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Alvin O. Elstad

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A STUDY OF THE VOCABULARY BURDEN OF MODERN HISTORY
IN THE JAMESTOWN SENIOR HIGH SCHOOL

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783

A Thesis
Submitted to the Graduate Faculty
of the
University of North Dakota

by
Alvin O. Elstad
" "
In Partial Fulfillment of the Requirements
for the
Degree of
Master of Science in Education
June, 1937

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CHAPTER 1

INTRODUCTION

One unit of modern or world history is required for graduation from a North Dakota high school. This is usually given in the tenth grade. This is followed by two other required subjects in the eleventh and twelfth grades, American history and present day problems.

Because these subjects are compulsory, pupils of all types, abilities, interests, and backgrounds are found in them. Many come from homes with no library, magazines, or newspapers. In many homes the parents and children do not discuss current events and problems. Many pupils enter the modern history classes for the first time with little or no background for the subject. Because they have no such background, they may enter with a preconceived notion that the subject is dry, uninteresting and difficult. They flounder around in the course and finally fail or drop out. A "flunk" means one more year of the same subject with the prospect of two more years of similar work in American history and present day problems. For these pupils, modern history may, and sometimes does become one of the factors causing them to drop out of high school.

A specific aim in teaching modern history is to instill in pupils a life interest in things social, economic, political, and religious by giving them a better understanding of what has gone on before, what now is, and what may be expected to be in the future, so that they will feel more at home in the world with its multitude of complex problems.

If this specific contribution to pupils' education is to be

successful, it is essential that it be taught in the most efficient manner so as to give the pupils this life interest. Several obstacles lie in the way of accomplishing this.

1. History is a large and broad subject. It covers a large field of events, movements, ideas, and activities of many peoples and individuals and covering a long period of time. Most of these are new to the pupils.

2. Understanding history necessitates the learning of a large amount of new factual material. This factual material must be used in thinking out relationships between cause and effect.

3. The controversial nature of much of the historical material leaves pupils bewildered and creates a serious problem for the teacher.

4. The subject is so big that it is difficult to organize the material into teachable and learnable units and still give the pupils the picture of history as a whole.

5. The large, new, and unfamiliar vocabulary used by the authors of the textbooks and reference material places the pupils in the position of workmen who are working with new tools, the use of which they have not yet mastered.

This study is concerned with this last difficulty. It is probable that the average tenth grade pupil is not adept enough in the use of the modern history vocabulary to work himself successfully into an interest in the subject. Over a period of sixteen years it has been the experience of the writer that never more than ten percent of the members of any modern history, or other class he has taught, have been regular readers of current periodicals. These contain a large

amount of history vocabulary as these periodicals deal largely with current history. It has been the writer's experience that the small percent of pupils who were regular readers of current periodicals had little difficulty in mastering modern or American history. This is possibly due to two factors. They may have already become acquainted with a considerable amount of historic material. It is probably due to the fact they have acquired a better comprehension of the history vocabulary through their reading of periodicals.

During the period when the Jamestown Senior High School was making readjustments so as to come under the regulation that made the teaching of modern history compulsory, there were pupils of all three grades in the modern history classes. Except for repeaters, pupils of the upper grades consistently had less difficulty mastering the subject matter than the other pupils. Again it may be the better understanding of the history vocabulary acquired in the study of American history and present day problems that aided the progress of the upper grade pupils.

The complete failure of pupils to get the meaning of sentences and paragraphs read at times point to the possibility they do not understand the vocabulary used. The ridiculous answers given by pupils point toward their inability to use the modern history vocabulary. An example of this is the incident where a girl in an examination called the papal bull a paper bull. The pupil had no concept of what papal meant and possibly also the word bull, or such an answer would not have been given.

English teachers have been heard to remark that nothing can be taken for granted in teaching English and that pupils' understanding

of the use of even the most common words is one of them. Very little study has been made in determining vocabulary load of subject matter in grades above the seventh while most of the effort has gone into the study of methods of instruction, organization of subject matter, intelligence and achievement studies, school administration, and other problems. There is therefore a large field open for the study of vocabulary burdens and problems in a high school subject like modern history.

A study of the vocabulary burden in modern history is important for the following reasons:

First, any study that will make the teaching of a compulsory subject more effective is worth while.

Second, it will give the teacher some more objective data necessary for determining the best techniques to use in making the teaching more effective. This is especially true in helping pupils to overcome "tool" difficulties in the use of vocabulary.

Third, it will give the teacher more data necessary to work out minimum essentials.

Fourth, since modern history is followed by American history and present day problems, anything done to give teachers more data on how to develop in pupils skill in the use of the history vocabulary "tool" while taking modern history will be of value.

Fifth, any data that may help teachers to make teaching of modern history more interesting to the pupils may lower the high school mortality rate and keep pupils in high school until they have completed their courses.

Sixth, anything done that will aid in getting pupils to acquire

a more permanent and lifetime interest in history, will probably result in a happier and better orientated citizenry in the future.

Summary of Scientific Data

Thorndike has probably done most in the field of reading vocabularies and published two vocabulary lists of the 10,000 and 20,000¹ most commonly used words as found in young peoples' and childrens' reading. Except in the languages and in science, very little has been done in the subjects in the secondary field. Probably the ones that have the most bearing on this study are those of Barr and Gifford² in a study of "Vocabularies of American History in Senior High School" and Stephenson and McGehee,³ "Vocabularies Common to Civics and American History."

Purpose of the Study

The purpose of this study was an attempt to discover the following things:

First, is there a modern history vocabulary?

Second, if there is, what part of it is common to American History?

Third, what is the comparative burden of the different modern history textbooks?

Fourth, to what degree, according to different criteria, are there differences in ability to use the modern history vocabulary

¹E. L. Thorndike, Teacher's Word Book of 20,000 Words, Bureau of Publications, Teachers College, Columbia University, 1932.

²A. S. Barr and C. W. Gifford, The Vocabulary of American History, *Journal of Educational Research*, 20:103-21, September, 1929.

³C. W. Stephenson and W. R. McGehee, Vocabularies Common to Civics and American History, *Journal of Educational Research*, 22:55-58, June, 1930.

among pupils?

Fifth, is there a relationship between vocabulary ability and pupil progress?

Sixth, what program, if any, can be advanced to overcome the vocabulary burden of modern history?

Statement of the Problem

Pupils in North Dakota high schools seem to have undue difficulty in mastering the subject matter of modern history, a compulsory study. Failure to master this subject is probably a cause for many pupils to leave high school. Probably one of the chief contributing factors in causing failure to master modern history is the pupil's lack of skill in the use of the modern history vocabulary. It was the problem of this study to find the modern history vocabulary and to see how, and to what extent, it is a major factor in pupil progress in modern history and suggest a solution.

Delimitation

The problem was studied as it applied to the Jamestown Senior High School, specifically to some 170 modern history pupils and generally to some 250 other pupils. It studied the vocabularies of only those modern history textbooks copyrighted since 1930 and chose only those words not found in the first 3000 words in Thorndike's list referred to before, with certain exclusions.

Source of Material

The data used in this study were secured from the textbooks studied, records on file in the superintendent's and principal's offices in the Jamestown Senior High School, results received from

tests given to the pupils of the same high school, findings in a study made by Barr and Gifford and referred to before, and Thorndike's "Teacher's Word Book of 20,000 Words." Some of the procedures and techniques used by Barr and Gifford mentioned above, were used in finding the vocabulary of modern history and those of W. W. Patty and W. J. Painter¹ in determining weighted word values.

Order of Presentation

The discussion of the problem as studied in this thesis will be presented in the following order:

First, a discussion of the procedures and techniques used in this study.

Second, the modern history vocabulary as discovered by this study with a discussion on the merits of the two vocabulary lists, alphabetical and frequency.

Third, the modern history vocabulary load. This will be discussed under such headings as the average vocabulary load, comparative load in the various textbooks, final ranking of vocabulary load in the various textbooks based on all criteria, and conclusions arrived at from the findings.

Fourth, comparison of vocabulary burden in modern history and American history textbooks. This will discuss the relative vocabulary loads of the two subjects and show to what extent the vocabularies of the two are alike.

Fifth, vocabulary ability of Jamestown High School pupils.

