should have been made to utilize some available device for the testing of student interest as well as for the testing of historical information alone. This suggests the second weakness; namely, that the study was based on the effectiveness of

method as judged by achievement of information and content as the desired end. Obviously, intangible results such as citizenship and attitude are of importance. The writer recognizes that the two methods were not as exclusively different as was desired. This was due to the use of similar school supplies, facilities, and teacher personality. There was a weakness in the ability measuring criteria. The student's three-year average of grades was used as a measurement, yet this average is generally passing (75 to 100) for most high school students. Thus, this criterion of measurement had a leveling effect. The last recognized limitation in this study concerned the mental maturity of the students. This factor was involved both in the matter of its contributing to the ability indexes of the pupils, as well as in the fact that the degree of mental maturity contributed by the course, was not measured accurately. It was an important element and could be measured neither as it affected ability nor as a part of achievement.

The implications of the study are merely a continuation of the previously recognized conclusions. We realized from the findings that the experimental method has possibilities as a method of teaching history, that if the method were used further it might prove of value for the superior groups in a homogeneous set-up, and that we should be concerned about the available time for class in such an academic subject as history.

The usefulness of this method should be further studied. Further proof of its adaptability should rest on a study based upon larger groups with more than one teacher using both methods. The study is suggestive of need in connection with schedule adjustment. Future research should deal with the important contributions of such a method based upon interest, attitude, mental maturity, citizenship, and other intangibles which are undoubtedly of more real worth than mere gaining of formal and abstract knowledge.



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## UNIT OUTLINE FOR "BACKWARD" METHOD

1. Wars America has engaged in.
  - A. World War No. II.
    1. The underlying causes of war.
    2. American governmental policies and public opinion.
    3. Neutrality, "Cash and Carry", isolation, etc.
    4. The "Balance of Power" set-up.
    5. (Map study of Europe)
      - a. Geography.
      - b. Tracing Germany's advances.
    6. Personages, campaigns, and incidental happenings.
  - B. World War No. I.
    1. America's part in the foreign field.
      - a. Cost in lives, money, morals, etc.
      - b. Change from "debtor" to "creditor" nation.
      - c. Important battles engaged in.
      - d. Influence in settlement after the Armistice.
    2. Boards created, policies, and personages.
    3. Defense preparation, draft, and governmental policies and control.
    4. Financing the war.
      - a. Bonds.
      - b. Income tax.
  - C. Spanish-American War.
    1. Territorial acquisition and imperialism.
      - a. Types of dependencies acquired and their control.
      - b. Need for an Isthmus canal. (map work)
    2. Campaigns and personages.
    3. The important part played by propaganda.
  - D. War of 1812.
    1. Underlying causes.
    2. Resulting effect on America's naval rank.
    3. Main events.
    4. Jackson a hero.
    5. Influence on America's industry, tariff policy, expansion, etc.
  - E. Revolutionary War.
    1. Causes.
    2. Heroes and events.
    3. Value of cooperation realized.
  - F. French and Indian War.
    1. Resulted in England's taxing policy.
    2. Main events and personages.
      - a. William Pitt, George Washington, and others.



- b. French and Indian cooperation; why allies.
  - c. "Albany Plan of Union" during the War.
- 2. Results of wars, peace efforts, futility of wars.
  - A. Territorial divisions based on the policy, "To the Victor Belongs the Spoils".
  - B. The idealism of Wilson, League of Nations, etc.
  - C. World Court, disarmament efforts, arbitration, conciliation, "Outlawry of War", and other efforts.
    - 1. Venezuela boundary dispute.
    - 2. Rush-Bagot treaty and other similar settlements.
- 3. Territorial acquisition.
  - A. Major treaties following each war; land disposal.
  - B. Main territorial purchases and land compromises.
    - 1. Involving our insular possessions.
    - 2. Gadsden Purchase, Oregon Territory, and Florida.
    - 3. Louisiana Purchase; attendant exploration.
  - C. Initial ownership of land exchanged.
- 4. Discovery, colonization, settlement, and expansion.
  - A. Tie-up with current problem of (map work) Iceland, Greenland, trading 50 old destroyers for Atlantic naval bases, and the Coronado festivals.
  - B. Relationship of major land deals and exchanges to the original gain of control of territory.
    - 1. English colonies.
    - 2. French colonies.
    - 3. Spanish settlements.
    - 4. Dutch, Portuguese, and other settlements.
  - C. Underlying causes of discovery.
    - 1. European awakening.
    - 2. The influence of Turkish control.
    - 3. Demand for a new route to the Orient.
  - D. Main voyages, personages, and discoveries.
  - E. The important permanent settlements, claims of territory, and their influence on the later control and exchange of land.
- 5. Elections.
  - A. Current parties, policies, and platforms.
    - 1. The candidates and issues in the present election.
    - 2. Recent issues and political personages of importance.
  - B. Constitutional background of elections.
- 6. Political parties.
  - A. Study of the various ones in American history.
  - B. Reasons for the creation of major parties.
    - 1. Economic and financial causes.
    - 2. Importance due to class divisions.
  - C. Platforms of importance in history.

- D. Major campaigns and their significance, such as, 1932, 1916, 1912, 1896, and on back to 1800.
  - E. Association of important people with each campaign.
7. Tariff.
- A. Present policy, reciprocity, background of tariff terms, percentage of revenue derived from, etc.
  - B. Republican party experience, policy, and major persons connected with it.
  - C. Democratic party and the tariff.
    - 1. Sections represented.
    - 2. Contrast and comparison with Republican policy.
  - D. Important tariff campaigns in history.
    - 1. Hamilton's early tariff policy and its causes.
    - 2. Other important persons connected with tariff.
8. Un-American activities.
- A. Influence of foreigners today; efforts to control through the F.B.I. and other agencies.
  - B. Other times in history that it became a problem.
    - 1. Pre-Civil War and pre-World War periods.
    - 2. Earlier times it demanded solution.
9. Labor problems, labor unions, and leaders.
- A. Major labor unions of the present-day.
    - 1. Difference in organization and leadership.
    - 2. The origin, purpose, and policy of unions.
  - B. The justification of and effectiveness of unions.
  - C. Their connection with political parties and campaigns.
10. Theories of government.
- A. "New Deal" policies.
    - 1. Creation of new boards and agencies.
    - 2. Laissez-faire versus stringent control.
  - B. Foreign government set-ups of today, their relation to industry, liberty, and ownership.
  - C. Function of our American government at varying times.
    - 1. Major strife involved.
    - 2. "Autocratic" versus "liberal" control.
  - D. The important interpretations of famous Americans; F. Roosevelt, Wilson, T. Roosevelt, Grant, Lincoln, Jackson, Marshall, Jefferson, and Washington.
  - E. The creation of the constitution, our national unity established.
    - 1. Compromises necessary.
    - 2. Difficulties encountered.
    - 3. Contributions of famous men and their idealism and profound opinions.



11. Sectionalism.
  - A. Present-day difficulties and lack of harmony.
  - B. Difficulties involved.
    1. Civil War and slavery.
      - a. Present-day scars, hatreds, and antagonism.
      - b. Reconstruction difficulties.
    2. Influence on settlement and expansion.
  - C. Earlier problems, involving tariff, national roads, the national bank, other internal improvements, etc.
12. Great compromises in policy today, but more specifically from 1850 back through the constitutional convention.
13. Outstanding documents in our history.
  - A. Wilson's, Lincoln's, Washington's, Jefferson's, and others.
  - B. Wise sayings; their circumstantial background.
  - C. Famous judicial cases and interpretations.
14. Government control over industry and agriculture; the importance of judicial interpretation.
  - A. "New Deal" interpretations, court policy, etc.
    1. The farm policy, the A.A.A.
    2. Theories on subsidization.
    3. The N.R.A., its founding and results.
    4. Fair Labor Standards Act and other similar laws.
  - B. The "rugged individualism" of the post-war period.
  - C. Governmental control during the first World War.
    1. Tendency toward absolute control.
    2. Boards and agencies created to handle affairs.
  - D. Teddy Roosevelt and "big business"; trust-busting.
  - E. Corruption and graft of the Reconstruction period.
  - F. Earlier efforts toward governmental regulation.
  - G. The American competitive system compared to the isms.
  - H. Geographical influence upon industry.
  - I. The relationship to natural resources.
  - J. Importance of control as related to encouragement of scientific research and new inventions.
15. Natural resources and the development of the "conservation" policy.
  - A. Present-day supplies of basic resources. (map study)
  - B. Development of substitutes and by-products.
  - C. The fallacy of the "favorable balance of trade" as to depletion of resources.
  - D. Teddy Roosevelt and the beginning of "reclamation" and "conservation".
    1. Creation of national forests, parks, and monuments.



2. Establishment of agencies to control.
  3. Other associated problems and persons.
  - E. America's early policy.
    1. Feeling that the forests were a hindrance.
    2. Other associated policies; Penn's and others.
    3. The abundance of the necessities of life in early America.
16. Foreign relations.
- A. Recent trends.
    1. Isolation into the Western Hemisphere and Pan-American movement.
    2. Anglo-American relations.
    3. Other major policies.
    4. Influence due to economic and commercial interests.
  - B. Post-war policies--export at any cost, loan money, tourist trade, etc.
    1. Late recognition of Russia.
    2. Efforts toward "internationalism".
  - C. Imperialism and America's broadening influence.
    1. Results of the World War on America's prestige.
    2. Spanish-American War outcomes as to our control and influence.
    3. Other steps toward World control and influence.
  - D. Difficulties encountered.
    1. With England, during the last 40 years.
    2. Problems arising during the Civil War.
    3. Troubles encountered in dealing with Mexico, France, the Barbary States, and others.
17. New devices in transportation, communication, and industry; scientific research and invention.
- A. Aviation--recent celebrities, flights, and inventions.
  - B. The automotive industry--its evolution; personages.
  - C. Trains and their development. (map study)
    1. Early development.
    2. Transcontinental lines and their influence.
  - D. The great contributions to communication--radio, telegraphy, telephone, etc.
    1. The influence on settlement.
    2. Great names associated.
  - E. Great inventions in industry.
    1. The assembly lines, mass production, and division of labor of today.
      - a. What is back of it.
      - b. How it developed.
    2. Steel development.
      - a. Its importance as an industry and as an indicator of business.
      - b. Great names such as Carnegie, Morgan, and others.

- c. "Bessemer" and "open-hearth" processes.
- 3. The importance of steam power.
- 4. The "American Factory System"; S. Slater.
- 5. Textiles and their history.
  - a. Present-day development and importance.
  - b. England's contribution; spinning wheel, etc.
  - c. The cotton gin and other labor saving devices.
  - d. Influence on the industry of the South and the demand for slave labor.

18. Agricultural development.

- A. The status of agriculture today.
  - 1. Governmental regulation.
  - 2. Agricultural cooperative agencies.
  - 3. Tendency of farmers to be "independent".
- B. Agricultural experimentation and the science of farming today.
- C. The recognition of limits to production.
  - 1. Land depletion.
  - 2. Water deficiency, irrigation; association to government reservoirs, etc.
- D. Great inventions that have aided the farmer.
  - 1. Recent development of power machinery; its influence on the labor problem.
  - 2. McCormick and other great inventors who have helped make agriculture more scientific.

19. Amusements, sports, education, literary development, and aesthetic contributions.

- A. Devices and conveniences accessible today.
- B. Changes in the social practices and customs.
- C. The increasing problem of leisure time as ascribed to technological change, inventions, speedier devices, and more efficient methods.
- D. The schools of today and their development.
  - 1. The public school.
  - 2. Extent of education.
  - 3. Theories of education today.
- E. Earlier educational practices.
  - 1. The place of women.
  - 2. Earlier educational leaders.
  - 3. Earlier schools; their creation and practices.
- F. The financing of schools at different times in history.
- G. The importance of religion.
  - 1. Problems of promoting religion today.
  - 2. The important American denominations.
  - 3. The "Old World" background.
  - 4. The influences and contributions due to religion.
- H. Leisure time activities of today and their development.



20. The American Indian. (map study)
- A. Status today, schools, reservations, etc.
  - B. Laws dealing with the Indian.
  - C. The evolution of the treatment of the Indian.
    - 1. Indian treatment today.
    - 2. Treatment during the settlement of the West.
    - 3. Jacksonian policy and its influence.
    - 4. Treatment during the colonial times.
  - D. Important Indian alliances, friendships, and characters of earlier times.
21. Money and financial control.
- A. The business cycle--economic explanation.
  - B. Financial history of the United States.
    - 1. Under the present administration.
      - a. National debt, taxation, status of gold, etc.
      - b. Inflation and its problems.
      - c. The "Bank Holiday".
      - d. Efforts to stabilize our banks.
    - 2. Bimetallism and monometallism; history.
    - 3. Panics in American history; how averted now.
    - 4. Banking systems.
      - a. Explanation of the Federal Reserve System.
      - b. National banks. (map study)
        - (1) From Civil War until 1914.
        - (2) Jackson and the banks.
        - (3) Earlier policy of Hamilton and others.
22. Reforms.
- A. Recent governmental policy stressing equality for all classes; recognition of groups based on wealth.
  - B. Post-war policies--amendments added.
  - C. Graft and corruption.
    - 1. During present administration.
    - 2. After the World War.
    - 3. During Grant's administration.
  - D. Other amendments.
  - E. Theories of prison reform--punishment or correction.



# TERMAN GROUP TEST OF MENTAL ABILITY

For Grades 7 to 12

Prepared by Lewis M. Terman, Stanford University, California

## EXAMINATION: FORM A

1. Name .....  
First name Last name
2. Boy or girl ..... Grade ..... High or Low .....
3. Age last birthday ..... Date of birthday .....  
Month Day Year
4. Name of city (or county) .....
5. Name of school .....
6. Name of teacher .....
7. Date of this examination ..... 19.....  
Month Day Year

Do not turn the page until you are told to.

TEST	SCORE	REMARKS OR FURTHER DATA
1. Information		
2. Best Answer		
3. Word Meaning		
4. Logical Selection		
5. Arithmetic		
6. Sentence Meaning		
7. Analogies		
8. Mixed Sentences		
9. Classification		
10. Number Series		
Total		

## TEST 1. INFORMATION

Draw a line under the ONE word that makes  
the sentence true, as shown in the sample.

SAMPLE. Our first President was

Adams Jefferson Lincoln Washington

- 1 Coffee is a kind of  
bark berry leaf root ..... 1
- 2 Sirloin is a cut of  
beef mutton lamb veal..... 2
- 3 Gasoline comes from  
grains petroleum turpentine seeds..... 3
- 4 Most exports go from  
Boston San Francisco New Orleans New York. 4
- 5 The number of pounds in a ton is  
1000 2000 3000 4000..... 5
- 6 Napoleon was finally defeated at  
Leipzig Paris Verdun Waterloo ..... 6
- 7 Emeralds are usually  
blue green red yellow ..... 7
- 8 The optic nerve is for  
seeing hearing tasting feeling..... 8
- 9 Larceny is a term used in  
medicine theology law pedagogy ..... 9
- 10 Sponges come from  
animals farms forests mines..... 10
- 11 Confucius founded the religion of the  
Persians Italians Chinese Indians..... 11
- 12 The larynx is in the  
abdomen head throat shoulder..... 12
- 13 The piccolo is used in  
farming music photography typewriting ..... 13
- 14 The kilowatt measures  
rainfall wind-power electricity water-power.... 14
- 15 The guillotine causes  
death disease fever sickness ..... 15
- 16 A character in "David Copperfield" is  
Sindbad Uriah Heep Rebecca Hamlet ..... 16
- 17 A windlass is used for  
boring cutting lifting squeezing ..... 17
- 18 A great law-giver of the Hebrews was  
Abraham David Moses Saul..... 18
- 19 A six-sided figure is called a  
scholium parallelogram hexagon trapezium.... 19
- 20 A meter is nearest in length to the  
inch foot yard rod..... 20

Right.....

## TEST 2. BEST ANSWER

FORM A

Read each question or statement and make a cross before the BEST answer, as shown in the sample.

- SAMPLE { Why do we buy clocks? Because
- 1 We like to hear them strike.
  - 2 They have hands.
  - × 3 They tell us the time.