¹W. W. Patty and W. I. Painter, A Technique for Measuring the Vocabulary Burden of Textbooks, Journal of Educational Research, 24:127-34, September, 1931.

This part will show the pupils' ability to use the modern history vocabulary, the range of ability, relationship between vocabulary ability and grade in school, the increase of vocabulary ability during one semester, relationship between vocabulary ability and intelligence, and conclusions drawn from facts found.

Sixth, relationship between vocabulary ability and pupil progress. This will be a discussion of the relationship between vocabulary ability and such factors as scholastic averages, scores received in the Sones-Harry High School Achievement Test, and progress made in modern history. It will compare the achievement of two modern history groups, one of which received drill in vocabulary and the other not. A summary of results found will be given.

Seventh, summary and conclusions. This will give a summary of the discoveries made by this study and will suggest applications that can be made of the results found.

CHAPTER 2

PROCEDURES AND TECHNIQUES

Modern History Vocabulary

The data for all parts of this study that have to do directly with the modern history vocabulary were secured from a study of the vocabularies of eight modern history textbooks with copyright dates of later than 1930. These textbooks are listed in the table below.

Table 1

Textbooks from Which Modern History Vocabulary Was Taken

Author	Name of Textbook	Publisher	Copyright Date
C. Becker	Modern History	Silver Burdett & Co.	1935
C. J. H. Hayes and P. T. Moon	Modern History, re- vised and enlarged edition	The Macmillan Co.	1934
A. E. McKinley, A. C. Howland and M. L. Dann	World History Today	American Book Co.	1934
E. W. Phalou	Man's Achievement, The Age of Science and Democracy	Ginn and Co.	1935
J. S. Schapiro	Modern Times in Europe	Houghton Mifflin Co.	1933
H. C. Thomas and W. A. Hamm	Modern Europe	Henry Holt and Co.	1934
H. Webster	Modern European Civilization	D. C. Heath and Co.	1933
W. M. West	The Story of Modern Progress, new edi- tion	Allyn and Bacon	1931

The words selected from the eight textbooks included all words not found in the first 3000 in Thorndike's list of the 20,000 most

commonly used words in reading,¹ with the following exclusions; names of peoples, races, nationalities, tribes, but not including creeds; words in a foreign language that are explained in the immediate context; hyphenated words both parts of which are in the first three thousand in the Thorndike list; all words in chapter summaries, introductions, prefaces, questions for discussion, and appendices; all words in full quotations like the Bill of Rights; and words barred by use of Thorndike's rules for derivatives.

The following techniques were used in selecting the words. First, all the books were read and words qualifying as above were underlined with a red pencil. The books were read a second time to look for words that may have been missed the first time through. These words were then copied on five by eight paper sheets which were divided into five columns with one column for each letter of the alphabet. In order to expedite the process of copying these words, the letters were not arranged at the head of the columns in the order found in the alphabet but in the following orders on the five sets of sheets; a, b, c, d, e; f, g, h, i, l; m, n, o, p, r; s, t, u, v, w; and j, k, q, x, y, and z. When all the words of a book were copied on these sheets, the sheets were cut into five strips and all strips having words with the same first letter were gathered into one bundle. These in turn were consolidated on $8\frac{1}{2}$ X 11 inch sheets, using separate sheets for each letter of the alphabet. After each word was a number showing the frequency with which the word appeared in the textbook. The compiling

¹E. L. Thorndike, Teacher's Word Book of 20,000 Words, Bureau of Publications, Teachers College, Columbia University, 1932

of this list for the first book was a long, tedious task but was made easier for the other seven textbooks, because a duplicate list was made for each book and this duplicate list was added to or subtracted from and used as a basis for making out the list for the next book studied. The next step was to typewrite these words on form sheets of the same size as the previous list. These sheets contained each word in alphabetical order to the left of the sheet, with a number showing its index number on the Thorndike scale immediately preceding it, and a number showing the frequency with which it was used in the textbook, immediately following it. The rest of the sheet was divided into nineteen columns with each column headed by one of the index numbers of the Thorndike scale or plus and total.

The next step was to go through all the word lists for each book and write in the proper column to the right of each word the number of times that word was used in the book. These were totaled both vertically and horizontally and checked against the number of words on each page and the sum of the frequencies following each word. The totals for each page were then summed up and final totals for each book arrived at. It thus made available for each book the range of words found under each index number in the book, the frequency with which these words were used under each index number, and the total range and frequency for the whole book.

From the data on the form sheets for each book, a master list of words was found by the following procedure. Taking a copy of Thorndike's Word Book of 20,000 Words², a dot was placed before each word

²Ibid.

in the book which was found in any of the eight book lists, and if the book did not contain the word found in one of the lists it was written with pencil in the proper place alphabetically. The following procedure was used so as to be sure to miss no words. Starting with the first book list and beginning with the first letter A word, one would go down the book list and for every word listed place a dot before the same word in Thorndike's word book. The same would be done for the second book list; but less dotting needed to be done this time, for most of the words were already dotted. When this had been done for all eight book lists, the dotted and written words in Thorndike's word book were copied in longhand in columns with space enough at the right of each for eight narrow columns. The next procedure was to go through each book list again and copy in the columns to the right of the words the number of times they were found in each booklist, there being a column for each booklist. When this was done, the number of times each word was found in all the books was totaled.

The next step was to typewrite this list, and this became the master list which contained all the underlined words mentioned earlier in this chapter and showed the number of times it was found in each book, the total number of times it was found in all the books, and a final total of how many words there were in each book and the number of words in all books. This list included 9,507 words used 152,059 times and covered over 190 pages with fifty words to a page.

From the master list, all words were chosen in alphabetical order which were found in six or more of the textbooks and copied in three columns of fifty words each on $8\frac{1}{2}$ X 11 inch sheets. Following

each word was placed a number giving its rank on the Thorndike scale. If no number immediately follows the word, the word is not in the Thorndike list. A star was also placed after those words which were found in the American history vocabulary as discovered by Barr and Gifford³ in another study. To the extreme right of each is a number showing the number of times the word was found in all the books in which it was used. This list was then in turn rearranged and typed in columns as above with the exception that this list was arranged in the order of frequency with which the words were used. At the head of each column is a number showing the rank of the first word in the column in the whole list. These two lists are the two arrangements of the modern history vocabulary.

In order to find the total number of running words in each book, the following techniques were used. First a transparent scanning sheet was made, a sample of which is found in the appendix. This was used to determine the number of pages to be deducted from the total number of pages in the book for pictures, headings, summaries, questions, space between new topics, and the like. After scanning each page in each book for deductions, the latter were totaled and taken from the total number of pages in the book. The pages remaining would be the total number of solid reading matter. The number of lines to a full page were then ascertained. A random sampling of 100 lines throughout the book was taken to determine the average number of words per line. By multiplying the total number of pages, less deductions by the number of

³A. S. Barr and C. W. Gifford, *The Vocabulary of American History*, *Journal of Educational Research*, 20:127-34, September, 1929.

lines per page, and this by the average number of words per line, the approximate total number of running words in each book was found. The number of supporting words, or words with index numbers 1-3, could be easily found by subtracting the total of all the difficult words found above from the total number of running words. The range of words for each book was determined but not the total range under each index number for all books.

Comparison of Modern and American History Vocabularies

In order to compare the vocabularies of American and modern history it was necessary to rearrange the American history list referred to before, in alphabetical order for more efficient handling. All American history words found in the modern history list were starred. The data of this study made it possible to compare not only the vocabularies themselves, but also the vocabulary burden of each.

Vocabulary Ability

In order to determine the vocabulary ability of pupils in the Jamestown Senior High School, two forms of a modern history vocabulary test were made based on words found in West's textbook which is the one used in Jamestown and was also the first textbook to have its vocabulary analyzed. There were one hundred words in each form of the test. These were picked out and arranged on the basis of how many times they were used in the book and their index number in the Thorndike list. Each word was followed by five other words or phrases, one of which closely meant the same thing as the test word at the left. Instructions for pupils appeared at the top of the test and pupils were instructed to underline words meaning the same as the one to the left.

Each pupil's score would be the number of right out of one hundred.

Both of the forms were given to the whole student body of the high school at the beginning of the tenth week of school and the "A" form was given again to all the students four and one-half months later.

Grade placement, I. Q., age, and achievement averages for each pupil were found from records on file in the principal's and superintendent's offices. These were used in comparing vocabulary ability with various other factors.

Vocabulary Ability and Pupil Progress

In order to compare vocabulary ability and pupil progress, and also the effect of drill work in vocabulary and improvement in the use of vocabulary as a tool, two classes were chosen in modern history for drill work. As two teachers taught modern history during this study, one teacher had a drilled and an undrilled class while the other had one drilled and two undrilled sections. All five classes were given a preview test at the beginning of the drill semester and an achievement test at the end of the period. These data, together with those from the vocabulary ability tests and those available from the records of the school were used in comparing vocabulary ability and pupil progress.

CHAPTER 3

THE MODERN HISTORY VOCABULARY

Is there a modern history vocabulary? If so, what is it?

These two questions must first be answered before making a successful study of the vocabulary load in modern history. A previous study in American history¹ shows there is a vocabulary peculiar to that subject; and so this is probably true also in modern history.

Eight modern history textbooks with copyright dates of 1930 or later were studied in this thesis. These books had a total of six thousand, two hundred eight pages, but after deducting 1,883 pages for pictures, headings, summaries, questions, and the like, there were four thousand, three hundred twenty-five pages of actual reading matter to be studied. These pages contained an estimated total of one million, six hundred fifteen thousand, five hundred seventy running words.

Nine thousand, five hundred seven different words used 152,059 times were underlined with red pencil in the eight textbooks. These words had an index number of four or more in the Thorndike scale of twenty thousand words or were not in the list at all. It was in this list of 9,507 different words that the modern history vocabulary occurred. The words found in the first three thousand of the Thorndike word list were the words common to all subjects, but those beyond that in the list were those peculiar to given subjects. It is estimated that there were 1,463,511 words used in the eight textbooks

¹A. S. Barr and C. W. Gifford, The Vocabulary of American History, *Journal of Educational Research*, 20:103-21, 1929.

that were in the first three thousand in the Thorndike word list, less the proper names and other excluded words in the other thousands. A summary of the books studied, total pages in each, pages deducted, total net pages of reading matter, total running words, total range of words, total frequency of words and total supporting words are given in the table below.

Table 2

Summary of Pages and Words Studied in Eight Modern History Textbooks

Author of Textbook	Total Pages in Book	Total Pages Deducted	Total Net Pages Reading Matter	Total Running Words	Total Range (4-XX) ^a Words	Total Frequency (4-XX) Words	Total Supporting (1-3) ^b Words
Becker	822	215	607	239,472	3,304	19,028	220,444
Hayes and Moon	930	301	629	218,863	3,770	23,262	195,601
McKinley Howland & Damm	826	276	550	201,762	3,691	17,707	184,055
Phalou	766	284	482	174,773	3,327	13,499	161,274
Schapiro	575	166	409	172,261	3,656	18,848	153,413
Thomas & Hamm	799	256	543	215,028	3,805	20,968	194,060
Webster	760	258	502	171,809	4,262	19,389	152,420
West	730	127	603	221,602	4,519	19,358	202,244
Totals for All Books	6,208	1,883	4,325	1,615,570	9,507	152,059	1,463,511

^aIn this table and in the rest of this study, (4-XX) stands for words ranking 4 or more in the Thorndike list or are not in the list at all. XX stands for those not in the list at all

^bIn this table and in the rest of this study, (1-3) stands for words ranking 1, 2, or 3 in the Thorndike list.

The Master List

The 9,507 words used with a frequency of 152,059 times were arranged in alphabetical order into a master list which shows the number of times each word was used in each book and the number of times each was used in all eight textbooks. From this master list was derived some of the following interesting data.

Two thousand, nine hundred thirty-five or 30.9% of the 9,507 words were used only once in the eight textbooks. The mean number of times the 9,507 words were used in all eight textbooks was 15.99. Excluding the 2,935 words used only once in all eight books, the remaining 6,572 words were used in all books with a mean frequency of 22.7 times. For each word in the master list found in one of the eight books, there was a mean frequency of 9.6 (1-3) or supporting words. The data mentioned in this and the above paragraph are shown in Table 3 below.

Table 3

Range and Frequency Distribution of Words in Master List

Total Running Words in All Eight Textbooks	1,615,570
Total Frequency of (1-3) Words in All Eight Textbooks	1,463,511
Total Frequency of (4-XX) Words in All Eight Textbooks	152,059
Total Range of (4-XX) Words in All Eight Textbooks	9,507
Total Range of (4-XX) Words Used Only Once in All Eight Textbooks	2,935
Mean Frequency of Each of the 9,507 (4-XX) Words Found in the Eight Textbooks	15.99
Mean Frequency of Each of the 6,572 (4-XX) Words Used More Than Once in the Eight Textbooks	22.7
Mean Number of (1-3) Words per Each (4-XX) Words	9.6

Table 3 reveals that almost 31% of the (4-XX) words in modern history textbooks were so non-essential in a discussion of historical events that seven of the eight authors did not use them at all, and the eighth used them only once. From a vocabulary load viewpoint, it can be concluded that if a pupil is to acquire full control of the vocabulary tool in modern history, he must make a more intensive study of the words used only once than those used a number of times. However, in developing a proficiency in the use of a handy vocabulary tool, it is more profitable that he acquire mastery of the words used more than once. It was with this in mind that the modern history list was compiled.

Modern History Vocabulary Lists

The modern history vocabulary was made from the master list and contains those words that are found in at least six of the eight textbooks. Any word used by at least six of the eight authors is probably so essential to the study of modern history that it should be considered a word worthy of a place in the modern history vocabulary.

The modern history vocabulary is comprised of 1,988 such words. These words were arranged in two lists; one alphabetically and the other according to the frequency with which each word was used in all the books in which it was found. These lists are found in the Appendix.

Alphabetical List

The alphabetical list was compiled so that it could be used to ascertain quickly whether or not a word found in a modern history

textbook is in the modern history vocabulary. After each word is an index number from 4 to 20, or no number at all. The presence of the number shows the rank or thousand of the word in the Thorndike list. An absence of a number immediately following the word indicates that it is not among the 20,000 most commonly used words in Thorndike's list. The value of this information to the instructor is that he may know whether or not a word is more or less commonly used in the general reading field. This will help him to determine what emphasis should be placed on teaching the meaning of the word.

After certain words was placed a star. These words were also found in the American history vocabulary compiled by Barr and Gifford² in 1929. It should be of value to the teacher to know whether or not a modern history word is one which the pupil will later have to use in the study of American history.

To the extreme right of each word was placed a number showing the frequency with which the word was used in all the books in which it was found. This is of value to the user of the alphabetical list for the following three reasons.

First, it shows whether the word is commonly used in modern history, and will frequently be met in the various textbooks, and must be mastered for an intelligent reading of the subject.

Second, it will show whether or not it is a less frequently used word upon which more emphasis must be placed in explaining the meaning and use when encountered for the first time.

Third, it will aid in the use of the frequency list. It will

²Ibid.

enable the user to find quickly the rank of the word in point of times used in the frequency list as will be understood better in the discussion of that list below.

Frequency List

The frequency list has the same data before and after each word as in the alphabetical list. However, the words in this list were arranged according to the frequency with which they were used in the six to eight books in which they were found, with the most used words coming first. The words were arranged in groups of ten with ²⁵ fifty words to a column and ^{out} three columns to a page. At the top of each column was placed a number giving the rank of the first word in the column. Thus it is easy to determine the rank of any word in point of frequency.

The chief value of the frequency list is to give the teacher who uses it an opportunity to determine the difficulty and importance of a word in point of use in modern history. The more often a word is used, the more certain the teacher must be that the pupil becomes proficient in the use of it. It also aids the teacher in making out word drills and tests in several ways. It helps to determine which words should be used and drilled upon first. It's an aid to the teacher when devising tests in which each question increases in difficulty throughout the test.

The frequency list may also help the teacher to determine whether a word is a specialized or technical modern history term used only a few times in connection with a certain subject or topic discussed in all textbooks, or if it is a more general term used in

connection with various factual material in the textbooks.

The most used word in the modern history vocabulary had a frequency of 2,390. There was a drop in frequency to 300 in the first fifty words and to 100 in the first 300 words. One half of the words were used thirty-one times or less in the textbooks studied. The last one hundred words were used only ten or less times in the books in which they were found.