- 1 Spokes of a wheel are often made of hickory because
  - 1 Hickory is tough.
  - 2 It cuts easily.
  - 3 It takes paint nicely.
- 2 The saying, "A watched pot never boils," means
  - 1 We should never watch a pot on the fire.
  - 2 Boiling takes a long time.
  - 3 Time passes slowly when we are waiting for something.
- 3 A train is harder to stop than an automobile because
  - 1 It has more wheels.
  - 2 It is heavier.
  - 3 Its brakes are not so good.
- 4 The saying, "Make hay while the sun shines," means
  - 1 Hay is made in summer.
  - 2 We should make the most of our opportunities.
  - 3 Hay should not be cut at night.
- 5 If the earth were nearer the sun
  - 1 The stars would disappear.
  - 2 Our months would be longer.
  - 3 The earth would be warmer.
- 6 The saying, "If wishes were horses, beggars would ride," means
  - 1 Wishing doesn't get us very far.
  - 2 Beggars often wish for horses to ride.
  - 3 Beggars are always asking for something.
- 7 The saying, "Little strokes fell great oaks," means
  - 1 Oak trees are weak.
  - 2 Little strokes are best.
  - 3 Continued effort brings results.
- 8 A steel battleship floats because
  - 1 The engines hold it up.
  - 2 It has much air space inside.
  - 3 It contains some wood.
- 9 The feathers on a bird's wings help him to fly because
  - 1 They make a wide, light surface.
  - 2 They keep the air off his body.
  - 3 They decrease the bird's weight.
- 10 The saying, "A carpenter should stick to his bench," means
  - 1 Carpenters should not work without benches.
  - 2 Carpenters should not be idle.
  - 3 One should work at the thing he can do best.
- 11 The saying, "One swallow does not make a summer," means
  - 1 Swallows come back for the summer.
  - 2 A single sign is not sufficient proof.
  - 3 Many birds add to the pleasures of summer.

*Right . . . . . × 2 = Score . . . . .*



## TEST 3. WORD MEANING

When two words mean the SAME, draw a line under "SAME."  
 When they mean the OPPOSITE, draw a line under "OPPOSITE."

SAMPLES	fall — drop .....	<u>same</u> — opposite	
	north — south .....	same — <u>opposite</u>	
1	expel — retain .....	same — opposite	1
2	comfort — console .....	same — opposite	2
3	waste — conserve .....	same — opposite	3
4	monotony — variety .....	same — opposite	4
5	quell — subdue .....	same — opposite	5
6	major — minor .....	same — opposite	6
7	boldness — audacity .....	same — opposite	7
8	exult — rejoice .....	same — opposite	8
9	prohibit — allow .....	same — opposite	9
10	debase — degrade .....	same — opposite	10
11	recline — stand .....	same — opposite	11
12	approve — veto .....	same — opposite	12
13	amateur — expert .....	same — opposite	13
14	evade — shun .....	same — opposite	14
15	tart — acid .....	same — opposite	15
16	concede — deny .....	same — opposite	16
17	tonic — stimulant .....	same — opposite	17
18	incite — quell .....	same — opposite	18
19	economy — frugality .....	same — opposite	19
20	rash — prudent .....	same — opposite	20
21	obtuse — acute .....	same — opposite	21
22	transient — permanent .....	same — opposite	22
23	expel — eject .....	same — opposite	23
24	hoax — deception .....	same — opposite	24
25	docile — submissive .....	same — opposite	25
26	wax — wane .....	same — opposite	26
27	incite — instigate .....	same — opposite	27
28	reverence — veneration .....	same — opposite	28
29	asset — liability .....	same — opposite	29
30	appease — placate .....	same — opposite	30

Right.....Wrong.....Score.....

## TEST 4. LOGICAL SELECTION

In each sentence draw a line under the TWO words that tell what the thing ALWAYS has. Underline TWO, and ONLY TWO, in each line.

SAMPLE. A man always has  
body cap gloves mouth money

- 1 A horse always has  
harness hoofs shoes stable tail ..... 1
- 2 A circle always has  
altitude circumference latitude longitude radius ..... 2
- 3 A bird always has  
bones eggs beak nest song ..... 3
- 4 Music always has  
listener piano rhythm sound violin ..... 4
- 5 An object always has  
smell size taste value weight ..... 5
- 6 Conversation always has  
agreement persons questions wit speech ..... 6
- 7 A banquet always has  
food music persons speeches toastmaster ..... 7
- 8 A pistol always has  
barrel bullet cartridge sights trigger ..... 8
- 9 A ship always has  
engine guns keel rudder sails ..... 9
- 10 A debt always involves  
creditor debtor interest mortgage payment ..... 10
- 11 A game always has  
cards contestants forfeits penalties rules ..... 11
- 12 A magazine always has  
advertisements paper pictures print stories ..... 12
- 13 A museum always has  
animals arrangement collections minerals visitors ..... 13
- 14 A forest always has  
animals flowers shade underbrush trees ..... 14
- 15 A citizen always has  
country occupation privileges property vote ..... 15
- 16 Controversy always involves  
claims disagreement dislike enmity hatred ..... 16
- 17 War always has  
airplanes cannons combat rifles soldiers ..... 17
- 18 Obstacles always bring  
difficulty discouragement failure hindrance stimulation .. 18
- 19 Abhorrence always involves  
aversion dislike fear rage timidity ..... 19
- 20 Compromise always involves  
adjustment agreement friendship respect satisfaction ... 20

Right .....

## TEST 5. ARITHMETIC

Find the answers as quickly as you can.

Write the answers on the dotted lines.

Use the bottom of the page to figure on.

- 
- 1 How many hours will it take a person to go 66 miles at the rate of 6 miles an hour? *Answer* .....
  - 2 At the rate of 2 for 5 cents, how many pencils can you buy for 50 cents? *Answer* .....
  - 3 If a man earns \$20 a week and spends \$14, how long will it take him to save \$300? *Answer* .....
  - 4  $2 \times 3 \times 4 \times 6$  is how many times as much as  $3 \times 4$ ? *Answer* .....
  - 5 If two pies cost 66 cents, what does a sixth of a pie cost? *Answer* .....
  - 6 What is  $16\frac{2}{3}$  per cent of \$120? *Answer* .....
  - 7 4 per cent of \$1000 is the same as 8 per cent of what amount? *Answer* .....
  - 8 A has \$180, B has  $\frac{2}{3}$  as much as A, and C has  $\frac{1}{2}$  as much as B. How much have all together? *Answer* .....
  - 9 The capacity of a rectangular bin is 48 cubic feet. If the bin is 6 feet long and 4 feet wide, how deep is it? *Answer* .....
  - 10 If it takes 7 men 2 days to dig a 140-foot ditch, how many men are needed to dig it in half a day? *Answer* .....
  - 11 A man spends  $\frac{1}{4}$  of his salary for board and room, and  $\frac{3}{8}$  for all other expenses. What per cent of his salary does he save? *Answer* .....
  - 12 If a man runs 100 yards in 10 seconds, how many feet does he run in  $\frac{1}{5}$  of a second? *Answer* .....

*Right* .....  $\times 2 =$  *Score* .....



# TEST 6. SENTENCE MEANING

FORM A

Draw a line under the right answer, as shown in the samples.

SAMPLES	{	Is coal obtained from mines ? .....	<u>Yes</u>	No	
		Are all men six feet tall ? .....	Yes	<u>No</u>	
1		Does a conscientious person ever make mistakes ? ....	Yes	No	1
2		Is an alloy a kind of musical instrument ? .....	Yes	No	2
3		Is scurvy a kind of medicine ? .....	Yes	No	3
4		Are mysterious things often uncanny ? .....	Yes	No	4
5		Are destitute persons often subjects of charity ? .....	Yes	No	5
6		Are anonymous letters ever properly signed ? .....	Yes	No	6
7		Is the mimeograph sometimes used by stenographers ? ..	Yes	No	7
8		Is a curriculum intended for horses ? .....	Yes	No	8
9		Are proteids essential to health ? .....	Yes	No	9
10		Does "perfunctory" mean the same as "careful" ? ..	Yes	No	10
11		Are premeditated deeds always wicked ? .....	Yes	No	11
12		Do alleged facts often require verification ? .....	Yes	No	12
13		Are sheep carnivorous ? .....	Yes	No	13
14		Are aristocrats subservient to their inferiors ? ....	Yes	No	14
15		Are venerable people usually respected ? .....	Yes	No	15
16		Is clematis sometimes cultivated ? .....	Yes	No	16
17		Are ultimate results the last to appear ? .....	Yes	No	17
18		Are cerebral hemorrhages helpful to thinking ? .....	Yes	No	18
19		Are all people religious who have hallucinations ? ....	Yes	No	19
20		Are intermittent sounds discontinuous ? .....	Yes	No	20
21		Are sable colors preferred for nations' flags ? .....	Yes	No	21
22		Does social contact tend to reduce eccentricities ? ....	Yes	No	22
23		Are tentative decisions usually final ? .....	Yes	No	23
24		Is rancor usually characterized by persistence ? .....	Yes	No	24

Right ..... Wrong ..... Score .....

## TEST 7. ANALOGIES

SAMPLES	{	Ear is to hear as eye is to	
		table <u>see</u> hand play	
		Hat is to head as shoe is to	
		arm coat <u>foot</u> leg	

Do them all like samples.

- 
- |    |  |    |
|----|--|----|
| 1  | Coat is to wear as bread is to         |    |
|    | eat starve water cook.....             | 1  |
| 2  | Week is to month as month is to        |    |
|    | year hour minute century.....          | 2  |
| 3  | Monday is to Tuesday as Friday is to   |    |
|    | week Thursday day Saturday.....        | 3  |
| 4  | Tell is to told as speak is to         |    |
|    | sing spoke speaking sang.....          | 4  |
| 5  | Lion is to animal as rose is to        |    |
|    | smell leaf plant thorn.....            | 5  |
| 6  | Cat is to tiger as dog is to           |    |
|    | wolf bark bite snap.....               | 6  |
| 7  | Success is to joy as failure is to     |    |
|    | sadness luck fail work.....            | 7  |
| 8  | Liberty is to freedom as bondage is to |    |
|    | negro slavery free suffer.....         | 8  |
| 9  | Cry is to laugh as sadness is to       |    |
|    | death joy coffin doctor.....           | 9  |
| 10 | Tiger is to hair as trout is to        |    |
|    | water fish scales swims.....           | 10 |
| 11 | 1 is to 3 as 9 is to                   |    |
|    | 18 27 36 45.....                       | 11 |
| 12 | Lead is to heavy as cork is to         |    |
|    | bottle weight light float.....         | 12 |
| 13 | Poison is to death as food is to       |    |
|    | eat bird life bad.....                 | 13 |
| 14 | 4 is to 16 as 5 is to                  |    |
|    | 7 45 35 25.....                        | 14 |
| 15 | Food is to hunger as water is to       |    |
|    | drink clear thirst pure.....           | 15 |
| 16 | b is to d as second is to              |    |
|    | third later fourth last.....           | 16 |
| 17 | City is to mayor as army is to         |    |
|    | navy soldier general private.....      | 17 |
| 18 | Here is to there as this is to         |    |
|    | these those that then.....             | 18 |
| 19 | Subject is to predicate as noun is to  |    |
|    | pronoun adverb verb adjective.....     | 19 |
| 20 | Corrupt is to depraved as sacred is to |    |
|    | Bible hallowed prayer Sunday.....      | 20 |

Right.....

## TEST 8. MIXED SENTENCES

The words in each sentence below are mixed up. If what a sentence means is TRUE, draw a line under "TRUE." If what it means is FALSE, draw a line under "FALSE."

SAMPLES	{	hear are with to ears .....	<u>true</u>	false	
		eat gunpowder to good is .....	true	<u>false</u>	
1		true bought cannot friendship be .....	true	false	1
2		good sea drink to is water .....	true	false	2
3		of is the peace war opposite .....	true	false	3
4		get grow they as children taller older .....	true	false	4
5		horses automobile an are than slower .....	true	false	5
6		never deeds rewarded be should good .....	true	false	6
7		four hundred all pages contain books .....	true	false	7
8		to advice sometimes is good follow hard .....	true	false	8
9		envy bad greed traits are and .....	true	false	9
10		grow an than strawberries oak tree higher .....	true	false	10
11		external deceive never appearances us .....	true	false	11
12		never is man what show a deeds .....	true	false	12
13		hatred bad unfriendliness traits are and .....	true	false	13
14		often judge can we actions man his by a .....	true	false	14
15		in are always American cities born presidents .....	true	false	15
16		certain always death of cause kinds sickness .....	true	false	16
17		are sheet blankets as as a never warm .....	true	false	17
18		never who heedless those stumble are .....	true	false	18

Right ..... Wrong ..... Score .....



## TEST 9. CLASSIFICATION

SAMPLES { 1 bullet cannon gun sword pencil  
 2 Canada Chicago China India France

In each line cross out the word that does not belong there.  
 Cross out JUST ONE WORD in each line.

---

1	Frank James John Sarah William .....	1
2	Baptist Catholic Methodist Presbyterian Republican ..	2
3	automobile bicycle buggy telegraph train .....	3
4	Collie Holstein Shepherd Spitz Terrier .....	4
5	hop run skip stand walk .....	5
6	death grief picnic poverty sadness .....	6
7	bed chair dish sofa table .....	7
8	hard rough smooth soft sweet .....	8
9	mechanic doctor lawyer preacher teacher .....	9
10	Christ Confucius Mohammed Moses Cæsar .....	10
11	butterfly hawk ostrich robin swallow .....	11
12	cloth cotton flax hemp wool .....	12
13	digestion hearing sight smell touch .....	13
14	down hither recent up yonder .....	14
15	anger hatred joy pity reasoning .....	15
16	Australia Cuba Iceland Ireland Spain .....	16
17	Dewey Farragut Grant Paul Jones Schley .....	17
18	give lend lose keep waste .....	18

*Right.....*

# TEST 10. NUMBER SERIES

FORM A

$$\text{SAMPLES} \left\{ \begin{array}{l} 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad .30 \quad .35 \\ 20 \quad 18 \quad 16 \quad 14 \quad 12 \quad .10 \quad .8 \end{array} \right.$$

In each row try to find out how the numbers are made up, then on the two dotted lines write the TWO numbers that should come next.

1st Row				8	7	6	5	4	3	....	....
2d Row			3	8	13	18	23	28		....	....
3d Row			$11\frac{3}{4}$	12	$12\frac{1}{4}$	$12\frac{1}{2}$	$12\frac{3}{4}$			....	....
4th Row				8	8	6	6	4	4	....	....
5th Row				1	2	4	8	16	32	....	....
6th Row			4	3	5	4	6	5	7	....	....
7th Row				16	8	4	2	1	$\frac{1}{2}$	....	....
8th Row				8	9	12	13	16	17	....	....
9th Row	7	11	15	16	20	24	25	29		....	....
10th Row	31.3	40.3	49.3	58.3	67.3	76.3				....	....
11th Row					$\frac{1}{25}$	$\frac{1}{5}$	1	5		....	....
12th Row				3	4	6	9	13	18	....	....

Right .....  $\times 2 =$  Score .....

# American History Test

## Form A

For High School Students and College Freshmen

By JOHN A. KINNEMAN, Illinois State Normal University, Normal, Ill.

Published by McKNIGHT & McKNIGHT, Bloomington, Ill.

Name ..... Date.....  
                     Last                    First                    Middle

School ..... City..... State.....

Check Your Year in School 10....., 11....., 12....., 13....., 14.....

Weeks of Am. Hist.      Score I..... II..... III.....  
 in H. S. .... IV..... V..... VI..... Total.....

### PART I—COMPLETION

Directions: *Complete* each of the following statements:

1. The queen of England at the time of the most active English exploration was ... ..
2. The Spanish explorer who discovered the Pacific Ocean was .....
3. The first European explorer to circumnavigate the globe was .....
4. The first Englishman to circumnavigate the globe was .....
- ✓ 5. The Declaration of Independence was adopted in the year .....
- ✓ 6. Washington spent the winter of 1777-78 at .....
- ✓ 7. Cornwallis surrendered at .....
8. The secretary of treasury under Washington was .....
9. The man who was president during the War of 1812 was .....
10. The political party in the fifties of the nineteenth century that opposed European immigration was .....
11. The last English province to be settled along the Atlantic seaboard was .....
12. The proprietor of the province of Pennsylvania was .....
13. The political party formed from the followers of Jackson was the .....
14. When Lincoln was elected president in 1860 his home was in the state of .....
15. The first state to secede from the Union in 1860 was .....
16. The president of the Southern Confederacy was .....
17. The president of the United States during the World War was .....
18. The commander of the American Expeditionary Force was .....
19. The Democratic presidential candidate who espoused "free silver" was .....
20. The man who urged in Congress that Kansas and Nebraska should be allowed, when admitted to statehood, to decide whether or not they wanted slavery, was .....