Summary

There is a modern history vocabulary peculiar to that subject. It consists of 1988 words varying in frequency from 2,390 to 6, chosen from a total of 9,507 different (4-XX) words, and found in at least six of the eight recent modern history textbooks studied.

This vocabulary was arranged in two lists, alphabetically and in point of frequency. Each list gives the difficulty of the word as judged by the rank of the word in the Thorndike list, whether or not it is found in the American history vocabulary, and the frequency with which it is found in the various textbooks.

The two lists are of value to a teacher in finding the relative difficulty of words in modern history, the relative use of the word, which ones to stress in vocabulary drills, in making out tests, giving to pupils as minimum essentials of vocabulary achievement, and aiding pupils and teachers in checking words that give special difficulties.

It must be understood however, that understanding the meaning of the words alone is not of very great value unless the pupil knows how to use the same in speaking, writing and reading.

CHAPTER 4

THE MODERN HISTORY VOCABULARY LOAD

The ease with which a pupil masters modern history will in a large degree be determined by how adept he is in the use of the modern history vocabulary tool. How adept he is will in turn be determined to a large extent by the size and complexity of the tool itself. Just how complex is this tool?

Average Load

The high school pupil will encounter in the average modern history textbook some 201,946 running words. How these words are classified is illustrated in the following table.

Table 4

Vocabulary Load in the Average Modern History Textbook

Total running words	201,946
(1-3) or common words	182,939
Frequency of (4-XX) or specialized words	19,007
Range of (4-XX) or specialized words	3,792
(4-XX) or specialized words used only once	1,613
(4-XX) or specialized words used more than once	2,179
Average frequency with which the 2,179 words are used	8
<u>Number of words in the modern history vocabulary</u>	<u>1,988</u>

The significance of the above data can be more readily seen if it is broken up into a daily load. Discounting six days for examinations and fourteen days for review, there are about 160 school days in which regular class assignments are given. This means an

average daily assignment of 1262 running words. A little over ninety percent, or 1143 of these, will be common words. 119 will be specialized words. If the new specialized words were distributed evenly throughout the textbooks, 23.7 of the 119 words will be new ones of which 10.1 will be used only once and the remaining 13.6 words will be used more than once for an average of eight times in the whole book. On the average a pupil should daily encounter 12.4 words belonging to the modern history vocabulary. This daily load is illustrated in the following table.

Table 5

Vocabulary Load in Average Modern History Daily Assignment

Total running words	1,262
(1-3) or common words	1,143
Frequency of (4-XX) or specialized words	119
Range of new (4-XX) or specialized words	23.7
(4-XX) or specialized words used only once	10.1
(4-XX) or specialized words used more than once	13.6
Average frequency with which the 13.6 words are used in the book	8
Words belonging to the modern history vocabulary	12.4

Before discussing the significance of the data in the above table, it is well to question the equal distribution of new words throughout the various books. As it would have taken months of labor to fully determine the distribution of new words throughout all of the eight textbooks, a study was made of the first one-fourth of the books written by Becker and Webster. The first had the smallest range of

of words while the latter lacked a few of having the most.

The results in both textbooks were very much alike. 39.75 percent of the 3,304 different specialized words in Becker and 40.66 percent of the 4,262 different specialized words in Webster were encountered in the first one-fourth of the books. 43.01 percent of the modern history vocabulary was encountered during the first nine weeks of school in Becker's textbook and over half, or 53.17 percent of it, during the same period in Webster's. In Becker's textbook an average of 32.825 new specialized words were encountered daily during the first nine weeks of school with a daily variation of from 97 to 11 in one day's load as compared with an average for the whole book of 20.65 new specialized words per day. In Webster's textbook, the daily average of new specialized words during the first nine weeks was 43.275 with a variation of from 96 to 20 as compared with a daily average of 26.64 new words for the whole book. It is of interest to note that the number of new words met daily dropped from 62.5 during the first week to 23.6 during the ninth week in Becker's textbook and 63 to 35 in Webster's. A count of the frequency with which specialized words were encountered during the first one fourth of each textbook and one-fourth of each textbook starting on page 400, showed that the daily average of specialized words encountered was fairly constant throughout the textbooks.

The following conclusions can be probably drawn from the information stated above.

First, the greatest vocabulary burden occurs during the first fourth of the school year.

Second, about forty percent of the vocabulary load in a modern history textbook will be encountered during the first nine weeks of school.

Third, approximately one half of the modern history vocabulary will be encountered during first fourth of school year.

Fourth, the average daily load during the first weeks of school is over twice of that for the whole year if the new words were distributed evenly throughout the books.

Fifth, it is evident that the last half of the textbooks must have relatively few new words. As the number of specialized words remain almost constant throughout the textbooks, the second half must consist largely of a repetition of the words first encountered in the first half of the book.

Of what significance are these data shown in the table and the discussion above? A teacher may use it to determine to what extent the vocabulary is an obstacle in the path of a pupil's progress and then take steps to eliminate it. The teacher may give a comprehensive modern history vocabulary ability test at the beginning of the year. Let it be assumed that the pupil gets a score of sixty percent correct answers. The teacher may conclude that in the beginning of the course in modern history the pupil will daily encounter on the average forty percent of the new specialized words which he does not understand or know how to use. In practice the percent would be greater, for a comprehensive modern history vocabulary ability test would most likely be based on the words in the modern history vocabulary only. This means that if the pupil were studying Webster's

textbook, during the first week of school he would encounter daily forty percent of sixty-three, or 25.2 new specialized words he did not understand. During the first nine weeks of school this daily number of unknown new specialized words would decrease to fourteen. If the new words had been equally distributed throughout the textbook, he would daily meet 9.5 new specialized words. If he learns the words during the first part of the school year he will probably meet only two or three new words daily during the last few weeks of the school year. This pupil who knows only sixty percent of the new specialized words he meets daily will need more help and drill with his vocabulary than a pupil who passes the test with a score of ninety percent. If the teacher is in a school that has classes grouped according to ability, he might place the pupil in a class for pupils who have vocabulary difficulties. Furthermore, due to the fact that the pupil probably will meet half of the words belonging to the modern history vocabulary during his first nine weeks of the school year, the teacher will know better what words to use for drill purposes than if he had to choose at random from the 9,507 different specialized words used by the different authors of all textbooks in modern history.

As the greatest number of new specialized words appear during the first part of the year, the teacher should probably shorten the daily reading assignments of pupils weak in vocabulary ability during that part of the year and place more emphasis on vocabulary. The reading assignments can be lengthened during the latter part of the year.

As almost half of the modern history vocabulary is encountered

during the first part of the year, the teacher should see that the pupils get acquainted with it as soon as possible. It is probably wise that the whole vocabulary be placed in the hands of the pupils as a minimum essentials list.

Comparative Load in the Various Textbooks

The average load that any pupil might be expected to carry in his study of an average modern history textbook does not give the whole picture of the difficulties a pupil will meet in the study of modern history. The load varies greatly with different textbooks. Points upon which textbook vocabulary loads vary are as follows: total number of running words, ratio of (1-3) or supporting words to the (4-XX) or specialized words, the range of words used, total frequency of specialized words, total specialized words per thousand running words, distribution of specialized words on the Thorndike scale or total weighted word value, and the like. In the Jamestown Senior High School, it was desired to know whether the textbook used, West's "Modern Progress", had a lighter or heavier vocabulary load than other textbooks so that it might aid in determining the emphasis to be placed on mastering the vocabulary tool. It was desired to know the load of the other textbooks in order to aid in assigning supplementary reading material to pupils of varying abilities. The discussion following in this chapter will take up the various points upon which the various textbooks differ. Table 6 on the following page gives a general view of the comparative load of the various textbooks.