### PART II—MULTIPLE CHOICE

Directions: *Underscore* that part of the statement which is correct.

1. The most successful nation in settling colonies in North America was England, France, Spain.
2. Miles Standish was associated with Massachusetts, Pennsylvania, New York.
3. William Pitt was a general, a warrior, a statesman.
4. The first permanent French settlement was at New Orleans, Detroit, Quebec.
5. De Soto explored in Florida, along the Mississippi, in Mexico.



6. The unit of local government in the South was the borough, the county, the township.
7. Washington was a Virginian, a New Yorker, a Pennsylvanian.
8. Jefferson was a Federalist, Anti-Federalist, Socialist.
9. Franklin was a lawyer, a printer, a farmer.
10. The Proclamation of 1763 dealt with colonial trade, high tariff, occupation of western lands.
11. The dates 1643, 1754, 1774, 1777, 1787 are associated with Indian wars, slavery, efforts to form a central government.
12. Alaska was purchased from France, Spain, England, Russia.
13. The Armistice, closing the World War, was signed in 1906, 1914, 1918.
14. The telephone was invented by Edison, Bryan, Bell.
15. The Spanish-American War occurred in the administration of Cleveland, Taft, McKinley.
16. Samuel Gompers was a university president, a politician, a labor leader.
17. The Baltimore and Ohio R. R. follows the Potomac, the Hudson, the Susquehanna.
18. Dred Scott was an author of books, a general in the Mexican war, a slave.
19. The dates 1803, 1819, 1845, 1853, 1867 are associated with slavery, the tariff, important Supreme Court decisions, the acquisition of territory.
20. S. F. B. Morse invented the telegraph, the radio, the harvester.

### PART III—CLASSIFICATION

Directions: In each group *underscore* the name which should *not* be classified with the other names.

Example: Warren Harding, Calvin Coolidge, Herbert Hoover, John D. Rockefeller.

1. Tecumseh, Pontiac, Joliet, Sitting Bull.
2. Hopi, Sioux, Osage, California.
3. Princeton, Harvard, Albany, Dartmouth.
4. George Dewey, Henry Clay, Oliver H. Perry, David Farragut.
5. Robert E. Lee, U. S. Grant, Philip Sheridan, Wm. T. Sherman.
6. Jamestown, Plymouth, Detroit, Salem.
7. Henry Watterson, Horace Greeley, Joseph Pulitzer, Theodore Roosevelt.
8. Susan Anthony, Carrie Chapman Catt, Anna Howard Shaw, Ethel Barrymore.
9. New Amsterdam, Peter Stuyvesant, Patroons, Pastorius.
10. Hiram Johnson, Gifford Pinchot, William E. Borah, George W. Norris.

### PART IV—SEQUENCE OF EVENTS

Directions: *Underscore* the event that took place *earliest*.

1. Expedition of Cortez, explorations of De Soto, settlement of St. Augustine.
2. Settlement of Boston, Jamestown, Philadelphia.
3. The Albany Congress, the Stamp Act Congress, the First Continental Congress.
4. Battle of Gettysburg, battle of Buena Vista, battle of Manila.
5. The consideration by the United States Senate of entrance into the League of Nations, the Kellogg Pact, membership in the World Court.
6. The invention of the reaper, the locomotive, the cotton gin.
7. Construction of the Panama Canal, the Erie Canal, the Roosevelt Dam.
8. Admission to the Union of Ohio, Kentucky, Maine.
9. Dred Scott Decision, Dartmouth College Case, the Alabama Claims Case.
10. The Underwood Tariff Act, the Payne-Aldrich Act, the Fordney-McCumber Act.

3. Pennsylvania became the center for the 18th century German settlements because
  - (a) of favorable climatic conditions
  - (b) the Germans liked the country about Philadelphia
  - (c) of the abundance of farm land and the religious toleration
- ✓ 4. France aided the United States in the Revolution because
  - (a) she was bound by the treaty of 1778
  - (b) she wanted to humble England
  - (c) Lafayette urged assistance
- ✓ 5. Boston was the center of American Revolutionary activity because
  - (a) New Englanders were patriots
  - (b) of the Boston tea party
  - (c) New England shipping was hampered by the trade laws
- ✓ 6. Hamilton favored a strongly centralized government because
  - (a) he opposed Jefferson's political ideas
  - (b) a centralized government would benefit business
  - (c) he wanted to tax the production of distilled liquors
7. The Alien and Sedition laws were passed because
  - (a) England and France were at war
  - (b) the Federalists wanted to discredit the party that was in power
  - (c) the Federalists feared foreign influence
8. Henry Clay favored internal improvements because
  - (a) he wanted the United States government to spend its surplus
  - (b) the western people wanted better facilities of travel
  - (c) they provided a good way of getting rid of slavery
9. Jackson opposed the United States Bank because
  - (a) he favored the eastern bankers
  - (b) he believed in a high tariff
  - (c) he opposed the monopoly which the bank held
10. New York has the largest population of any American city because
  - (a) most of the banking business is transacted there
  - (b) of its transportation facilities
  - (c) of its large foreign population
11. Improved highways of the 20th century were caused by
  - (a) the encouragement given by the Federal government
  - (b) the general use of the automobile
  - (c) the willingness of state legislatures to appropriate money for them
12. After the World War opposition developed to immigration because
  - (a) unemployment was common in the United States
  - (b) the United States wanted to get out of the war as rapidly as possible
  - (c) the League of Nations discouraged Europeans from migrating
13. Labor began to organize after the Civil War because
  - (a) radicals got control of the labor organizations
  - (b) of the work of Samuel Gompers
  - (c) big business insisted upon long hours and low wages
14. Bryan advocated free coinage of silver because
  - (a) the Populists had urged it before he did
  - (b) all Democrats were committed to the issue
  - (c) there was a shortage of money in the United States
- ✓ 15. The British wanted possession of Philadelphia during the Revolution because
  - (a) some rich Tories lived there
  - (b) it was the seat of the American government
  - (c) it was near Valley Forge where Washington was encamped

## TEST V

### Group Test of Mental Performance

After each of the following problems or "questions" several suggested answers are listed in parentheses. Choose the best answer to each "question," notice the letter before your chosen answer and draw a circle around that letter on the same line of your answer sheet.

#### Sample Questions

1. Eye is to see as ear is to (a-hair; b-head; c-hear; d-drum; e-noise).
2. One-half of 14 is 20 per cent of (a-25; b-30; c-35; d-40; e-45).
3. Bad means nearly the same as (a-young; b-evil; c-jolly; d-good; e-waste).
4. Earth does not mean (a-soil; b-ground; c-air; d-land; e-world).

#### Test Questions

5. Bear is to fur as sheep is to (a-fleece; b-pelt; c-lamb; d-pasture; e-shepherd).
6. Lubricate means to (a-grease; b-paint; c-light; d-polish; e-wash).
7. At 4 pencils for 10¢, 12 pencils will cost (a-20; b-24; c-25; d-30; e-35) cents.
8. Length is to yardstick as weight is to (a-inch; b-pound; c-scales; d-ton; e-heavy).
9. Quartz is a kind of (a-mineral; b-utensil; c-fruit; d-vegetable; e-wood).
10. One-seventh of \$8.40 is one dollar and (a-20; b-30; c-40; d-50; e-60) cents.
11. General is to military as admiral is to (a-soldier; b-naval; c-official; d-sailor; e-captain).
12. Lava is a kind of (a-fruit; b-wood; c-cloth; d-metal; e-rock).
13. Forty per cent of 5 times 8 is (a-16; b-18; c-20; d-22; e-24).
14. Cat is to fur as owl is to (a-wise; b-claw; c-beak; d-feathers; e-nest).
15. To mar is to (a-walk; b-deface; c-desert; d-bar; e-lose).
16. Three-fifths of 10 is 20 per cent of (a-35; b-30; c-25; d-24; e-28).
17. Lie is to lied as lay is to (a-lies; b-lay; c-lying; d-laid; e-lays).
18. To mature is to (a-make; b-ripen; c-venture; d-apply; e-study).
19. Sixty per cent of 15 is one and one-half times (a-6; b-8; c-9; d-10; e-12).
20. Wide is to widen as large is to (a-enlarge; b-larger; c-largest; d-greater; e-lengthen).
21. A heron is a kind of (a-fish; b-wig; c-robe; d-trumpet; e-bird).
22. Ten per cent of 90 is three-fifths of (a-10; b-15; c-20; d-25; e-30).
23. Tree is to bark as cow is to (a-bellow; b-horns; c-calf; d-milk; e-hide).
24. Futile talk is (a-earnest; b-witty; c-dull; d-fluent; e-useless).
25. Four-fifths of 10 is 40 per cent of (a-20; b-22; c-24; d-25; e-30).
26. He is to him as who is to (a-whose; b-them; c-whom; d-his; e-hers).
27. Mark does not mean (a-trace; b-score; c-note; d-target; e-erase).
28. 252 men cannot be divided into (a-3; b-4; c-7; d-8; e-9) equal groups.
29. Oak is to tree as ivy is to (a-leaf; b-poison; c-wood; d-vine; e-climb).
30. Hostile actions are (a-unfriendly; b-cruel; c-kind; d-deceptive; e-sincere).
31. Six-eighths of 12 is one-third of (a-27; b-24; c-21; d-18; e-15).
32. Canvas is to painter as marble is to (a-statue; b-building; c-stone; d-sculptor; e-granite).
33. A dolphin is a kind of (a-ball; b-toy; c-tree; d-insect; e-fish).
34. Five-sixths of 18 is five-eighths of (a-16; b-24; c-28; d-32; e-36).
35. Doctor is to patient as lawyer is to (a-victim; b-jury; c-client; d-court; e-law).
36. A knot is not a (a-bond; b-knob; c-naught; d-clump; e-cluster).
37. Four-sevenths of 21 is three-fourths of (a-16; b-18; c-20; d-24; e-28).
38. King is to royal as emperor is to (a-powerful; b-loyal; c-hostile; d-imperial; e-rule).
39. Keen does not mean (a-sharp; b-eager; c-soothing; d-vivid; e-ardent).
40. A three-inch cube is equal to (a-3; b-9; c-16; d-18; e-27) cubic inches.
41. Tooth is to dental as nose is to (a-nostril; b-smell; c-nasal; d-oral; e-breathe).
42. Harass means to (a-till; b-annoy; c-shout; d-argue; e-rebuke).
43. Six-ninths of 12 is one-third of (a-24; b-21; c-18; d-16; e-15).
44. Circle is to sphere as square is to (a-oblong; b-ellipse; c-rectangle; d-plumb; e-cube).
45. Expose is the opposite of (a-impose; b-conceal; c-reveal; d-depose; e-defer).
46. Nine is to four as twenty-seven is to (a-8; b-9; c-10; d-12; e-14).



# TEST V—Continued

47. My is to mine as his is to (a-her; b-hers; c-his'n; d-his; e-him).
48. A gable is usually (a-square; b-round; c-oval; d-oblong; e-triangular).
49. Forty per cent of 30 is three-fourths of (a-12; b-15; c-16; d-18; e-20).
50. I is to my as they is to (a-theirs; b-there; c-them; d-their; e-those).
51. Inflate means to (a-tell; b-dilate; c-effect; d-breathe; e-inflict).
52. Eight is to 12 as sixteen is to (a-18; b-20; c-24; d-28; e-30).
53. Tree is to bark as dog is to (a-bite; b-bark; c-pelt; d-bone; e-eat).
54. Fame is the opposite of (a-renown; b-humility; c-obscurity; d-misery; e-cowardice).
55. Three-fourths of 16 is four-thirds of (a-9; b-12; c-15; d-18; e-21).
56. Sing is to song as give is to (a-gave; b-given; c-gives; d-gift; e-giver).
57. A kiln is a kind of (a-cooler; b-weapon; c-boiler; d-crime; e-furnace).
58. Eight is to 12 as fourteen is to (a-18; b-21; c-24; d-27; e-28).
59. Hence is to here as whence is to (a-their; b-then; c-which; d-where; e-when).
60. Level does not mean (a-horizontal; b-flat; c-vertical; d-even; e-lower).
61. Fourteen is to six as twenty-one is to (a-six; b-seven; c-eight; d-nine; e-ten).
62. She is to hers as I is to (a-my; b-me; c-him; d-mine; e-our).
63. Frugal is the opposite of (a-thrifty; b-lavish; c-stingy; d-wealthy; e-foolish).
64. Fourteen is to 8 as thirty-five is to (a-10; b-12; c-14; d-18; e-20).
65. I is to my as who is to (a-why; b-where; c-whom; d-whose; e-which).
66. A furtive glance is (a-stealthy; b-fearful; c-peevish; d-shy; e-curious).
67. Nine is to five as thirty-six is to (a-12; b-15; c-20; d-24; e-25).
68. Much is to many as little is to (a-less; b-few; c-more; d-least; e-fewer).
69. A languid mood is (a-cheerful; b-listless; c-gloomy; d-fretful; e-thoughtful).
70. Five is three less than six-ninths of (a-12; b-14; c-15; d-16; e-18).
71. Man is to biped as horse is to (a-cart; b-quadruped; c-bicycle; d-stable; e-hay).
72. To dilate is to (a-digress; b-recount; c-contract; d-expand; e-argue).
73. Three is to five as nine is to (a-12; b-14; c-15; d-16; e-18).
74. Golf is to links as horse race is to (a-racer; b-champion; c-speed; d-turf; e-jockey).
75. Unique is the opposite of (a-novel; b-typical; c-antique; d-useful; e-ugly).
76. Six-tenths of 15 is three-halves of (a-4; b-6; c-8; d-10; e-12).
77. High is to low as hill is to (a-level; b-deep; c-steep; d-knoll; e-hollow).
78. To impel is to (a-ride; b-drive; c-guide; d-deceive; e-endanger).
79. Eight is to 1.6 as 6.5 is to (a-1.2; b-1.3; c-1.4; d-1.5; e-1.8).
80. Bread is to oven as brick is to (a-house; b-kiln; c-bat; d-clay; e-bake).
81. Intact means (a-torn; b-tactless; c-injured; d-uninjured; e-intake).
82. Thirteen is 3 more than 8 fortieths of (a-40; b-45; c-50; d-55; e-60).
83. Country is to rural as city is to (a-streets; b-town; c-urban; d-rich; e-fine).
84. Deft means (a-dull; b-deaf; c-strong; d-eager; e-apt).
85. Four is to ten as ten is to (a-15; b-20; c-24; d-25; e-40).
86. Height is to altitude as speed is to (a-miles; b-aeroplane; c-velocity; d-rate; e-go).
87. A haft is a (a-weight; b-shaft; c-wheel; d-blade; e-handle).
88. Nine is to 1.8 as 7.5 is to (a-1.2; b-1.3; c-1.4; d-1.5; e-1.6).
89. Bad is to badly as good is to (a-better; b-best; c-well; d-fairly; e-goodly).
90. Sever is the opposite of (a-mild; b-part; c-dissever; d-join; e-union).
91. Eight is to 5 as twelve is to (a-6.0; b-6.5; c-7.0; d-7.5; e-8.0).
92. Parent is to parental as child is to (a-offspring; b-young; c-obedient; d-filial; e-trivial).
93. An apropos remark is (a-awkward; b-irrelevant; c-candid; d-timely; e-cutting).
94. Six is to 8 as twenty-four is to (a-25; b-27; c-28; d-30; e-32).