Total Running Words

One of the factors that has something to do with determining

Table 6

Comparative Total Vocabulary Load in Various Textbooks

Author	Total Running Words	Total Frequency (1-3) Words	Frequency (4-XX) Words	Range (4-XX) Words	(4-XX) Words Per 1000 Running Words	Range (4-XX) Words Per 1000 Running Words	Total Weighted Word Value
Becker	239,472	220,444	19,028	3,304	79.5	13.6	152,909
Hayes and Moon	218,863	195,601	23,262	3,770	106.3	17.2	221,019
McKinley Howland Dann	201,762	184,055	17,707	3,691	87.8	18.3	146,890
Phalou	174,773	161,274	13,499	3,327	77.2	19.0	116,880
Schapiro	172,261	153,413	18,848	3,656	109.4	21.2	167,146
Thomas and Hamm	215,028	194,060	20,968	3,805	97.5	17.7	181,634
Webster	171,809	152,420	19,389	4,262	112.9	24.8	170,286
West	221,602	202,244	19,358	4,519	87.4	20.4	162,601

^aWeighted word value of a word is the product of its index number on the Thorndike scale times the frequency with which it was used in the textbook. Total weighted word value is the sum of the weighted word value of all words in the textbook.

the vocabulary load of a textbook is its length, or the total number of running words. The eight textbooks differed greatly on this point. Becker used over thirty-nine percent more running words than Webster. West ranked next to Becker. A glance at Table 6 above shows that a pupil using Becker's textbook would have to read 239,472 words during a year as compared with 171,809 in Webster's. This is a difference of 67,663 words, or an average of 423 more words per day if a year is considered as consisting of 160 days. Using West's textbook as a unit of

measure, Table 7 below shows the comparative load of eight textbooks based on total number of running words.

Table 7

Comparative Total Running Word Load in Eight Modern History Textbooks

Author	Becker	West	Hayes and Moon	Thomas and Hamm	McKinley and Dann	Howland Phalou	Schapiro	Webster
Total Number Words	239,444	221,602	218,863	215,028	201,762	174,773	172,261	171,809
Percent	108.1	100.0	98.7	97.0	95.5	78.8	77.7	77.5

The total number of running words has a considerable bearing on the vocabulary load but not as much as it may seem from looking at the above. Everything being equal, Becker's textbook would have over an eight percent heavier load than that of West, and three textbooks would have loads that are twenty percent lighter than that of West. A full study of the vocabulary loads of the books however does not bear this out, for all other factors are not equal. For instance, the number of specialized words per thousand running words may be so much greater in one textbook than in another that the shorter book may have the heavier vocabulary load. This was the case in Webster's textbook. In spite of the fact that Becker's textbook used the next fewest specialized words per thousand running words, it ranked fifth in total number of specialized words because of the large number of running words.

The total number of running words in a textbook determines the length of the daily reading assignment. For pupils who are poor readers, this means an added load. On the other hand, if the author

uses relatively few different difficult words, the length of the book may be a distinct advantage to one weak in vocabulary as the same words will be used oftener and will more likely become a part of the pupil's regular reading vocabulary. This will be more readily understood after considering the frequency with which specialized words are found in the different textbooks and the number of common words supporting each of these more difficult words.

Frequency Load of (4-XX) or Specialized Words

One of the biggest factors in determining the vocabulary load of a textbook is the frequency with which specialized words are used and its natural sequence, the number of common words supporting these more difficult words. Again there was a great difference in the eight textbooks. Hayes and Moon used 23,262 specialized words to Phalou's 13,499. This is a difference of 9,763 words. From this point of view the vocabulary load provided by Hayes and Moon was 72.3 percent heavier than that used by Phalou. The number of common or supporting words vary inversely with the number of specialized words. It is interesting to note that for every time a specialized word was encountered in Phalou's textbook, one will meet 11.9 common words, while in Hayes and Moon's textbook one will meet only 8.4 supporting words. The total frequency with which specialized words were used in the various textbooks, the comparative load using West's textbook as a unit of measure, and the number of supporting words for each specialized word is shown in Table 8 on the following page.

What is the significance of this data? It would seem to show that West's textbook was comparatively difficult from the viewpoint of

Table 8

Comparative Vocabulary Load in Eight Modern History Textbooks Based on Frequency of (4-XX) or Specialized Words and Number of Supporting Words Per (4-XX) or Specialized Word

Author	Hayes and Moon	Thomas and Hamm	Webster	West	Becker	Schapiro	McKinley Howland Dann	Phalou
Frequency	23,262	20,968	19,389	19,358	19,028	18,848	17,707	13,499
Percent	120.2	108.3	100.2	100.0	98.3	97.3	91.5	69.7
(1-3)Words Per Spe- cialized Word	8.4	9.2	7.8	10.4	11.6	8.1	10.4	11.9

the frequency with which the harder words were used. It would also seem that Hayes and Moon's textbook, and those of Thomas and Hamm, and Webster would be appropriate books to suggest for supplementary reading for pupils with a large vocabulary while the other four books, especially Phalou's, would be appropriate for those with limited vocabularies. It would seem that those with more specialized words would be the books to assign to pupils who are being encouraged to increase their vocabularies. However, it must also be noted that there was a difference in the number of supporting words per each difficult word. It is quite probable that it is easier to guess the meaning of difficult words supported by a large number of easy words than vice versa. That being the case, it would mean that Phalou's textbook was increasingly simple, as were those of Becker, McKinley, Howland and Dann, and West, while those of Webster, Thomas and Hamm, and Hayes and Moon similarly were more difficult. It will be noted that the

word seem was used repeatedly in this paragraph. This was done purposely because there is another very vital factor that enters into determining the vocabulary load of a textbook when discussing the frequency with which hard words are used. The range of words used is a very determining factor. It is easier to read a paragraph containing two hard words used ten times each than to read another paragraph containing twenty different words used only once each. The following paragraphs show a comparison of the textbooks on this point.

Range of (4-XX) or Specialized Words

Here again there was a great difference in the loads of the various textbooks. West's textbook led with 4,519 different specialized words as compared with 3,304 in Becker's. This is a difference of 1,215 words and West's book had a load that was 36.8 percent heavier than that found in Becker's. Jamestown High School pupils taking modern history would run into 28.2 different new specialized words in an average daily assignment. This is seven and one-half more than they would meet if they were using textbooks by either Becker or Phalou, and five more than they would meet in either Schapiro's or McKinley, Howland, and Dann's textbook. These last two statements are based on the premise that new specialized words are distributed evenly throughout the books. As new words appear in greater numbers during the first part of the school year, the difference in daily load based on range of specialized words would be more than in the two statements made above. Both Webster and West used decidedly more difficult words than any of the other authors. Table 9 gives a picture of the extent to which the textbooks varied in load when taking the

the range of words as a criteria.

Table 9

Comparative Vocabulary Load in Eight Textbooks in Modern History Based on Range of (4-XX) or Specialized Words Used

Author	West	Webster	Thomas Hamm and	Hayes Moon and	McKinley Howland Dann	Schapiro	Phalou	Becker
Range	4,519	4,262	3,805	3,770	3,691	3,656	3,327	3,304
Percent	100.0	94.3	84.2	83.4	81.6	80.9	73.6	73.1
Average Daily Range	28.2	26.5	23.8	23.5	23.1	22.9	20.8	20.6

The meaning of the above differences in the vocabulary load of the various textbooks follow. It means that the textbook used in the Jamestown Senior High School requires considerably more emphasis on vocabulary than if some of the other textbooks were used. While an average daily assignment in West would rank fourth in the frequency with which specialized words were used, the load would be greater than this for the pupil would be required to know a greater range of words. It also means that a pupil who has mastered West's textbook will have also acquired a much larger vocabulary than if he had used another textbook. On the other hand, pupils who are shown to be very weak in the use of the vocabulary tool would be at a distinct disadvantage in the use of West's and Webster's textbooks and might get along much better using Phalou's or one of the others. Becker's textbook would be especially good for a pupil weak in vocabulary because it ranked fifth in use of difficult words with the smallest range of specialized

words and the greatest number of common or supporting words. This means that pupil reading this textbook would run into a fewer number of difficult words, but these would be used more often than in other textbooks, thus impressing these words more firmly in the memory of the pupil. Phalou used fewer different difficult words than the other six authors but is not as practicable in building a vocabulary for each word was not used as often as in the others. It would seem from the data on frequency and range of specialized words used in the eight modern history textbooks, that West, Webster, Thomas and Hamm, and Hayes and Moon are the authors who give the pupils the heaviest vocabulary load while the other four fall into a group with an easier load.

There is, however, another factor that enters into determining the vocabulary load, especially as it relates to supplementary reading assignments, and is largely determined by the greater or lesser length of the various textbooks. This is the load per thousand running words. It is worth while to look into this, for while a teacher may be forced more or less to use a given textbook for daily class assignments, and thus have the daily vocabulary load pre-determined for him, he can make wiser supplementary reading assignments if he knows which textbook has the greatest vocabulary load per thousand running words. How did the textbooks differ on this point?

Frequency and Range Per 1000 Running Words

In point of frequency and range of specialized words per thousand running words, Webster used eleven more different words than Becker and with a frequency of 33.4 more words. Webster had the most

difficult load both in respect to range and frequency. Schapiro had the next heaviest load on these two points. West ranked third while Becker and Phalou had the lightest loads (Table 10).

Table 10

Comparative Load in Eight Modern History Textbooks Based on Range and Frequency of (4-XX) or Specialized Words Per 1000

Running Words

Rank	I	II	III	IV	V	VI	VII	VIII
Author	Webster	Schapiro	West	Phalou	McKinley Howland Dann	Thomas and Hamm	Hayes and Moon	Becker
Range	24.8	21.2	20.4	19.0	18.3	17.7	17.2	13.8
Range in Percent	121.1	103.9	100.0	93.3	89.7	86.8	84.3	67.6
Author	Webster	Schapiro	Hayes and Moon	Thomas and Hamm	McKinley Howland Dann	West	Becker	Phalou
Frequency	112.9	109.4	106.3	97.5	87.8	87.4	79.5	77.2
Frequency in Percent	129.2	125.2	121.6	111.6	100.5	100.0	91.0	88.3

It may be seen from the above that a pupil who was weak in vocabulary ability would have to use the dictionary almost twice as much in reading a thousand running words in Webster as he would in Becker. In the Jamestown schools where West's textbook is used, it would be advisable to assign supplementary reading to weak pupils in textbooks by Becker, Hayes and Moon, and Thomas and Hamm. The pupils strong in vocabulary could be assigned supplementary reading in Webster's and Schapiro's books. On the other hand, if one were to select a basic text to be used by a class of weak pupils, Hayes and Moon and

Thomas and Hamm would be classified among the more difficult authors due to the greater length and total number of different words and the frequency with which they were used in their textbooks.

Weighted Word Values

W. M. Patty and W. I. Painter¹ have worked out a technique for determining the vocabulary load of a book that may, with some variations prove beneficial in this discussion. Their technique takes into consideration the fact that the distribution of words differ in frequency over the different index numbers on the Thorndike scale, so that a book which contains a large number of words in the upper thousands of the Thorndike list may be the more difficult book. Tables 11 and 12 give a picture of the frequency and range distribution in the eight modern history textbooks.

The formula used is $WV = TIN \times F$. In this formula, WV means weighted value, TIN means Thorndike Index or place of word on the Thorndike scale, and F means the frequency with which the words are used. TWV, or total weighted value, is the sum of the weighted values of all the words sampled. Average weighted value, or AWW, is determined by dividing TWV, or total weighted value by TWS, or total words sampled. The formula for finding the index of difficulty of any book is $IN = TWV/TWS \times 1/R$ or, total word value divided by total words sampled and multiplied by one over the range of words sampled.

In using these formulas it was necessary to decide what value was to be given the words not found in the Thorndike list. For use

¹W. M. Patty and W. I. Painter, A Technique for Measuring the Vocabulary Burden of Textbooks, Journal of Educational Research, 24:23-32, June, 1931

Table 11

Frequency Distribution of Words on the Thorndike Scale (4-XX) as Found
in Eight Modern History Textbooks

Index No.	Becker	Hayes and Moon	McKinley Howland Dann	Phalou Schapiro	Thomas and Hamm	Webster	West	Totals	
XX	1,085	1,397	879	913	1,418	1,374	1,449	1,141	9,656
20	67	247	67	105	89	106	115	65	861
19	176	234	313	93	193	237	168	146	1,610
18	227	330	176	151	192	312	218	161	1,767
17	109	160	165	101	241	132	170	173	1,251
16	157	389	213	163	258	296	223	227	1,926
15	220	396	260	234	343	342	269	295	2,359
14	213	316	204	232	274	307	273	271	2,080
13	254	410	262	278	351	292	358	356	2,561
12	464	672	478	326	562	480	579	530	4,091
11	485	787	651	441	679	725	751	713	5,231
10	670	1,668	566	559	675	602	728	780	6,248
9	1,310	1,622	1,069	867	1,340	1,583	1,189	1,440	10,420
8	1,724	2,509	1,892	1,238	1,746	2,110	1,959	1,942	15,120
7	2,240	2,940	2,213	1,763	2,308	2,749	2,308	2,122	18,643
6	1,375	1,790	1,451	1,114	1,344	1,737	1,514	1,734	12,059
5	3,042	3,219	2,774	2,000	2,573	3,110	3,104	2,879	22,701
4	5,210	5,196	4,076	2,922	4,262	4,424	4,014	4,383	34,487
Total	19,028	23,262	17,707	13,499	18,848	20,968	19,389	19,358	152,059

in this study, a value of 25 was arbitrarily given. Probably it should have been larger but it seemed as if 25 would be about the proper number to use.

Total Weighted Value

A comparison of the total weighted word value of the eight books showed a difference of 104,139 between the books of highest and lowest value, or from 221,019 to 116,880. This means that the textbook with the greatest total weighted word value has a load on this point that is about fifty-three percent heavier than that of the textbook. The difference in the average weighted value is not so great for the books with the greater total weighted word value are also the

Table 12

Range Distribution of 9,507 Words on the Thorndike Scale (4-XX) as
Found in Eight Modern History Textbooks

Index No.	Becker	Hayes and Moon	McKinley Howland Dann	Phalou	Schapiro	Thomas and Hamm	Webster	West
XX	403	460	405	416	459	494	658	511
20	37	40	36	45	44	56	57	44
19	45	51	56	47	42	51	62	54
18	65	59	56	60	67	82	76	69
17	42	55	76	55	83	61	85	73
16	60	67	78	71	84	91	86	109
15	76	109	94	83	103	112	113	125
14	85	110	99	85	112	120	119	129
13	93	119	122	102	115	116	130	136
12	124	144	153	124	143	144	164	195
11	145	191	192	145	175	174	225	209
10	162	208	181	166	189	193	210	257
9	229	291	236	227	243	270	280	353
8	316	350	387	318	352	381	408	407
7	338	364	379	319	334	361	380	415
6	276	302	308	265	300	304	306	378
5	368	412	411	379	402	371	433	497
4	440	438	422	420	409	424	470	568
Totals	3,304	3,770	3,691	3,327	3,656	3,805	4,262	4,519

longest books and have greatest total words sampled. Table 13 on the following page gives an idea of the variation in total weighted word value or various books and also the total words sampled, average weighted word value, range and index number of difficulty. The smaller the index number, the greater is the difficulty of the textbook.

From this table it will be seen that Phalou, McKinley, Howland and Dann, and Becker had the lowest total weighted word value along with West while the other four were more difficult authors from this point of view. The same four textbooks were among the easiest books on the basis of average weighted word value. However, using the index number of textbook difficulty, West, Webster, McKinley, Howland and

Table 13

Comparative Value of Eight Textbooks in Modern History Based on Total Weighted Word Value, Total Words Sampled, Average Weighted Word Value, Range and Index Number

Author	TWWV	TWS	AWV	Range	Index Number
Becker	152,909	19,028	8,036	3,304	.00243
Hayes and Moon	221,019	23,262	9,459	3,770	.00251
McKinley Howland Dann	146,890	17,707	8,296	3,691	.00224
Phalou	116,880	13,499	8,568	3,327	.00260
Schapiro	167,146	18,848	8,868	3,656	.00243
Thomas and Hamm	181,634	20,968	8,662	3,805	.00228
Webster	170,286	19,389	8,782	4,262	.00206
West	162,601	19,358	8,399	4,519	.00186

Dann, and Thomas and Hamm were the most difficult authors with Phalou by far the easiest. Using West as a unit of measure, the comparative difficulties are shown in Table 14.

Again Phalou had the smallest vocabulary load when based on index number and West's textbook ranked heaviest. West's textbook ranked fourth in range, sixth in average weighted word value, fourth in total words sampled and fifth in total weighted word value.