## American History

## Multiple Choice.

1. The colonies learned the value of cooperation at (a) Boston Tea Party (b) French and Indian War (c) Pontiac's Conspiracy.
2. A good example of a charter colony was (a) Rhode Island (b) New York (c) Georgia.
3. The immediate cause for the purchase of Louisiana was (a) to double the area of the United States (b) an effort to weaken Spain's American holdings (c) to protect and promote commerce on the Mississippi.
4. The English statesman having the nearest to a colonial point of view was (a) Grenville (b) William Pitt (c) Edmund Andros (d) Thomas Paine.
5. At Pittsburg Penn. is (a) King's College (b) Duquesne (c) Princeton.
6. Representative gov't. in America began with (a) The New England town meeting (b) The House of Burgesses (c) Connecticut's liberal charter.
7. La Salle claimed the Miss. Valley for his king (a) Henry VIII (b) James I (c) Louis XIV (d) Prince Henry (e) Ferdinand.
8. One of these promoted the Protestant movement (a) Jesuit missionaries (b) Pizarro (c) Lord Baltimore (d) Queen Elizabeth.
9. Involving the use of soldiers in finding smuggled goods was (a) Writs of assistance (b) Townsend Acts (c) Quebec Act (d) Northwest Ordinance.
10. The plundering of English Sea Dogs such as Drake and Hawkins brought on indirectly (a) The French and Indian War (b) The settlement of St. Augustine (c) the first circumnavigation of the globe (d) defeat of Spanish Armada.
11. The American colonies wished to be represented in the matter of (a) raising revenue in the colonies (b) regulation of commerce with the colonies (c) England's theory of mercantilism.
12. The first of these to be settled was (a) Boston (b) Providence (c) New York (d) Plymouth (e) Baltimore (f) Philadelphia.
13. Absence of regulation and control by the government is known as (a) Renaissance (b) monopoly (c) laissez-faire (d) compromise.
14. His policy changed the whole purpose of the French and Indian War (a) Benjamin Franklin's (b) Gen. Braddock's (c) Geo. Washington's (d) William Pitt's (e) George II's.
15. Contributing the most in gaining French Aid in the Revolutionary War (a) Tory influence (b) Battle of Saratoga (c) Diplomacy of Nathaniel Greene.



## Test I (cont.)

16. As a motive for Spanish exploration and discovery, the most important was (a) fishing (b) desire for wealth (c) fur trade (d) homes.
17. Freedom and personal liberty were generally most possible in the (a) proprietary colonies (b) royal colonies (c) Charter colonies.
18. Henry Hudson's famous ship was the (a) Discovery (b) Golden Hind (c) Half Moon (d) Serapis (f) Pinta.
19. Important as an early tyrannical governor of Virginia was (a) Edmund Andros (b) George Grenville (c) Thomas Dale (d) Wm. Brewster.
20. The one of these not a father-daughter relationship was (a) Henry VIII and Elizabeth (b) Powhattan and Pocahontas (c) Roger Williams and Ann Hutchinson (d) James II and Mary.

## Matching.

- |                    |  |
|--------------------|--|
| 1. General Wolfe   | A. Manhattan Island                                  |
| 2. Marco Polo      | B. Vincennes   |
| 3. Geo. R. Clark   | C. Colonial minister to France                       |
| 4. Martin Luther   | D. English claims in America                         |
| 5. Peter Minuet    | E. Befriended the Algonkins                          |
| 6. Philip Schuyler | F. Battle of Quebec                                  |
| 7. Coronado        | G. Oriental descriptions                             |
| 8. John Cabot      | H. A Polish astronomer                               |
| 9. Ben Franklin    | I. Protestant Revolt                                 |
| 10. Champlain      | J. At the 1st. Thanksgiving                          |
| 11. Thomas Paine   | K. A liberal proprietor                              |
| 12. Copernicus     | L. The real hero who planned the victory at Saratoga |
| 13. Masassoit      | M. Maryland colony                                   |
| 14. William Penn   | N. Common Sense                                      |
|                    | O. Quivira & Cibola sought                           |

## Associate each with the proper state.

- |                     |                     |
|---------------------|---------------------|
| 1. Thomas Hooker    | 5. John Winthrop    |
| 2. Peter Stuyvesant | 6. Samuel Adams     |
| 3. Dutch patroons   | 7. Yorktown         |
| 4. Yale University  | 8. Iriquois Indians |

## Associate these with the proper nation.

- |             |             |
|-------------|-------------|
| 1. Cartier  | 4. Hessians |
| 2. Cromwell | 5. Da Gama  |
| 3. Balboa   |             |



## Test I (cont.)

True - False.

1. The Jamestown colony was promoted as a profit and commercial venture.
2. The patriots were loyal and patriotic to the English kings.
3. The best example of "food-gathering Indian" was found on the Atlantic Coast.
4. The Incas and Aztecs Indians were found in Spanish America.
5. American colonies had but one idea from the first, independence.
6. Unskilled laborers, such as slaves, were profitable primarily in the South.
7. Ben. Franklin was outstanding for his broad-mindedness.
8. In the South, John Locke, personally developed the plantation system.
9. The Quebec Act settled the French and Indian War.
10. John Paul Jones captured most of the privateers during the Revolutionary War.
11. Most of the mountain ranges in the United States run North and South.
12. The life of Benedict Arnold is a personal example toward the cause of liberty and patriotism.

## American History

## Completion.

1. Starting with J. Q. Adams, the next 4 different Presidents of the U. S. in order were:
2. \_\_\_\_\_ represented the U. S. in the settlement of the Maine boundary. \_\_\_\_\_ was the greatest blot on the presidency of Andrew Jackson from the state of \_\_\_\_\_.
3. (Delaware, Vermont, Missouri) was one of the United States first.
4. \_\_\_\_\_ & \_\_\_\_\_ were the 2 states who early tended to defy the Federal government.
5. The \_\_\_\_\_ connected Buffalo, N. Y. and the Hudson River at Ft. \_\_\_\_\_.
6. \_\_\_\_\_ was the 1st. president to die in office, while \_\_\_\_\_ and \_\_\_\_\_ tended to dictate to the president who succeeded him.
7. The best office to hold, from which to rise to the Presidency was \_\_\_\_\_.
8. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, & \_\_\_\_\_ were the 4 original colonies that now make up what is known as the New England States.
9. In our early history, our neighbor country on the north was \_\_\_\_\_, in Florida was \_\_\_\_\_, and in the southwest was \_\_\_\_\_.
10. The \_\_\_\_\_ was the early turnpike built by the Federal government. The compromise agreed to by Jefferson and Hamilton early in our history under the constitution dealt with paying state debts and \_\_\_\_\_.
11. The dispute in the election of 1800 caused the passing of the \_\_\_\_\_ Amendment, providing for \_\_\_\_\_.
12. Lack of real executive power and uniformity of judicial power were evident in the body of laws known as \_\_\_\_\_.
13. Adding power and prestige to the Supreme Court, \_\_\_\_\_ was most important.
14. Two states \_\_\_\_\_ & \_\_\_\_\_ were added to the union and the territory of the Louisiana Purchase north of \_\_\_\_\_ was to be forever free as provided in the Missouri Compromise.
15. The inventor of the steamboat was \_\_\_\_\_, of the cotton gin was \_\_\_\_\_, of the sewing machine was \_\_\_\_\_, of the factory system was \_\_\_\_\_.
16. The great compromise in the constitutional convention provided for \_\_\_\_\_, the 3/5 compromise involved the determination of the numbers of negroes for 2 purposes \_\_\_\_\_ & \_\_\_\_\_.
17. Who said each of the following:  
(a) "The Union must be preserved."  
(b) "The Union, next to our liberty, most dear."

American History

17. (cont.)  
 (c) "Refrain from petty politics and entangling alliances."  
 (d) "The Western Hemisphere is no longer open to colonization."  
 (e) "Don't give up the ship."  
 (f) "We have met the enemy and they are ours."  
 18. In whose presidential administration did each of these take place:  
 (a) Louisiana Purchase  
 (b) War of 1812  
 (c) Jay Treaty  
 (d) Embargo Act  
 (e) 1st. protective tariff  
 (f) Panic of 1837  
 19. The foremost abolitionist of the early 19th. century was \_\_\_\_\_.  
 20. Name the original 13 colonies and their capitals.  
 Name five states and their capitals, each of which borders East of Mississippi.

Matching.

- |                            |  |
|----------------------------|--|
| 1. Alexander Hamilton      | A. Furnished many early pres.              |
| 2. Columbia                | B. Replied to Hayne                        |
| 3. Virginia                | C. Capital of a State                      |
| 4. Nullification           | D. Compromise promoter                     |
| 5. Ohio                    | E. Land payment in gold and silver         |
| 6. Specia Circular         | F. 1st. National Bank                      |
| 7. Henry Clay              | G. St. Augustine                           |
| 8. Daniel Webster          | H. Chisholm vs Georgia                     |
| 9. 11th. Am'd't. to Const. | I. State refusing to obey a Federal law    |
| 10. Dewitt Clinton         | J. Home of the hero of Tippecanoe          |
|                            | K. Gov. of N. Y., promoted the Erie Canal. |
|                            | L. Articles of Confederation               |

True - False.

- The protective tariff question became a sectional issue.
- Jackson was, politically speaking at least, a States Rights man.
- Henry Clay ran for the Presidency in three consecutive elections.
- Jackson, a popular Whig, was always able to defeat Clay.



## Test II (cont.)

5. Webster is credited with peaceful settlement of the abnormally high tariff.
6. Jackson played a part in seeing that the Indians were moved to reservations west of the Mississippi.
7. The Rush-Bagot Treaty of 1815 settled the War of 1812.
8. Andrew Jackson was a bitter enemy of the National Bank.
9. Somewhat of a panic occurred during the 4th. decade of the 19th. century.
10. Tyler promoted and helped the name of the Whig Party while President of the United States.
11. Zebelum Pike is associated with the settlement of St. Augustine in 1565.
12. Alexander Hamilton demonstrated that his personal selfishness was not as great as his national loyalty in the election of 1800.

## Test III

## American History

## Completion.

1. The two minor parties created in the latter half of the nineteenth century to put more money in circulation were the \_\_\_\_\_ and \_\_\_\_\_. The Democratic Party demanded Free Silver in the election year of \_\_\_\_\_ under the leadership of the able statesman \_\_\_\_\_ from the state of \_\_\_\_\_.
2. Four present day political parties in the last election which had a ticket in the State of Kansas were:
3. Six U. S. presidents have died in office. Give their names, their vice presidents who succeeded them, and their parties.
4. In the 5th decade of the 19th century, many foreigners came to this country. They came for 2 reasons, namely \_\_\_\_\_ and \_\_\_\_\_, and the political party created to fight them was \_\_\_\_\_.
5. What minor political party wished to completely abolish slavery, and which wished to prevent further extension of the institution?
6. Since the Civil War, in what election years have the Republicans not been successful in electing a president? What man, representing what party, was elected in each case?
7. The real issue before the people in 1912 was \_\_\_\_\_. There were three major parties, their candidates being, respectively, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, in the order of their rank when the election returns came in.
8. The first tariff the U. S. ever experienced was a tariff for \_\_\_\_\_, for which the man \_\_\_\_\_ was responsible. The last tariff bill was the \_\_\_\_\_ tariff of 1930, that is, except for the \_\_\_\_\_ tariff policy of the present administration.
9. The election years of 1884 and 1928 had at least one issue in common, what was it?
10. The real importance of the election year of 1824 was that \_\_\_\_\_.
11. What Republican Presidents since 1850 have successfully run for president two times?
12. The trend of tariff duties has been (upward, downward, constant), while the percentage of the amount of Federal Revenue raised by customs or tariffs has been (upward, downward, constant).
13. The first man elected president when the real issue was the tariff was \_\_\_\_\_, the issue was over a particular tariff law \_\_\_\_\_, and that president was the first one elected by that party, namely \_\_\_\_\_.
14. The election slogans of the winning parties in the election years of 1840 and 1916 were respectively \_\_\_\_\_ and \_\_\_\_\_.

## Test III (cont.)

15. \_\_\_\_\_ was the first Republican party candidate to run successfully for president. He won due to a split of the Democratic party into the two factions \_\_\_\_\_ and \_\_\_\_\_.
16. The most definite reform tariff law passed since the Civil War was the \_\_\_\_\_, passed during President \_\_\_\_\_ administration.
17. The \_\_\_\_\_ party favored the annexation of the Philippines in the campaign of \_\_\_\_\_, while the \_\_\_\_\_ party favored the annexation of Texas in the election of \_\_\_\_\_.
18. The Democratic-Republican Party had practically no opposition for 24 years from the year \_\_\_\_\_ to \_\_\_\_\_, during which time they elected three two-term presidents, namely, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.
19. The \_\_\_\_\_ party had, in general, been responsible for increasing the protective tariff rates in order to help the \_\_\_\_\_ industry of the \_\_\_\_\_ States of the United States.
20. A tariff duty may be based on the value of the goods or on a unit of measurement. Each is called respectively, \_\_\_\_\_ & \_\_\_\_\_. If we practice the Golden Rule in tariffs we practice \_\_\_\_\_. If we hurt the other fellow in return for the same, it is known as \_\_\_\_\_.



## Test IV

## American History

True - False.

1. Pizarro had important dealings with the Algonquin Indians.
2. Even during the colonizing period, nations competed for wealth and power.
3. James K. Polk was an ardent, ambitious expansionist.
4. The Pilgrims were more desirous of making homes than was the London Company in Virginia.
5. The Line of Demarcation split the U. S. from the North to the South at about the Mississippi River.
6. Columbus was urged on by the desire that he would find a new continent.
7. DeSoto was a discoverer in the Miss. Valley in the name of France's King.
8. Though it was established as a haven of freedom the Puritan colony practiced strict doctrines and puritanical ways.
9. Sir Francis Drake first proved that the world was a sphere.
10. Spain was outstanding as a sea power and a discovery nation.
11. Coronado was an early Spanish visitor to Kansas.
12. Saratoga and Yorktown were important battle grounds of the Revolutionary War.
13. William Pitt was the dominant power in England during the Revolutionary War.
14. The land East of the Mississippi River was, in general, turned over to England as a result of the Treaty of Paris following the Revolutionary War.
15. The attempt to tax the colonies to make them self-supporting, if possible, had its affect in hurrying on the War of Independence.
16. The French fur-traders were primarily interested in the making of permanent homes.
17. George III didn't want to comply with Catholic principles so he established the Anglican Church.
18. The "Intolerable Acts" helped bring the colonies to unity and rebellion.
19. The Revolutionary War is known commonly as the Critical period of the United States.
20. Henry Clay was one of the popular Whig presidents.
21. Alexander Hamilton helped build an early National financial structure.
22. Florida was added to the Union in one of the great compromises.
23. Some of original colonies had liberal charters.
24. The Battle of Quebec took place during the final stages of the Revolutionary War.
25. Massachusetts was the first of the original 13 colonies settled.

## Test IV (cont.)

26. The Constitution prohibits a 3rd. term for the presidency.
27. Hamilton's early financial policy provided for a protective tariff for our manufacturers.
28. The War of 1812 encouraged the growth of the manufacturing industry.
29. John Paul Jones was a hero during the French and Indian War.
30. 36° 30' is the Northern boundary between United States and Canada.
31. Benjamin Franklin began the 1st. conservation for Pennsylvania.
32. The acquisition of Florida preceded the Louisiana Purchase.
33. In 1844 the Democratic platform included the annexation of Texas.
34. John and John Q. Adams were among America's most popular presidents.
35. William H. Harrison was the first Republican president.
36. The War of 1812 caused the change in possession of a great deal of territory.
37. French exploration was promoted somewhat by the missionary movement.
38. Lief Ericsson left complete accounts of his North American Indian fights.
39. The Defeat of the Spanish Armada during the reign of Queen Elizabeth had definite bearings on our becoming an English dominated nation.
40. The most definite commercial war in our American History was 1812.
41. The Mayflower ship helped in making Columbus a famous man.
42. Nullification arose as an issue as a result of the tariff issue.
43. The state of Virginia furnished four out of our first five presidents.
44. Many historical happenings have a commercial background.
45. Oregon Territory was added to the United States during a war but not as a result of war.
46. The Gadsden Purchase was made due to the belief that rich minerals would be found in that exceptionally mountainous country.
47. The Texans were requested by the United States Gov't. to become part of our American Union.
48. The National Anthem makes mention and pays respect to "Old Glory".
49. The South and West have been the most desirous of a high protective tariff.
50. The Revolutionary War was, from the first, a war of independence.