Final Ranking of Vocabulary Load Based on All Criteria

It is now necessary that one come to some general conclusions regarding the comparative vocabulary load in the eight modern history

Table 14

Comparative Difficulties of Eight Textbooks in Modern History Based on Total Weighted Word Value, Total Words Sampled, Average Weighted Word Value, Range and Index Number Using West as a Standard of Measure

Author	TWWV	TWS	AWWV	Range	Index Number
Becker	94.0	98.3	95.7	73.1	119.8
Hayes and Moon	135.9	120.2	112.1	83.4	134.9
McKinley, Howland and Dann	90.3	91.5	98.8	81.6	120.2
Phalou	71.9	69.7	103.1	73.6	139.8
Schapiro	102.8	97.3	105.6	80.9	130.6
Thomas and Hamm	111.7	108.3	103.1	84.2	122.6
Webster	104.7	100.2	104.5	94.3	110.7
West	100.0	100.0	100.0	100.0	100.0

^aLoad based on index number varies inversely to size of number of textbooks. This can be most easily done by totaling the rankings under the eight different criteria. If this is done the vocabulary load used by the different authors ranked from heaviest to lightest will be as follows; Webster, Hayes and Moon, West, Thomas and Hamm, Schapiro, McKinley and Howland and Dann, Becker, and Phalou. The rankings under the various criteria with final ranking according to difficulty are shown in the table on the following page.

Conclusion

It has been pretty definitely determined what the average vocabulary load will be for a pupil studying modern history. Not

Table 15

Final Rankings of Eight Modern History Textbooks for Vocabulary Load as Determined by Each and All of the Different Criteria

Author	Total Running Words	Total (4-XX) Words	Range	Frequency per 1000	Range per 1000	TWWV	AWV	Index	Total Rank	Final Rank
Becker	1	5	8	7	8	6	8	5	48	7
Hayes & Moon	3	1	4	3	7	1	1	7	27	2
McKinley Howland Dann	5	7	5	5	5	7	7	3	44	6
Phalou	6	8	7	8	4	8	5	8	54	8
Schapiro	7	6	6	2	2	4	2	5	34	5
Thomas & Hamm	4	2	3	4	6	2	4	4	31	4
Webster	8	3	2	1	1	3	3	2	23	1
West	2	4	1	6	3	5	6	1	28	3

only can the total load for the year in either an average textbook or for a specific textbook be determined from the above discussion, but also the average load. By one or more comprehensive vocabulary ability tests given at the beginning of the year one can find out about what percent of the modern history words a pupil can be expected to know when he meets them. It can be pretty definitely determined how many new specialized words he will meet daily that he does not know and will have to look up and study in order to comprehend what he is reading.

Textbooks vary greatly in difficulty according to different authors. It can be determined how much emphasis must be placed upon

vocabulary in the various textbooks. It can be determined which books will give the pupil the smallest range of words, the most use of each different word encountered, and the most difficult words per thousand running words.

The data of this chapter will help to determine which textbooks are most suitable for varying degrees of ability of pupils when used as textbooks or as supplementary reading materials.

It has shown that the greatest vocabulary burden falls upon the pupil during the first part of the school year.

CHAPTER 5

COMPARISON OF VOCABULARY BURDEN IN MODERN HISTORY AND
AMERICAN HISTORY TEXTBOOKS

A. S. Barr and C. W. Gifford¹ in 1929 made a study of the vocabulary burden of eight American history textbooks. They compiled an American history vocabulary comprised of all the words found in six or more of the eight textbooks, and that had an index number of four or more in the Thorndike Word Book of 1000 Words.²

A comparison of the vocabularies in the two subjects is of value for several reasons. It will help in determining the grade placement of these two subjects. It will show to what extent a knowledge of the vocabulary in the one may be a help to a better comprehension of the other. It will show what words are common to both lists. These common words may be considered a general history vocabulary.

Comparative Vocabulary Load in the Two Subjects

In the American history study they found a range of 7,631 (4-XX) words as compared with 9,507 in that of modern history. In this respect the modern history vocabulary load had 1,876 more (4-XX) words than that in American history and was 24.6% heavier. This means that more emphasis must be placed on vocabulary in modern history than in American history.

A greater per cent (34%) of American history words were used only once than those in modern history (30.9%). In this respect the

¹A. S. Barr and E. W. Gifford, *The Vocabulary of American History*, *Journal of Educational Research*, 20:103-21, Sept., 1929.

²E. L. Thorndike, *A Teacher's Word Book of the Ten Thousand Words*, Teachers College, Columbia University, 1920.

modern history vocabulary load was a little easier. 44% of American history words rated more than 10 on the Thorndike scale as compared with an average of 38.1 in each of the modern history textbooks. This means that the average weighted value of the American history word was greater than that in modern history.

The evidence points to a heavier vocabulary burden in modern history than in American history. Does this mean it is wrong to teach modern history before American history in North Dakota? It does if the main object is gradually to build up a bigger vocabulary among the pupils. However, there are other factors that also help determine the grade placement of subjects that will not be touched upon in this thesis. A good argument can be made for teaching modern history with its wider vocabulary range in the tenth year in order to provide a good working tool in the hands of the pupil for the two following years. It is certain that if the practice of teaching these subjects in the order now taught is to continue in this state, a very decided emphasis must be placed on increasing vocabulary ability in the tenth grade. If this is done and pupils enter the last two grades with more adeptness in the use of the vocabulary tool, the teacher may spend less time in teaching facts and more time in helping pupils to use these facts in thinking about and solving historical and social problems.

The Vocabularies of the Two Subjects

The conclusions stated in the above paragraphs become all the more obvious when it is found that 1172 (4-XK) words were common to the two vocabularies. There were 1896 (4-XK) words in the American history vocabulary and 1988 in that of modern history. 61.7% of the

American history words were in the modern history list and 58.7% of the modern history words were in the American history list. The American history list is 94.9% as long as that in modern history.

If a pupil had mastered all the words in the modern history vocabulary, he would meet 725 new words in the study of American history. This would be an average of about 4.5 new words every day if they were evenly distributed throughout the textbooks. He would not use 816 of the modern history words at all.

Use of the Modern History Vocabulary

The 1172 American history words common to modern history vocabulary are all to be found in either the alphabetical or frequency list in the appendix of this thesis. A star was placed after each word common to both vocabularies.

These starred words should be stressed even more than the other modern history words in order that the pupil may become adept in their use by the time he enters the American history classes. These words may be used in diagnostic tests by the American history teacher at the beginning of the year for the purpose of seeing to what extent the pupils are prepared in the use of the vocabulary tool in the new subject. If they are adept, the American history teacher can place less emphasis on the 1172 words common to the two subjects and more on the 725 words that are new to pupils entering the American history classes.

Conclusion

Approximately sixty per cent of the vocabularies of the two subjects are common to both. Modern history classes should prepare

pupils in the use of the vocabulary they will meet in the later study of American history. In addition to preparing pupils in handling the vocabulary tool for later use, the modern history teacher has to teach the pupils how to use a heavier vocabulary tool than that found in American history. This means that much more emphasis should be placed on vocabulary study in tenth grade modern history than in eleventh grade American history.

The two modern history vocabulary lists have designated the words common to both lists and are available for use by teachers of both subjects.

CHAPTER 6

VOCABULARY ABILITY OF JAMESTOWN HIGH SCHOOL PUPILS

It has been shown that there is a modern history vocabulary. The average load that a Jamestown High School pupil may meet in reading the various modern history textbooks has been discovered. The comparative vocabulary loads in the various textbooks according to eight different criteria has been determined. It has been shown that there is a vocabulary common to both modern and American history. The next problem was to determine to what extent the pupils of Jamestown High School were masters of the vocabulary "tool" in modern history.

Vocabulary Ability Tests

In order to find this, it was necessary to have a modern history vocabulary ability test with which to measure the abilities of the different high school pupils. As there was no comprehensive, objective, modern history vocabulary ability test on the market, it was necessary to devise one. At the time the tests were to be given, only the vocabulary of West's textbook had been analyzed. This was used as a basis for making the test.