## Test IV (cont.)

51. Benedict Arnold used his leadership ability to advantage.
52. After the War of 1812, we were more highly respected on the high seas.
53. Historical movements generally do not take place without reason.
54. Religious connections are a dominant factor and influence during the colonial period.
55. George Washington was first prominent as a leader in the French and Indian War.
56. Both William Penn and Roger Williams treated the Indians in a friendly way.
57. Thomas Jefferson became influential through his ability as an author.
58. Champlain aroused the enmity of the Iroquois Indians against the French.
59. In 1832 the tariff issue was fought out in the Presidential election between Polk and Jackson.
60. Geography is, with reason, said to be "a maker of history."



## Test V

## American History

## Completion.

1. The most prominent French missionaries in the colonization period were \_\_\_\_\_ & \_\_\_\_\_.
2. The value of cooperation was taught to the colonies in the \_\_\_\_\_ War.
3. The new Congress, now in session is the \_\_\_\_\_ in number.
4. Of the 3 common branches of gov't. the two most sadly lacking under the Articles of Confederation were the \_\_\_\_\_ & \_\_\_\_\_.
5. The Webster-Ashburton Treaty of 1842 most specifically settled the boundary of the State of (Maine, Florida, Louisiana.)
6. The Constitutional Convention really met with the purpose of \_\_\_\_\_.
7. The Spoils System was primarily initiated by President \_\_\_\_\_.
8. DeWitt Clinton's "Big Ditch" was really the \_\_\_\_\_.
9. Jay's treaty with England during Washington's Adm. may have been a poor treaty in some ways but it was good for the U. S. as a whole because \_\_\_\_\_.
10. The greatest chief justice of all time was \_\_\_\_\_.
11. The Dartmouth College Case really established as a precedent that \_\_\_\_\_.
12. The X,Y,Z Affair involves the dealing of the U. S. with \_\_\_\_\_ nation.
13. The real thing that allowed the Constitutional Convention to succeed was the ability to \_\_\_\_\_.
14. Geo. Washington specifically advised two things in his farewell address, namely \_\_\_\_\_ & \_\_\_\_\_.
15. As a provision of the \_\_\_\_\_ Compromise, Maine became a state; Calif. became a state under a provision of the \_\_\_\_\_, and the abominable tariff was solved by the compromise tariff proposed by \_\_\_\_\_.
16. The addition of the \_\_\_\_\_ to our terr. finished our Manifest Destiny.
17. Who is the inventor of each of the following: reaper, "Tom Thumb", moleboard plow, and cotton gin.
18. The wise saying of each of the following was: Nathan Hale, Horace Greeley, Patrick Henry and Richard Henry Lee.
19. What profession, outside of politics would you say each of the following belonged to: Geo. Washington, Benjamin Franklin, Captain Kidd, Ralph Waldo Emerson, Patrick Henry, and John Jacob Astor.
20. In whose administration did the following take place: 1st. Nat'l. bank established, Louisiana Purchase, War of 1812, Panic of 1837.
21. With what state of the Union is each of the following most definitely associated: Samuel Adams, Daniel Boone, Stephen F. Austin, James Russell Lowell,

## Test V (cont.)

James Oglethorpe, Alexander Hamilton and Brigham Young.

22. In what document, provision, or treaty would you expect to find each of the following: a. the western Hemisphere is no longer open to European Colonization, b. North of 36 30' shall be forever free, c. the boundary between Canada and the U. S. shall be disarmed, d. the slave question shall be settled in the territory of New Mexico by popular sovereignty, e. the term of the Congress shall expire at noon on the 3rd. of Jan. and of the President and Vice-President at noon on the 20th of Jan.
23. Two specific reasons why we were drawn into the War of 1812 were:
24. The American who is credited with each of the following is:  
 a. Contributing to the modernization of Japan.  
 b. Gaining back the Michigan Territory from the English.  
 c. Being the foremost abolitionist in the Pre-Civil War days.
25. The \_\_\_\_\_ Line and the \_\_\_\_\_ River are considered to have been the boundary between the slave and the free territory.

## Matching.

- |                     |                                |
|---------------------|--------------------------------|
| 1. 1800             | A. Disputed election           |
| 2. 1453             | B. Declaration of Independence |
| 3. 1607             | C. Coronado in Kansas          |
| 4. 1832             | D. Texas and Oregon issue      |
| 5. 1803             | E. Northwest Ordinance         |
| 6. 1776             | F. Turks in Constantinople     |
| 7. 1541             | G. Albany Plan of Union        |
| 8. 1787             | H. 1st. National Bank          |
| 9. 1844             | I. National Bank the issue     |
| 10. 1754            | J. Louisiana Purchase          |
|                     | K. Jamestown settled           |
| 1. Marco Polo       | A. Treaty                      |
| 2. Sam Houston      | B. Tariff                      |
| 3. George R. Clark  | C. Hated the English           |
| 4. Roger Sherman    | D. Democrat                    |
| 5. James II         | E. Historian                   |
| 6. Pontiac          | F. Cathay                      |
| 7. Walker           | G. Actor                       |
| 8. Van Buren        | H. Great Compromise            |
| 9. Clayton-Bulwer   | I. War Hawk                    |
| 10. Francis Parkman | J. Vincennes                   |
|                     | K. Stuart                      |
|                     | L. Texas Independence          |



Multiple Choice.

1. England's claim to North America was based upon the discovery of a. Lief Ericson, b. John Paul Jones, c. John Cabot.
2. The Northwest Ordinance provided for a. Conservation of the forests, b. civil liberties, c. Indian Reservations.
3. Promoting development of transportation more than the others was, a. Discovery of Gold, b. Polygamy, c. Navigation Acts.
4. Concerning the problem of slavery was, a. 1824 campaign, b. Uncle Tom's Cabin, c. Alien and Sedition Acts.
5. Which one was not a sectional problem, a. tariff, b. Slavery, c. 3rd. term.
6. Establishing the precedent that the Supreme Court could declare an act of Congress unconstitutional was, a. McCulloch vs. Maryland, b. Chisholm vs. Georgia, c. Marbury vs. Madison, d. Dartmouth College.

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## Test VI

## American History

1. President Wilson delivered his War speech to the U. S. Congress in the month of \_\_\_\_\_ while the Armistice was signed in \_\_\_\_\_.
2. The Germans did not think America's Declaration of War would mean much for two reasons, namely:
3. Wilson's most famous peace proposal was in his \_\_\_\_\_ Point, providing for \_\_\_\_\_.
4. The election slogan which helped Wilson be elected in 1916 was \_\_\_\_\_.
5. The campaign issue in 1920 was \_\_\_\_\_ and the Dem. vice-presidential candidate was \_\_\_\_\_.
6. The most famous naval battle of the Spanish American War was \_\_\_\_\_.
7. The Free Silver campaign was the year \_\_\_\_\_ in which year the \_\_\_\_\_ Party proposed and upheld the free coinage of silver as well as gold.
8. Elihu Root is associated with what Peace organization \_\_\_\_\_? What peace movement had as its purpose the Outlawry of War \_\_\_\_\_?
9. During what American War did we add Texas and New Mexico to our territory \_\_\_\_\_? By what method did we get Oregon \_\_\_\_\_? Florida \_\_\_\_\_?
10. What document promoted education, prohibited slavery, encouraged civil liberties, etc. in terr. north of Ohio R. and west to Mississippi R. \_\_\_\_\_.
11. The famous cartoonist who instituted the donkey and elephant symbols was \_\_\_\_\_.
12. In what war is each of the following involved:  
a. Braddock, b. Com. Perry, c. Nathan Hale, d. Robert Lansing, e. Leonard Wood, f. Santa Anna.
13. \_\_\_\_\_ resigned from the Supreme Court to run for the presidency in the election of 1916.
14. The names of two heroes of Indian Wars who became presidents in the first half of the 19th century were \_\_\_\_\_ and \_\_\_\_\_.
15. In what document or treaty does each of the following appear: a. Germany shall pay high reparation payments to France, b. Congressional terms and Presidential and vice-Presidential terms shall both end in January of the odd numbered years, c. France is virtually extinguished from the Western Hemisphere, d. The number of immigrants coming to the United States in any one year shall be based upon the 1890 census.
16. The number of full two-term presidents since the Civil War is limited to four, namely \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
17. The organization which was made up of cowboys, Indians, college athletes and such variety fought under the man \_\_\_\_\_ and were known as the \_\_\_\_\_ during the Spanish American War.

## Test VI (cont.)

## American History

18. What war did each of the following settle: a. Treaty of Ghent, b. Treaty of Versailles, c. Treaty of Paris, 1783.
19. With what political party would you associate each of the following: a. Eugene V. Debs, b. William Jennings Bryan, c. Benjamin Harrison, d. James Monroe, e. James Buchanan, f. Philip LaFollette.
20. In what war was each of the following involved: a. Lusitania, b. Lawrence, c. Maine, d. "Old Ironsides".
21. What is the full meaning of each of the following abbreviations: a. R.A.F., b. A.E.F., c. G.R., d. T.V.A.
22. The nations who were members of the Triple Alliance at the beginning of the World War were \_\_\_\_\_.

## Matching.

- |                  |                                |
|------------------|--------------------------------|
| 1. 1660          | A. Bull-Moose Party            |
| 2. 1776          | B. Valley Forge                |
| 3. 1928          | C. Lief Ericsson               |
| 4. 1912          | D. Stuart's Restoration        |
| 5. 1824          | E. Chinese Exclusion           |
| 6. 1620          | F. Catholic, wet issue         |
| 7. 1588          | G. Declaration of Independence |
| 8. 1000          | H. Dem.-Rep. Party Split       |
| 9. 1777          | I. Texas-Oregon issue          |
| 10. 1892         | J. Spanish Armada              |
|                  | K. Pilgrims landed             |
| 1. Massasoit     | A. Columbia River discoverer   |
| 2. Clemenceau    | B. Tariff                      |
| 3. Slidell       | C. Tobacco culture             |
| 4. Robert Gray   | D. Son of a President          |
| 5. Henry Wallace | E. First Thanksgiving          |
| 6. Hawley-Smoot  | F. Battle of Quebec            |
| 7. Henry Clay    | G. Envoy to Mexico City        |
| 8. J. Q. Adams   | H. "Big Four"                  |
| 9. John Rolfe    | I. War Hawk                    |
| 10. Montcalm     | J. Battle of Saratoga          |
|                  | K. Vice President elect        |

## Multiple Choice.

1. Known as an imperialistic war was: a. 1812, b. Sp. American, c. Revolution.
2. Changing sides after the World War began was: a. Greece, b. Italy, c. Spain.
3. The one not a naval hero was: a. Sampson, b. John Paul Jones, c. Pershing.

## Test VI. (cont.)

## American History

4. Payment for war or other damages is a. reparations, b. war debts, c. repudiation, d. reciprocity.
5. The number of immigrants that can now enter the U. S. in any one year is a. 300,000, b. 100,000, c. one-half million, d. 150,000.
6. The political party not working against slavery was a. Republican, b. Populist, c. Liberty, d. Free-Soil.



**DIRECTIONS:** Read the directions for each part and follow them. Answer easy items first; return to others later. You will have exactly 40 minutes.

**EVERY PUPIL SCHOLARSHIP TEST**

January 8, 1941

Bureau of Educational Measurements  
Kansas State Teachers College, Emporia

**AMERICAN HISTORY**

Grades XI-XII

By Maxine Lewis Delmare, Atchison, Kansas

Possible score ..... **151**

Number wrong  
and omitted .....

**FINAL SCORE** .....

Name..... Age..... Grade.....  
School..... State..... Date.....

**PART I**

**DIRECTIONS:** Each of the statements of this test has several completions listed with it. In the parenthesis before each completion, place a plus (+) if the completion makes the statement true and a minus (—) if the completion makes the statement false. There may be more than one correct answer. Each parenthesis must contain a plus or a minus. The sample has been correctly marked.

**Example:**

Captain John Smith was a leader in the Jamestown settlement who:

- (—) 1. Advocated the "Common Store House" plan.
- (+) 2. Made the settlers work.
- (—) 3. Explored westward to the Mississippi.
- (+) 4. Saved Jamestown from starvation.

**I. The Crusaders**

- ( ) 1. were a peaceful group.
- ( ) 2. were in search of new trade routes.
- ( ) 3. wanted to regain the tomb of Christ.
- ( ) 4. started interest in trade with the East.

**II. Elizabeth, Queen of England,**

- ( ) 5. was a daughter of Henry VIII.
- ( ) 6. was a believer in a strong navy.
- ( ) 7. gave funds to Columbus.

**III. Jamestown**

- ( ) 8. was in the territory later to be Virginia.
- ( ) 9. was founded in 1609.
- ( ) 10. was started and financed by the king.

**IV. The Spanish Armada**

- ( ) 11. was a huge army that marched across Europe.
- ( ) 12. was defeated by England.
- ( ) 13. was the last effort at supremacy over England on Spain's part.
- ( ) 14. was mobilized in 1688.

**V. The French and Indian War**

- ( ) 15. was called the Seven Years War in Europe.
- ( ) 16. ended in victory for the French.
- ( ) 17. left England deep in debt.
- ( ) 18. drew the colonies closer to England.
- ( ) 19. showed the colonists what united action could do.
- ( ) 20. gave Canada to England.

**VI. The American Revolution**

- ( ) 21. was backed by every colonist.
- ( ) 22. was an easy victory for the colonists.
- ( ) 23. was aided considerably by the French.
- ( ) 24. gave the colonists social equality.
- ( ) 25. gave the colonists political freedom.

**VII. The Northwest Ordinance**

- ( ) 26. was passed during the time of the Articles of Confederation.
- ( ) 27. was the basis of our territorial policy.
- ( ) 28. forbade slavery in a part of the United States.
- ( ) 29. forbade slavery in all of the colonies.

**VIII. Alexander Hamilton**

- ( ) 30. was a federalist.
- ( ) 31. opposed the adoption of the Constitution following the Constitutional Convention.
- ( ) 32. was secretary of state under Washington.
- ( ) 33. was killed in a duel.
- ( ) 34. opposed federal payment of state debts.
- ( ) 35. was in favor of a national bank.
- ( ) 36. believed in a strong central government.

**IX. The War of 1812 included**

- ( ) 37. the burning of Washington.
- ( ) 38. the battle of Lexington.
- ( ) 39. the battle of New Orleans.
- ( ) 40. moving the United States toward economic independence.
- ( ) 41. a growth in manufacturing in the United States.

**X. The Monroe Doctrine**

- ( ) 42. was a part of a message to Congress.
- ( ) 43. was to protect this hemisphere from England.
- ( ) 44. is a treaty.
- ( ) 45. is still maintained by the United States.
- ( ) 46. closed the western hemisphere to colonization.

**XI. The Mexican War**

- ( ) 47. was extremely popular in the north.
- ( ) 48. was ended by the treaty of Paris.
- ( ) 49. brought California and New Mexico to the United States.
- ( ) 50. embittered the Mexicans against the United States.

**PART II**

**DIRECTIONS:** Place the number of the part which makes the best answer to the statement in the parenthesis before the sentence, as in the example.

**Example:** ( 3 ) The capital of the United States is:  
1. Boston. 2. Chicago. 3. Washington.  
4. New York.

In this example "Washington" is the correct answer; therefore, a figure 3 has been placed in the parenthesis.

- ( ) 51. The line of Demarcation was made by: 1. the king. 2. the Pope. 3. an exploring Spaniard.
- ( ) 52. As a result of the line of Demarcation, the people in Brazil today speak: 1. Portuguese. 2. Spanish. 3. French.
- ( ) 53. The Indians in Mexico belonged to the: 1. Incas. 2. Aztecs. 3. Sioux.
- ( ) 54. The Spanish explorers belonged to the: 1. Huguenot. 2. Protestant. 3. Catholic church.
- ( ) 55. James I of England was: 1. Scotch. 2. Irish. 3. Welsh.
- ( ) 56. The first permanent English settlement in the United States was in: 1. Florida. 2. Massachusetts. 3. Virginia.
- ( ) 57. The first college in the United States was: 1. Yale. 2. Harvard. 3. William and Mary.

- ( ) 58. New England was first settled by colonists who were seeking: 1. adventure. 2. religious freedom. 3. a new, easy way to make a living.
- ( ) 59. The House of Burgesses, the first representative legislature in America, was in: 1. Virginia. 2. Maryland. 3. New York.
- ( ) 60. The Connecticut settlers drew up (1. a compact, 2. the fundamental orders, 3. a declaration of grievances), which was the first written constitution in the United States.
- ( ) 61. Delaware was settled by the: 1. Spanish. 2. French. 3. Swedes.
- ( ) 62. The Navigation Acts were passed in keeping with England's economic plan, called: 1. Laissez Faire. 2. Mercantilism. 3. New Deal.
- ( ) 63. The "Father of the Constitution" was: 1. Jefferson. 2. Hamilton. 3. Madison.
- ( ) 64. One of the deciding battles of the French and Indian Wars was the capture of Quebec by: 1. Wolfe. 2. Montcalm. 3. Burgoyne.
- ( ) 65. The Southern colonies were interested chiefly in: 1. manufacturing. 2. lumbering. 3. agriculture.
- ( ) 66. The first shots of the revolution were fired at: 1. Yorktown. 2. Lexington and Concord. 3. Bunker Hill.
- ( ) 67. The French and Indian War made (1. Franklin, 2. Washington, 3. Jefferson) famous.
- ( ) 68. The turning point of the revolution was: 1. Saratoga. 2. Yorktown. 3. Trenton.
- ( ) 69. The Constitutional Convention met in: 1. Boston. 2. Philadelphia. 3. New York.
- ( ) 70. The Constitution makes no provision for: 1. amendments. 2. the Supreme Court. 3. the President's Cabinet.
- ( ) 71. A friend of the colonists in Parliament was: 1. Grenville. 2. Pitt. 3. Townshend.
- ( ) 72. In 1803 the United States purchased Louisiana from: 1. France. 2. Spain. 3. England.
- ( ) 73. The Constitution may be interpreted broadly by use of the: 1. pocket veto. 2. elastic clause. 3. amendments.
- ( ) 74. The discovery of gold led to the settlement of: 1. Kentucky. 2. California. 3. Texas.
- ( ) 75. The Oregon territory was acquired by peaceful settlement with: 1. Spain. 2. Russia. 3. England.
- ( ) 76. The Omnibus Bill enacted in 1850 dealt with the territory taken from: 1. England. 2. Mexico. 3. Spain.
- ( ) 77. The Whig party: 1. took a stand for slavery. 2. took a stand against slavery. 3. took no stand on slavery.

- ( ) 78. All territories in the United States were opened to slavery by: **1. the Missouri Compromise. 2. the Wilmot Proviso. 3. the Dred Scott Decision.**
- ( ) 79. The famous 36-30 line was created by the: **1. Omnibus Bill. 2. Missouri Compromise. 3. Kansas-Nebraska Bill.**
- ( ) 80. The **(1. Republican, 2. Democrat. 3. Whig)** party was formed as a result of the Kansas-Nebraska Bill.
- ( ) 81. Farmers favor inflation because it leads to: **1. lower prices. 2. stable prices. 3. higher prices.**

### PART III

**DIRECTIONS:** From the list of answers in Column II select the word which matches each item of Column I, and write the number of the answer in the parenthesis at the left of the item. The items of one section may be matched only with the answers in Column II of the same section. The example has been correctly marked.

**Example:** (19) The national capital is now located at

Column I	Column II
( ) 82. Conqueror of Peru	1. Balboa
( ) 83. Governor of Jamestown Settlement	2. Lord Baltimore
( ) 84. Proprietor of Maryland	3. Berkeley and Carteret
( ) 85. Explored the Mississippi	4. George Rogers Clark
( ) 86. Claimed Northwest for the colonies	5. Coronado
( ) 87. Battle of Quebec	6. Benjamin Franklin
( ) 88. Albany plan of union	7. Hooker
( ) 89. French General in American Revolution	8. John Paul Jones
( ) 90. First circled the globe	9. Lafayette
( ) 91. American naval hero	10. LaSalle
( ) 92. Sought the fountain of youth	11. Magellan
( ) 93. Were granted New Jersey	12. Montcalm
( ) 94. First white man in Kansas	13. James Oglethorpe
( ) 95. Founder of Georgia	14. Pizarro
( ) 96. Leader in Rhode Island	15. Ponce de Leon
( ) 97. Connecticut colony	16. John Smith
( ) 98. Discovered the Pacific	17. Roger Williams
( ) 99. Early governor of Massachusetts	18. John Winthrop
	19. Washington, D. C.

Column I	Column II
( ) 100. Began Industrial Revolution in U. S.	1. Samuel Adams
( ) 101. Author of "Uncle Tom's Cabin"	2. John Jacob Astor
( ) 102. Inventor of sewing machine	3. Clara Barton
( ) 103. Encouraged canal building	4. Daniel Boone
( ) 104. Invented vulcanization of rubber	5. DeWitt Clinton
( ) 105. Started Red Cross in U. S.	6. Stephen A. Douglas
( ) 106. Invented Printing Press	7. Albert Gallatin
( ) 107. Early colonial artist	8. Charles Goodyear
( ) 108. Financier of the revolution	9. Johannes Gutenberg
( ) 109. Committees of correspondence	10. Elias Howe
( ) 110. Sec. of Treasury under Jefferson	11. Washington Irving
( ) 111. Author of "Common Sense"	12. Francis Scott Key
( ) 112. Free Education	13. Horace Mann
( ) 113. Invented the reaper	14. John Marshall
( ) 114. Popular early American novelist	15. Cyrus H. McCormick
( ) 115. Early pioneer in Kentucky	16. Robert Morris
( ) 116. Author of Kansas-Nebraska Bill	17. Thomas Paine
( ) 117. Composer of "Star Spangled Banner"	18. José San Martin
( ) 118. Mexican leader in Mexican War	19. Santa Anna
( ) 119. The Oregon fur trade	20. Samuel Slater
( ) 120. Leader of South American Revolt	21. Harriet B. Stowe
( ) 121. The cotton gin	22. Gilbert Stuart
( ) 122. Famous chief justice	23. Eli Whitney



## PART IV

**DIRECTIONS:** In the parenthesis at the left, place the number of the event which happened earliest.

- |  |  |
|--|--|
| <p>( ) 123. 1. Colonization of America. 2. Revolutionary War.</p> <p>( ) 124. 1. Reanissance in Europe. 2. Exploration of New World.</p> <p>( ) 125. 1. Pilgrims settle at Plymouth. 2. London Company sent group to Jamestown.</p> <p>( ) 126. 1. Pilgrims settle at Plymouth. 2. Georgia founded by Oglethorpe.</p> <p>( ) 127. 1. Settlement of Roanoke Island. 2. London Company sent group to Jamestown.</p> <p>( ) 128. 1. London Company sent group to Jamestown. 2. Georgia founded by Oglethorpe.</p> <p>( ) 129. 1. Yorktown Battle. 2. Bunker Hill.</p> <p>( ) 130. 1. Yorktown Battle. 2. Declaration of Independence.</p> <p>( ) 131. 1. Bunker Hill. 2. Declaration of Independence.</p> <p>( ) 132. 1. Bunker Hill. 2. Intolerable Acts.</p> <p>( ) 133. 1. Declaration of Independence. 2. Intolerable Acts.</p> <p>( ) 134. 1. Boston Massacre. 2. Intolerable Acts.</p> <p>( ) 135. 1. Boston Massacre. 2. Molasses Act.</p> | <p>( ) 136. 1. Intolerable Acts. 2. Molasses Act.</p> <p>( ) 137. 1. Purchase of Florida. 2. Louisiana Purchase.</p> <p>( ) 138. 1. Purchase of Florida. 2. Annexation of Texas.</p> <p>( ) 139. 1. Purchase of Alaska. 2. Annexation of Texas.</p> <p>( ) 140. 1. Louisiana Purchase. 2. Annexation of Texas.</p> <p>( ) 141. 1. War of 1812. 2. First protective tariff.</p> <p>( ) 142. 1. War of 1812. 2. Embargo Act.</p> <p>( ) 143. 1. First protective tariff. 2. Tariff of abominations.</p> <p>( ) 144. 1. The Gadsden Purchase. 2. Scott's expedition to Vera Cruz.</p> <p>( ) 145. 1. The Gadsden Purchase. 2. Treaty of Guadalupe-Hidalgo.</p> <p>( ) 146. 1. Scott's expedition to Vera Cruz. 2. Treaty of Guadalupe-Hidalgo.</p> <p>( ) 147. 1. Scott's expedition to Vera Cruz. 2. Fall of the Alamo.</p> <p>( ) 148. 1. Missouri Compromise. 2. Omnibus Bill.</p> <p>( ) 149. 1. Kansas-Nebraska Bill. 2. Omnibus Bill.</p> <p>( ) 150. 1. Kansas-Nebraska Bill. 2. Election of Lincoln.</p> <p>( ) 151. 1. Omnibus Bill. 2. Election of Lincoln.</p> |
|--|--|

**DIRECTIONS:** Read the directions for each part and follow them. Answer easy items first; return to others later. You will have exactly 40 minutes.

# EVERY PUPIL SCHOLARSHIP TEST

April 8, 1941

Bureau of Educational Measurements  
Kansas State Teachers College, Emporia

## AMERICAN HISTORY

Grades XI-XII

By Maxine Lewis Delmare, Atchison, Kansas

Possible score ..... 153

Number wrong  
and omitted .....

**FINAL SCORE** .....

Name..... Age..... Grade.....

School..... State..... Date.....

### PART I

**DIRECTIONS:** Read the following sentences carefully. If a statement is true, place a plus (+) in the parenthesis before the statement, as in example A below. If the statement is false, make a minus (—) in the parenthesis, as in example B.

**Examples:** (+) A. America was discovered by Columbus.  
(—) B. The first president of the United States was Lincoln.

- ( ) 1. The compromise of 1850 made California a free state.
- ( ) 2. John Ericson favored the South during the Civil War.
- ( ) 3. In the presidential election of 1864 Lincoln was opposed by Douglas.
- ( ) 4. The Copperheads were a group of Northerners who wanted to make peace with the South on any terms.
- ( ) 5. The reconstruction governments of the South were efficient and satisfactory to the whites.
- ( ) 6. The Knights of Labor was the first important labor union in the United States.
- ( ) 7. Eugene Debs was a leader in the Socialist party.
- ( ) 8. A tariff is a federal tax on imported materials.
- ( ) 9. The *laissez-faire* theory of government provides for a great deal of government regulation.
- ( ) 10. The Interstate Commerce Act was passed in 1887.
- ( ) 11. The Sherman anti-trust act crushed all the existing trusts.
- ( ) 12. Many of our schools of higher learning were established under the Morrill Act of 1862.
- ( ) 13. The 14th amendment freed the negro.
- ( ) 14. The right of citizens to start legislation is called the referendum.
- ( ) 15. The Townshend plan provides for old age pensions.
- ( ) 16. The United States government operated the railroads during the first world war.
- ( ) 17. The population of the United States nearly doubled between 1870 and 1900.

- ( ) 18. The United States 1940 census shows a population decrease since 1930.
- ( ) 19. From 1870 to 1900 big business men wanted government control of industry and profits.
- ( ) 20. The passage of the Pendleton act was hastened by the death of Garfield.
- ( ) 21. Scalawags were northern adventurers who exploited the South following the Civil War.
- ( ) 22. Frances Perkins is the first female cabinet member.
- ( ) 23. Since the Civil War the South has been mostly Republican.
- ( ) 24. Grant was noted for his march to the sea.
- ( ) 25. "Boss Tweed" was a leader of Tammany Hall.
- ( ) 26. The leader of the Socialist party today is Norman Thomas.
- ( ) 27. The Teapot Dome scandal occurred during Grant's administration.
- ( ) 28. Maximilian was sent by Napoleon III to be emperor of Mexico.
- ( ) 29. The Stalwarts were friends of Grant.
- ( ) 30. The electoral commission settled Cleveland's second election.
- ( ) 31. The Bland Allison act was passed during Hayes's administration.
- ( ) 32. The Hawley-Smoot tariff was passed under Hoover's administration.
- ( ) 33. The last president to die in office was Harding.
- ( ) 34. Theodore Roosevelt was a member of the Democrat party.
- ( ) 35. The issue in the election of 1896 was bimetallism.
- ( ) 36. The Republican party first appeared in the election of 1842.
- ( ) 37. The policy of "Watchful Waiting" was applied to Spain.

- ( ) 38. The Treaty of Portsmouth closed the Russo-Japanese war.
- ( ) 39. The Dies Committee has been appointed to investigate the labor situation.
- ( ) 40. The Dawes act gave farms to civilized Indians.
- ( ) 41. Ida Tarbell wrote the **History of the Standard Oil Company**.
- ( ) 42. The Johnson act bars loans to nations who have defaulted payment on former war loans.
- ( ) 43. Wendell Willkie opposed Roosevelt's treatment of big business interests during the recent election.
- ( ) 44. The 5th Column is a new patriotic organization in America.
- ( ) 45. The Boxer Rebellion occurred in the Philippines.
- ( ) 46. Frank Knox, Secretary of the Navy, is a Republican.
- ( ) 47. A filibuster is the senatorial manner of helping one another to pass bills by exchanging votes.
- ( ) 48. Since the speed-up in industry due to the defense plans, a shortage of skilled labor has been apparent.
- ( ) 49. Phillip Murray is head of the C. I. O.
- ( ) 50. Willkie opposed help for Britain during his campaign speeches.

## PART II

**DIRECTIONS:** Each of the statements of this test has several completions listed with it. In the parenthesis before each completion, place a plus (+) if the completion makes the statement true and a minus (—) if the completion makes the statement false. There may be more than one correct answer. Each parenthesis must contain a plus or a minus. The sample has been correctly marked.

### Example:

Captain John Smith was a leader in the Jamestown settlement who:

- (—) 1. Advocated the "Common Store House" plan.
- (+) 2. Made the settlers work.
- (—) 3. Explored westward to the Mississippi.
- (+) 4. Saved Jamestown from starvation.

### The Panama Canal

- ( ) 51. was built by de Lesseps.
- ( ) 52. was delayed by the Clayton-Bulwer treaty.
- ( ) 53. (the Hay-Pauncefote treaty abrogated the Clayton-Bulwer treaty.)
- ( ) 54. was begun during the administration of Cleveland.
- ( ) 55. is built on land formerly owned by Colombia.
- ( ) 56. is considered one of the most vulnerable spots in the defense of America.

- ( ) 57. was begun by a Dutch engineering company.
- ( ) 58. was opened in 1914.

### America's tariff

- ( ) 59. has been increasingly high since the Civil War.
- ( ) 60. was first designed to help the small manufacturer.
- ( ) 61. was considerably lowered by the McKinley tariff.
- ( ) 62. has on the whole been raised by the Democratic party and lowered by the Republican.
- ( ) 63. helped to promote the growth of big business following the Civil War.

### Woodrow Wilson

- ( ) 64. was a college professor before becoming president.
- ( ) 65. opposed the Federal Reserve act.
- ( ) 66. favored entering the war in his 1916 campaign.
- ( ) 67. opposed secret treaties.
- ( ) 68. designed the League of Nations.
- ( ) 69. died in office.

### The South

- ( ) 70. has now introduced diversified farming.
- ( ) 71. had little manufacturing at the time of the Civil War.
- ( ) 72. has better labor conditions today than the north.
- ( ) 73. had many railroads at the time of the Civil War.
- ( ) 74. had poorly trained leaders for the Civil War.
- ( ) 75. hoped for aid from Britain to win the Civil War.

### Franklin D. Roosevelt

- ( ) 76. was inaugurated on January 3, 1941.
- ( ) 77. has attempted to adjust production and consumption of farm products.
- ( ) 78. opposes aid to Britain.
- ( ) 79. opposes the New Deal.
- ( ) 80. believes in government control of wages.
- ( ) 81. was first elected president in 1932.
- ( ) 82. was Secretary of the Navy under Wilson.
- ( ) 83. has had no opportunity to appoint any supreme court judges.
- ( ) 84. declared the N. R. A. unconstitutional.
- ( ) 85. approves the Lend Lease Bill.



### PART III

**DIRECTIONS:** Place the number of the part which makes the best answer to the statement in the parenthesis before the sentence, as in the example.

**Example:** ( 3 ) The capital of the United States is:  
1. Boston. 2. Chicago. 3. Washington.  
4. New York.

In this example "Washington" is the correct answer; therefore, a figure 3 has been placed in the parenthesis.

- ( ) 86. In 1864 the vice president elected was: 1. McClellan. 2. Douglas. 3. Johnson.
- ( ) 87. The power to impeach belongs to the: 1. senate. 2. house of representatives. 3. vice president.
- ( ) 88. The first transcontinental railroad was the: 1. Union Pacific-Central Pacific. 2. Missouri Pacific. 3. Great Northern.
- ( ) 89. The Homestead Act was passed in: (1) 1854. (2) 1862. (3) 1868.
- ( ) 90. The Hayes-Tilden election was in: (1) 1864. (2) 1876. (3) 1884.
- ( ) 91. The Bessemer process is used in the manufacture of: 1. steel. 2. oil. 3. rubber.
- ( ) 92. The congressman who proposed the Civil Service reform bill was: 1. Curtis. 2. Pendleton. 3. Cul- lom.
- ( ) 93. The halfbreeds were a reform group of the: 1. Democrats. 2. Socialists. 3. Republicans.
- ( ) 94. Booker T. Washington is well known in the field of: 1. science. 2. music. 3. education.
- ( ) 95. Up until 1890 most immigrants to the United States came from what part of Europe?: 1. North- ern. 2. Eastern. 3. Southern.
- ( ) 96. Sabotage is a weapon of the: 1. employee. 2. pub- lic. 3. strike breakers.
- ( ) 97. The Civil Service act was passed in: (1) 1843. (2) 1883. (3) 1923.
- ( ) 98. The first time the government expressed the right to regulate business was in the: 1. Tenure of Office act. 2. McKinley tariff. 3. Interstate Com- merce act.
- ( ) 99. Money for the early railroads was raised by: 1. government gifts of land. 2. increased tariff duties. 3. increased taxation.
- ( ) 100. The Venezuelan boundary dispute almost involved the United States in a war with: 1. Germany. 2. Brazil. 3. England.
- ( ) 101. The United States annexed Hawaii in: (1) 1898. (2) 1854. (3) 1906.
- ( ) 102. Railroad construction in the west caused the immigration of many: 1. Italians. 2. Germans. 3. Chinese.
- ( ) 103. The first world war had what effect on American agriculture?: 1. encouraged it. 2. discouraged it. 3. made no difference.
- ( ) 104. The Union Pacific Railway was incorporated in: (1) 1856. (2) 1862. (3) 1878.
- ( ) 105. The United States purchased Alaska from: 1. Spain. 2. England. 3. Russia.
- ( ) 106. The United States violated the freedom of the seas in the: 1. Alabama claims. 2. Trent Affair. 3. Embargo Act.
- ( ) 107. Former Southern slaves were discriminated against in the: 1. black codes. 2. 16th amend- ment. 3. electoral commission.
- ( ) 108. The organization made up of northern Civil War veterans is the: 1. D. A. R. 2. G. A. R. 3. A. E. F.
- ( ) 109. The American public was aroused against Spain by the: 1. de Lome letter. 2. Villa telegram. 3. Zimmerman note.
- ( ) 110. As a result of the Spanish-American War, the United States gained: 1. Hawaii. 2. the Virgin Islands. 3. Puerto Rico.
- ( ) 111. The Monroe Doctrine was primarily directed against: 1. England. 2. France. 3. Prussia.
- ( ) 112. The leader of native Hawaiians was: 1. Lil. 2. Dole. 3. Rosario.
- ( ) 113. The Foraker act was to govern: 1. Puerto Rico. 2. Hawaii. 3. the Philippines.
- ( ) 114. The Alabama Claims occurred after the: 1. Mex- ican war. 2. Spanish-American War. 3. Civil War.
- ( ) 115. The right to tax incomes was given to the federal government in the: 1. 16th amendment. 2. 17th amendment. 3. 18th amendment.
- ( ) 116. The first state to secede was: 1. North Carolina. 2. Texas. 3. South Carolina.

# **PART IV**

**DIRECTIONS:** From the list of answers in Column II select the word which matches each item of Column I, and write the number of the answer in the parenthesis at the left of the item. The items of one section may be matched only with the answers in Column II of the same section.

Column I	Column II
( ) 117. An organization to prevent bank and business failures	1. A. A. A.
( ) 118. Helps farmers to pay off pressing debts	2. A. F. of L.
( ) 119. Crafts labor union	3. C. I. O.
( ) 120. Electrical power at low rate	4. D. N. B.
( ) 121. Employs "G" men	5. F. B. I.
( ) 122. Sought to raise prices by limiting production	6. F. C. C.
( ) 123. Nickname given our president	7. F. D. R.
( ) 124. Aids American youth	8. F. S. A.
( ) 125. Regulates electrical communication	9. N. I. R. A.
( ) 126. Official German news agency	10. N. Y. A.
( ) 127. Dominated by industrial unions	11. R. F. C.
( ) 128. First new deal act to deal with regulation of industry	12. T. V. A.

Column I	Column II
( ) 129. Steel magnate	1. Susan B. Anthony
( ) 130. Invented the process of vulcanizing rubber	2. Alexander Graham Bell
( ) 131. Broke the Pullman Strike in 1894	3. Thomas Hart Benton
( ) 132. Assassin of Lincoln	4. James G. Blaine
( ) 133. Invented the telegraph	5. John Wilkes Booth
( ) 134. Poet contemporary with Lincoln	6. William Jennings Bryan
( ) 135. Did sanitation work in canal zone.	7. Andrew Carnegie
( ) 136. "Yellow" journalist	8. Grover Cleveland
( ) 137. The Tom Thumb	9. Peter Cooper
( ) 138. Modern American mural painter	10. Henry Du Pont
( ) 139. Author of reciprocal tariff agreements	11. Cyrus Field
( ) 140. Builder of Panama Canal	12. Carter Glass
( ) 141. Author of Federal Reserve act	13. George Washington Goethals
( ) 142. Suffragette	14. Samuel Gompers
( ) 143. Speaker for bimetallism	15. Charles Goodyear
( ) 144. Purchased Alaska for the United States	16. William Crawford Gorgas
( ) 145. Assassin of Garfield	17. Charles G. Guiteau
( ) 146. Promoted first Pan-American conference	18. William Randolph Hearst
( ) 147. Founder of A. F. of L.	19. Cordell Hull
( ) 148. Author of act giving worker the right of collective bargaining	20. Fiorello La Guardia
( ) 149. American composer	21. Edward McDowell
( ) 150. Inventor of telephone	22. Samuel F. B. Morse
( ) 151. Present mayor of New York City	23. William H. Seward
( ) 152. Laid the Atlantic cable	24. Robert Wagner
( ) 153. Leader in chemical manufacturing	25. Walt Whitman





## PART II—MULTIPLE CHOICE

Directions: *Underscore* that part of the statement which is correct.

1. The most successful nation to settle in South America was France, Spain, Portugal.
2. The unit of local government in New England was the borough, the county, the town.
3. Daniel Boone was a framer of the Constitution, a hunter and land scout, a signer of the Declaration of Independence.
4. The chief farm crop in the South before 1800 was corn, cotton, tobacco.
5. The established church in Virginia was Presbyterian, Episcopalian, Methodist.
6. George Rogers Clark was most active in Texas, Illinois, New England.
7. The War of 1812 was fought to free the slaves, for possession of the Philippines, to secure freedom of the seas.
8. The Erie Canal was built in Pennsylvania, New York, Massachusetts.
9. The first steam railroad in the U. S. was begun in 1800, 1828, 1845.
10. John Quincy Adams worked unceasingly against internal improvements, slavery, the United States Bank.
11. The Panama Canal was constructed by Germany, England, United States.
12. The Boxer Rebellion took place in Mexico, China, Nicaragua.
13. The Green Back Party gathered its chief source of strength from eastern bankers, western farmers, organized labor.
14. Thomas Edison invented the bicycle, incandescent light, linotype.
15. Orville Wright helped develop the airplane, voting machine, printing press.
16. The following dates, 1816, 1828, 1833, 1857, 1894, 1897, 1913, 1922, are associated with the tariff, presidential elections, internal improvements.
17. The Pennsylvania R. R. main line follows the Hudson, the Potomac, the Susquehanna-Juniata.
18. The World Court has its headquarters at Washington, London, Paris, The Hague.
18. The following dates, 1824, 1844, 1860, 1876, 1884, 1896, 1912, and 1920, are associated with important presidential elections, tariff legislation, the admission of important states.
20. We associate Bacon's Rebellion with Massachusetts, Virginia, Rhode Island.

## PART III—CLASSIFICATION

Directions: In each group *underscore* the name which should *not* be classified with the other names.

Example: Warren Harding, Calvin Coolidge, Herbert Hoover, John D. Rockefeller.

1. Creek, Cherokee, Detroit, Choctow.
2. Boston, Salem, Plymouth, Quebec.
3. William Pitt, John Hancock, Edmund Burke, Charles Townshend.
4. George Croghan, Daniel Boone, Jonathan Edwards, Conrad Weiser.
5. Zebulon Pike, John C. Fremont, Lewis & Clark, Robert Fulton.
6. William Lloyd Garrison, Harriet Beecher Stowe, Elijah Lovejoy, S. F. B. Morse.
7. Jane Addams, Clara Barton, Frances Willard, Mary Pickford.
8. Armour, Swift, Rockefeller, Morris.
9. John Marshall, Andrew Johnson, William Howard Taft, Roger B. Taney.
10. Alfred E. Smith, Scott McBride, William H. Anderson, Andrew Volstead.
11. Cyrus Curtis, William Randolph Hearst, Thomas J. Walsh, Frank Gannett.
12. John Adams, John C. Calhoun, Martin VanBuren, James K. Polk.
13. Chancellorsville, Fredericksburg, New Orleans, Vicksburg.
14. James Russell Lowell, John G. Whittier, Walt Whitman, John Jacob Astor.
15. Marshall Foch, John J. Pershing, Douglas Haig, Henry Ford.

## PART IV—SEQUENCE OF EVENTS

Directions: *Underscore* the event that took place *earliest*.

1. Settlement of Massachusetts, Maryland, Pennsylvania.
2. The explorations of LaSalle, Cartier, Champlain.

3. Wilmot Proviso, Missouri Compromise, Kansas-Nebraska Bill.
4. The beginning of the Cumberland Road, the Baltimore & Ohio R. R., the trans-continental railroad.
5. Admission to the Union of California, Kansas, Washington.
6. The origin of the Green Back, the Populist, the Republican parties.
7. Opening of the World War, adoption of the national prohibition amendment, adoption of the national woman suffrage amendment.
8. Activity in the federal government of Henry Clay, James Madison, Abraham Lincoln.
9. Invention of the telephone, use of the telegraph, transmitting messages by wireless.
10. Entrance into the World War of France, Italy, United States.

#### PART V—MATCHING

Directions: In each of the two groups of statements which you will find below place after the word or statement in the right hand column the number of the item in the left hand column that is most closely associated with it:

- |                             |                                    |
|-----------------------------|------------------------------------|
| 1. Appomatox                | George Washington's Home .....     |
| 2. Illinois                 | Election of Grover Cleveland ..... |
| 3. Mt. Vernon               | Surrender of General Lee .....     |
| 4. Monticello               | Robert Morris .....                |
| 5. Massachusetts            | Lincoln-Douglas Debates .....      |
| 6. North Carolina           | Election of Rutherford Hayes ..... |
| 7. Pennsylvania             | Spanish American War .....         |
| 8. Mugwumps                 | John Peter Zenger .....            |
| 9. Philippines              | Samuel Adams .....                 |
| 10. The Hermitage           | Thomas Jefferson's Home .....      |
| 11. Disputed Election       |                                    |
| 12. Freedom of the Press    |                                    |
| -----                       |                                    |
| 1. Steel Executive          | John Barrymore .....               |
| 2. Baseball Player          | Joseph Pulitzer .....              |
| 3. U. S. Senator            | Walter Damrosch .....              |
| 4. Clergyman                | Walter Johnson .....               |
| 5. Supreme Court Justice    | James Tunney .....                 |
| 6. Actor                    | Oliver Wendell Holmes .....        |
| 7. Leader in New Deal       | Charles M. Schwab .....            |
| 8. Prize Fighter            | Robert LaFollette .....            |
| 9. Newspaper Publisher      | Harry Emerson Fosdick .....        |
| 10. Orchestra Conductor     | R. G. Tugwell .....                |
| 11. Magazine Editor         |                                    |
| 12. Automobile Manufacturer |                                    |

#### PART VI—CAUSE AND EFFECT

Directions: *Underscore* the answer which seems to you to come nearest to explaining the assertion.

1. The British were victorious in the French and Indian War because
  - (a) of the long frontier which the French were obliged to defend
  - (b) of the bravery of George Washington
  - (c) the French were not good fighters
2. Spain preceded France and England in American colonization because
  - (a) the Spanish were better sailors and fighters
  - (b) England had incompetent kings
  - (c) Spain was the first to achieve national life and was not disturbed by internal political disputes
3. Many Americans during the Revolutionary War were British sympathizers because
  - (a) they preferred the British government to any that might be set up in America

- (b) they were not members of the commercial class and saw no advantage to be gained by the War
- (c) they were peace loving people who dreaded war
- 4. The cultivation of cotton encouraged slavery in the southern states because
  - (a) the slaves liked to work in the cotton fields
  - (b) cotton is a crop which requires a large amount of labor
  - (c) cotton had been grown extensively in the parts of Africa in which the slaves had lived
- 5. General Lee attempted several invasions of the North because
  - (a) he wanted to train his army
  - (b) he feared the Union armies in southern territory
  - (c) he wished to gain a decisive victory over the Union forces in their territory
- 6. The American people support the protective tariff because
  - (a) the belief exists that tariff is the basis of prosperity
  - (b) it is the one way to keep everyone employed
  - (c) it helps the farmer get better prices for his produce
- 7. The United States entered the Mexican War because
  - (a) the American government could find no other way to settle the boundary dispute
  - (b) we had annexed Texas and were willing to fight for the disputed territory
  - (c) we were obliged to protect Americans from invasion
- 8. Railroad construction was encouraged by grants of land from the public domain because
  - (a) the railroads were the only method which could be used for carrying the mails
  - (b) that was the only method by which people could be interested in the railroads
  - (c) the Federal government wanted to unify the nation by a complete system of transportation
- 9. The United States government has intervened in Latin America since 1900 because
  - (a) the United States has been invited in every instance to intervene
  - (b) Americans desire to control Latin American trade
  - (c) Americans want to extend their civilization to the people of Latin America
- 10. Andrew Johnson favored a liberal program of reconstruction because
  - (a) he was devoted to the idea of preserving the Union
  - (b) he was a native of Tennessee
  - (c) he was friendly to southern slave owners
- 11. Roosevelt was a staunch advocate of civil service because
  - (a) he believed in the spoils system
  - (b) the Republican party was committed to the program
  - (c) he was convinced that it would provide the best service for the government
- 12. The United States delayed entering the World Court because
  - (a) an enlightened opinion in favor of the Court could not be formulated easily
  - (b) the Presidents consistently opposed it
  - (c) the Court did not want the United States as a member
- 13. The United States delayed recognition of Revolutionary Russia because
  - (a) the United States refused to trade with Russia
  - (b) Russia owed the United States vast sums of money
  - (c) of the fear of Russian ideas of government
- 14. Woodrow Wilson advocated adherence to the League of Nations because
  - (a) he wanted to increase America's trade with Europe
  - (b) he wanted to humiliate his opponents in the U. S. Senate
  - (c) he believed it was the surest agency for abolishing war
- 15. Agricultural depression developed after the World War because
  - (a) of inadequate facilities for transporting produce
  - (b) of the high price of farm land
  - (c) of a decline in Europe for American produce



Table A.--TEST SCORES: CONTROL GROUP -- FORWARD METHOD

First-hour class -- 34 cases

Pupil No.	Ability scores				Achievement scores								Final
	Intelligence Quotient	3-year average	Pre-history	Test V. Mental ability test	Test I	Test II	Test III	Test IV	Test V	Test VI	Scholarship test No. I	Scholarship test No. II	
1	134	92	51	81	97	96	92	95	94	94	124	127	77
2	129	95	59	87	94	92	87	95	95	84	132	128	83
3	96	87	30	60	83	87	74	88	87	63	115	99	57
4	109	88	40	76	75	81	73	82	70	65	100	95	47
5	115	89	34	70	87	88	85	92	83	74	110	104	59
6	106	88	50	55	75	94	87	95	95	79	104	112	68
7	90	84	40	40	84	84	76	86	83	73	103	115	61
8	86	90	41	62	90	92	82	96	93	90	125	127	58
9	108	89	56	63	81	85	71	94	78	65	125	110	58
10	116	92	49	68	90	88	90	96	87	82	125	112	67
11	91	85	31	46	87	77	81	84	73	57	103	87	44
12	102	90	35	60	90	94	83	90	85	87	114	110	61
13	92	83	34	37	72	73	77	81	51	52	85	90	51
14	104	86	44	68	90	95	84	94	86	76	111	115	49
15	107	92	51	67	95	98	97	97	96	92	132	123	72
16	103	90	49	69	87	88	91	96	86	89	126	126	65
17	110	94	46	81	89	96	98	99	89	93	137	130	82
18	98	88	37	73	76	90	86	84	72	73	100	108	64
19	98	91	47	64	91	87	83	96	94	77	120	111	63
20	108	83	54	69	97	94	88	93	88	89	131	124	73
21	102	87	39	--	82	84	82	89	86	69	116	102	67
22	95	88	33	67	82	92	88	91	82	69	112	96	55
23	89	79	40	37	79	82	85	91	68	68	100	101	56
24	102	86	40	42	84	78	76	89	77	73	102	94	57
25	115	90	60	80	97	98	94	95	94	93	135	128	78
26	103	92	35	54	82	97	87	89	85	78	111	109	57
27	102	93	34	75	86	90	74	94	88	71	96	90	58
28	109	87	44	79	89	83	80	93	70	71	103	103	55
29	89	83	36	53	78	80	72	90	67	52	94	96	44
30	95	82	28	48	86	83	78	89	67	60	107	100	50
31	122	97	58	78	97	97	100	96	99	95	143	136	80
32	105	94	49	79	92	97	91	94	90	86	137	115	73
33	83	84	54	43	82	85	74	90	83	72	105	106	64
34	103	89	35	53	82	83	76	90	80	81	108	93	56

Table B.--TEST SCORES: EXPERIMENTAL GROUP -- BACKWARD METHOD

Second-hour class -- 37 cases

Pupil No.	Ability scores				Achievement scores								
	Intelligence quotient	3-year average	Pre-history	Test V. Mental ability test	Test I	Test II	Test III	Test IV	Test V	Test VI	Scholarship test No. I	Scholarship test No. II	Final
1	91	84	33	29	81	71	86	82	60	67	82	93	49
2	91	85	25	52	80	76	83	84	61	62	97	97	51
3	104	89	30	56	87	76	78	84	63	73	103	97	55
4	98	82	51	51	73	68	78	88	63	70	89	89	51
5	97	89	44	59	86	82	90	90	81	79	127	110	68
6	93	88	50	56	94	87	95	93	87	91	127	124	71
7	108	92	31	71	91	86	89	94	75	79	129	119	56
8	83	74	21	23	51	59	70	70	37	29	59	53	35
9	105	92	31	72	93	73	86	89	69	84	129	106	50
10	98	91	42	52	80	69	73	83	62	71	77	108	45
11	102	85	28	42	84	71	84	84	66	77	100	104	40
12	94	86	36	41	87	69	91	93	76	92	86	122	64
13	109	96	45	67	94	88	100	98	94	98	137	130	77
14	116	93	43	73	84	89	89	92	83	92	125	109	70
15	95	91	52	60	89	85	89	91	74	81	123	113	72
16	90	82	36	--	73	64	74	81	51	53	86	83	35
17	105	90	49	70	95	70	93	93	80	83	115	114	71
18	88	82	44	47	86	71	77	92	77	73	118	114	62
19	96	86	24	49	81	66	73	82	58	61	99	93	71
20	126	97	72	89	100	99	100	99	99	98	149	152	92
21	90	82	24	34	83	65	77	79	63	44	79	94	50
22	102	84	43	61	90	71	89	95	71	77	123	117	65
23	90	83	49	46	91	78	93	90	77	84	111	116	66
24	115	94	50	78	97	89	96	99	94	90	137	136	80
25	109	92	46	68	92	90	94	91	81	85	120	114	65
26	98	81	48	--	92	77	80	84	74	81	108	120	71
27	88	80	31	33	71	64	78	78	54	60	75	73	45
28	107	87	25	59	77	71	78	84	61	71	101	94	60
29	123	90	69	78	98	99	100	99	91	99	134	136	90
30	96	82	17	44	77	65	72	76	49	60	82	83	35
31	72	77	20	14	59	55	68	74	36	33	62	78	34
32	99	80	24	--	75	60	65	84	59	41	93	88	51
33	103	92	41	80	95	86	94	91	83	89	125	122	66
34	106	89	39	78	92	84	89	95	82	80	125	100	63
35	105	88	39	69	83	71	82	86	65	75	105	106	59
36	110	88	46	53	93	86	90	95	88	90	128	120	68
37	94	88	43	48	76	73	80	86	67	76	81	105	49



Table C.--TEST SCORES: EXPERIMENTAL GROUP -- BACKWARD METHOD

Third-hour class -- 37 cases

Pupil No.	Ability scores				Achievement scores								
	Intelligence Quotient	3-year average	Pre-history	Test V. Mental ability test	Test I	Test II	Test III	Test IV	Test V	Test VI	Scholarship test No. I	Scholarship test No. II	Final
1	112	93	56	79	92	95	94	95	94	95	124	125	76
2	95	82	34	35	82	72	80	84	66	70	93	102	45
3	86	81	21	31	66	61	74	73	50	46	51	80	39
4	99	85	42	46	91	76	81	88	79	75	123	100	62
5	95	86	20	47	66	66	79	81	51	57	78	86	30
6	125	94	60	83	90	88	93	96	72	94	123	130	72
7	106	80	43	64	84	71	78	86	88	84	89	99	55
8	105	91	43	74	90	85	96	89	86	88	127	130	65
9	114	96	48	88	93	90	97	95	94	97	135	133	76
10	108	91	51	59	94	81	99	94	90	100	133	131	78
11	91	82	31	29	77	71	75	87	56	81	91	97	52
12	93	80	30	49	82	71	77	81	51	64	75	98	45
13	106	91	30	79	76	65	78	89	63	71	93	98	47
14	77	81	24	26	82	77	78	84	54	75	75	102	29
15	90	81	39	35	81	67	75	86	67	48	84	82	36
16	93	81	30	49	72	67	70	82	57	56	80	90	45
17	97	81	39	65	76	65	75	84	57	48	79	95	42
18	108	87	46	42	96	74	97	95	85	92	129	119	74
19	91	90	15	36	86	89	87	88	69	82	117	112	62
20	105	89	33	68	78	81	95	89	76	71	104	110	54
21	99	82	48	59	77	58	72	84	62	63	103	97	48
22	67	82	-4	27	55	67	77	78	44	48	58	66	24
23	113	90	37	80	93	71	86	92	82	90	127	117	76
24	97	86	38	47	81	66	85	85	74	73	92	91	46
25	115	87	63	72	94	83	90	95	87	87	126	115	72
26	114	89	68	80	99	98	95	100	94	98	141	134	88
27	93	88	38	67	90	76	94	92	69	79	102	112	57
28	98	81	27	51	81	73	75	83	53	51	75	86	34
29	95	81	31	45	83	65	75	86	57	49	92	102	37
30	91	80	43	40	86	77	81	90	70	82	117	109	53
31	86	79	19	49	68	73	76	80	70	49	89	106	32
32	112	89	25	53	93	67	91	91	85	83	107	118	55
33	112	88	51	67	86	78	89	83	78	82	115	114	60
34	98	79	46	63	89	78	72	89	70	70	112	111	66
35	89	84	37	52	83	71	88	86	70	71	101	92	39
36	84	81	23	28	73	61	75	75	44	61	66	85	34
37	109	91	43	67	89	73	74	87	78	79	108	100	58



Table D.--ARITHMETIC MEAN, STANDARD DEVIATION, STANDARD ERROR OF THE MEAN

	I. Q.	: 3-yr. : : avg. :	Pre- : : hist. :	Test : : V :	Test : : I :	Test : : II :	Test : : III :
Arithmetic mean							
Group I	103.4	88.4	43.0	63.1	86.1	88.5	83.6
Group II	99.9	86.8	38.9	55.9	84.6	75.8	84.5
Group III	99.1	85.4	37.2	54.9	83.1	74.2	83.1
Standard deviation							
Group I	11.37	4.05	8.92	14.00	7.93	6.18	7.77
Group II	10.69	5.20	12.47	17.23	10.41	10.81	7.71
Group III	11.77	7.36	12.51	16.77	9.07	9.37	8.69
Standard error							
Group I	1.98	.70	1.73	2.47	1.38	1.07	1.35
Group II	1.78	.87	2.08	3.00	1.74	1.80	1.29
Group III	1.96	1.23	2.09	2.08	1.51	1.56	1.45

Table D.--ARITHMETIC MEAN, STANDARD DEVIATION, STANDARD ERROR OF THE MEAN--Continued

	Test : : IV :	Test : : V :	Test : : VI :	Scholarship : : Test : : I :	Test : : II :	Final
Arithmetic mean						
Group I	91.6	82.9	76.2	114.4	109.5	62.0
Group II	87.8	70.5	74.3	106.7	106.0	59.5
Group III	87.1	70.1	73.2	100.9	104.7	53.1
Standard deviation						
Group I	4.05	7.08	11.94	14.02	13.26	4.55
Group II	7.03	14.91	17.28	14.61	21.09	14.46
Group III	5.91	14.44	16.17	22.65	16.14	16.14
Standard error						
Group I	.70	1.23	2.08	2.44	2.31	.80
Group II	1.17	2.49	2.88	2.44	3.51	2.41
Group III	.99	2.41	2.70	3.78	2.69	2.69

Table E.--ABILITY INDEXES AND ACHIEVEMENT QUOTIENTS:  
CONTROL GROUP

First-hour class -- 34 cases

Pupil No.	Ability Index	Achievement Quotient (six tests)	Achievement Quotient (two tests)	Achievement Quotient (final test)
31	92.85	104.8	100.2	86.2
2	92.46	98.6	93.7	89.8
25	89.44	106.4	98.0	87.2
1	86.23	107.9	97.4	89.3
9	85.99	91.9	91.1	67.2
32	85.92	106.7	97.8	84.9
15	85.62	111.9	99.5	84.1
10	84.96	104.5	93.0	78.8
17	84.34	111.4	105.5	97.2
16	83.24	106.3	100.9	78.1
6	82.69	104.8	87.0	82.2
19	82.60	106.5	93.2	76.3
20	81.87	111.8	103.8	89.2
33	81.46	99.4	86.1	78.6
4	81.25	91.5	79.9	58.6
28	79.10	102.4	86.8	69.6
8	78.40	114.3	107.2	74.0
14	78.30	111.7	96.2	62.8
27	77.79	107.7	79.7	74.6
21	76.17	107.6	95.4	87.9
24	76.14	104.4	85.8	74.9
12	75.92	116.2	98.4	80.3
18	75.61	106.7	91.7	84.6
26	75.55	114.3	97.1	75.4
34	75.36	108.8	88.9	74.3
5	74.81	113.4	95.4	78.8
7	74.49	108.8	97.6	81.9
29	71.75	101.9	88.3	61.3
23	71.44	124.3	93.8	78.4
22	71.43	117.6	97.1	77.0
3	71.30	112.7	100.1	79.9
13	70.86	96.0	82.3	71.9
11	70.44	107.2	90.0	62.4
30	67.15	114.9	102.8	74.4
Avg.	79.17	107.5	94.0	78.0

Table F.--ABILITY INDEXES AND ACHIEVEMENT QUOTIENTS:  
EXPERIMENTAL GROUP

Second-hour class -- 37 cases

Pupil No.	Ability Index	Achievement Quotient (six tests)	Achievement Quotient (two tests)	Achievement Quotient (final test)
20	100.29	98.9	100.0	91.7
29	94.44	103.4	95.3	95.3
24	86.62	108.7	105.1	92.4
15	85.08	99.8	92.5	84.6
13	84.88	110.7	104.9	90.1
17	83.32	102.8	91.6	85.2
25	83.10	106.9	93.9	78.2
14	82.43	106.9	94.6	84.9
6	82.17	110.9	101.8	86.4
36	80.77	111.8	102.4	84.2
9	80.28	102.6	97.6	62.3
33	80.25	111.7	102.6	82.2
10	80.00	91.3	77.1	62.5
5	79.90	105.9	99.0	84.9
4	79.11	92.7	75.0	64.5
37	78.57	97.2	78.9	62.4
23	78.55	108.8	96.3	85.0
34	77.56	112.2	96.6	81.2
26	77.16	105.4	103.7	92.0
35	76.93	100.1	91.4	76.7
22	76.50	107.4	104.6	84.9
7	75.30	113.9	109.8	74.5
18	75.27	105.4	102.7	82.5
12	73.74	114.8	94.0	86.8
3	72.72	105.7	91.7	75.6
16	71.20	92.7	83.8	49.2
1	70.86	105.1	82.3	69.1
11	69.30	112.1	100.0	58.0
28	68.13	108.1	95.4	88.1
27	67.32	95.3	71.6	68.3
2	67.30	111.7	96.1	75.8
19	65.25	107.5	98.1	108.8
21	64.75	105.8	88.9	77.2
32	64.12	99.8	94.1	79.5
30	60.55	109.8	88.1	57.8
31	59.17	91.8	78.9	57.5
8	59.14	89.5	63.1	59.2
Avg.	76.00	104.5	93.1	77.8



Table G.--ABILITY INDEXES AND ACHIEVEMENT QUOTIENTS:  
EXPERIMENTAL GROUP

Third-hour class -- 37 cases

Pupil No.	Ability Index	Achievement Quotient (six tests)	Achievement Quotient (two tests)	Achievement Quotient (final test)
26	93.98	103.9	98.0	93.9
6	92.22	96.3	91.4	78.1
25	89.21	100.1	90.1	80.7
1	89.03	105.8	93.2	85.4
9	86.74	108.8	102.9	87.6
10	85.08	109.3	103.5	91.7
33	83.45	99.1	91.5	71.9
37	80.96	98.8	85.6	71.6
8	80.80	110.1	108.0	80.4
18	80.10	113.4	103.2	92.4
4	78.46	104.1	94.8	79.0
21	77.80	89.1	85.7	64.3
23	77.40	110.7	105.1	98.2
27	75.93	109.7	93.9	75.1
34	74.92	104.1	99.2	88.1
24	74.90	103.4	81.4	61.4
20	74.40	109.8	95.9	72.6
7	74.28	110.2	84.4	74.0
13	74.08	99.5	85.7	63.5
30	73.68	109.9	102.2	71.9
35	72.86	107.3	88.3	53.5
17	72.44	93.2	80.1	57.9
15	72.16	97.9	76.7	49.9
32	70.52	120.5	106.3	78.0
2	70.35	107.6	92.4	64.0
11	68.63	108.6	91.3	75.8
29	68.20	101.2	94.8	54.3
16	67.60	99.7	83.8	66.6
28	66.24	104.7	81.0	54.4
5	65.46	107.2	83.5	45.9
19	65.08	112.9	117.3	95.3
12	65.00	109.2	88.7	68.8
14	63.84	117.5	92.4	45.4
36	63.60	101.9	79.1	53.5
3	62.64	98.4	69.7	62.2
31	60.40	114.8	107.6	53.0
22	53.63	108.4	77.1	44.7
Avg.	74.22	105.6	92.0	70.3

Table H.--AVERAGE QUOTIENTS FOR HIGH AND LOW GROUPS

	Criterion I	Criterion II	Criterion III	Average
Group I				
High 11	105.02	96.74	84.09	95.28
Low 11	110.90	93.95	74.15	93.00
Group II				
High 12	106.26	98.52	84.79	96.53
Low 12	102.43	86.70	70.71	86.61
Group III				
High 12	103.23	95.66	81.25	93.38
Low 12	107.04	88.86	60.00	85.30

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