All the words used more than five times in this textbook were typed into a list. This list was retyped with words grouped according to index number in the Thorndike scale. Two forms of vocabulary ability tests were made from the words in this list. One hundred words were chosen for each test. They were picked on the basis of the index number in the Thorndike scale and the frequency with which they were used. They were arranged so that the easier words came first and the harder last. After each word were five words or phrases, one of which

was closely related in meaning to the word at the left. Pupils being tested were instructed to underline the word or phrase that most nearly meant the same as the word in the left-hand column.

Both the "A" and "B" forms were given to pupils of all three grades in the Jamestown Senior High School at the beginning of the tenth week of school. The "A" form was given again after a period of eighteen class weeks. The distribution of the scores in these tests are given in Table 16 on the following page.

Reliability of the Vocabulary Ability Tests

Before discussing the results of the tests it is fitting to discuss the reliability of the tests themselves. Were the words in the test representative of the modern history vocabulary considering the fact they were taken from West's list only? Ninety-nine of the one hundred words in the "A" form were found among those in the modern history vocabulary and eighty of them were also found in the American history list. Ninety-five of the words in the "B" form were in the modern history vocabulary and sixty-eight of them were also in the American history list. It would seem therefore that the selection of the words was quite representative of the modern history vocabulary.

As a check on the reliability of the tests, the correlation of reliability was worked out between the odd and even questions in 379 of the test papers in the "A" form and 200 test papers in the "B" form. The correlation coefficient of reliability in the "A" form was .817 with a probable error of .011. The use of Brown's formula¹ to check

¹C. W. Odell, Educational Statistics, The Century Company, 1925, p. 186.

Table 16

Distribution of Modern History Vocabulary Ability Scores in the Jamestown Senior High School

Score	Seniors			Juniors			Sophomores			Score	Seniors			Juniors			Sophomores		
	A ¹	A ²	B	A ¹	A ²	B	A ¹	A ²	B		A ¹	A ²	B	A ¹	A ²	B	A ¹	A ²	B
98	-	-	1	-	-	-	-	-	-	67	2	-	-	2	3	1	8	4	4
95	2	-	-	1	-	4	-	1	-	66	-	2	1	2	6	2	4	6	4
94	-	1	2	2	-	2	-	1	2	65	2	3	-	3	4	-	3	3	2
93	-	1	-	-	1	4	2	-	-	64	1	-	1	3	2	2	1	1	5
92	2	2	4	2	2	2	1	3	-	63	-	1	2	4	1	2	5	4	3
91	1	2	5	-	3	2	-	5	2	62	1	-	1	3	-	1	1	3	-
90	-	2	7	2	2	2	-	1	4	61	-	2	-	2	1	3	5	5	2
89	4	6	2	5	2	4	2	4	1	60	-	2	-	1	1	2	3	3	1
88	5	3	4	4	2	2	1	10	5	59	2	-	-	1	1	1	2	2	2
87	5	4	3	3	7	7	1	4	-	58	1	-	-	3	2	3	6	4	5
86	1	5	5	3	6	6	6	4	1	57	-	2	1	1	1	1	2	1	3
85	8	6	8	-	3	6	6	4	1	56	2	1	-	-	1	-	1	1	2
84	5	3	1	4	4	1	1	2	8	55	1	-	-	1	-	1	-	2	1
83	5	10	7	9	5	1	3	5	3	54	1	1	2	-	1	1	1	-	2
82	1	2	4	1	5	5	2	8	4	53	1	1	-	3	-	-	3	1	1
81	7	4	4	2	5	5	2	5	6	52	2	-	-	-	-	1	2	-	2
80	4	4	7	2	-	3	5	5	9	51	-	-	-	-	-	-	3	-	1
79	5	6	3	4	6	3	1	6	3	50	-	-	2	-	-	1	-	-	-
78	4	4	2	2	3	4	3	3	10	49	-	-	1	-	-	-	1	1	-
77	4	5	3	5	1	1	3	3	3	48	1	-	-	1	-	-	-	1	1
76	2	3	2	3	7	2	3	2	5	47	-	-	-	-	1	-	1	1	-
75	4	7	3	2	3	3	3	3	3	46	-	-	1	-	-	1	-	-	1
74	3	4	1	5	3	3	5	5	4	45	-	-	-	-	-	-	1	-	2
73	4	1	2	2	2	4	9	6	2	44	-	-	-	-	-	-	1	-	-
72	1	2	3	4	8	6	2	7	1	42	-	-	-	1	-	-	-	1	1
71	-	1	4	3	4	4	4	5	8	40	-	-	-	-	-	-	-	1	1
70	2	-	1	10	4	4	4	1	2	38	-	-	-	-	-	-	-	-	1
69	2	4	2	4	3	5	5	3	5	37	-	-	-	-	-	-	1	-	-
68	3	1	1	9	3	5	10	3	2										

^aThe scores made in the first giving of the vocabulary ability test in modern history form "A" are found in the column headed A¹. The retest scores given eighteen weeks later are under the symbol A². B stands for the "B" form of the Modern History vocabulary ability test.

the reliability of this score resulted in a correlation coefficient of .899. For the "B" form, the coefficient of reliability was .807 with a probable error of .016. The use of Brown's formula would raise this to .894.

The correlation coefficient was also calculated between the scores of three hundred forty-three pairs of "A" and "B" form tests. It was found to be .855 with a probable error of .0098. The data for these correlations are found in the appendix.

While the correlations between odd and even questions in the two tests were quite high, the results arrived at in this study would be more reliable if the correlation coefficients of reliability were around .95 or more. However, they are probably high enough to warrant use in this study to show some of the tendencies with a fair degree of reliability.

Range of Ability

One of the noticeable things about the scores made in the vocabulary ability tests was the great range in ability of the different pupils. The range of the scores in the first giving of the "A" form of the test was 48-95 in the twelfth grade, 42-95 in the eleventh, and 37-93 in the tenth. The ranges in the "B" form of the test were 46-98, 46-95, and 38-94 respectively. These figures show that the best pupils in each case had over twice as much ability in the use of the modern history vocabulary as the poorest ones. From the evidence above, it is probable that comprehensive vocabulary ability tests with a higher degree of reliability than these would show that some pupils are at a very distinct disadvantage in the study of modern history because over half of the difficult modern history words will be strange to them.

A comparison of the range, inter-quartile range, ± 1 sigma range, median, and mean will show more clearly how greatly pupils

differed in ability and to what extent their scores grouped around the center, or differed in the extremes (Table 17).

Table 17

Range of Ability of Jamestown Senior High School Pupils in the Use of Modern History Vocabulary as Revealed by Total Range, Inter-quartile Range, ± 1 Sigma Range, Median and Mean Scores on the "A" Form of the Modern History Vocabulary Ability Test

Class	Total Range	Inter-Quartile Range	± 1 Sigma Range	Median	Mean
Seniors	48-95	73-85	67.06-87.26	79	77.14
Juniors	42-95	68-83	63.34-84.36	73	73.49
Sophomores	37-93	63-78	59.75-80.13	69	69.94

Vocabulary Ability and Grade Placement

Not only does the above table reveal a great range of ability, but it also suggests that there was a difference in vocabulary ability according to what grade the pupils were in in high school. It will be noted that while the upper scores were about the same in the total range of the three classes, there was a decided difference in the lower scores. In all the other four criteria there was a decided step-up in the scores from the sophomore to the senior year. The results were the same in comparing the scores on the "B" form (Table 18).

A further perusal of the two tables above shows that the upper quartile score in the sophomore class was below the median score in the senior class. It also shows that the ability of the juniors in the use of the modern history vocabulary tool was half way between that of the sophomores and seniors. The reason for this may be due to

Table 18

Range of Ability of Jamestown Senior High School Pupils in the Use of Modern History Vocabulary as Revealed by Total Range, Inter-quartile Range, ± 1 Sigma Range, Median and Mean Scores on the "B" Form of the Modern History Vocabulary Ability Test

Class	Total Range	Inter-Quartile Range	± 1 Sigma Range	Median	Mean
Seniors	46-98	74.5-87	69.13-90.33	82	79.73
Juniors	46-95	69-86	65.83-87.63	78	76.63
Sophomores	38-94	64-81	59.96-84.16	74	72.06

the fact that the seniors had a year each of modern and American history and the juniors had already had a year of modern history so that the development of ability in the use of the modern history vocabulary tool in the sophomore year was carried over into the junior year. There it had been further developed by the American history vocabulary which is to a large extent a duplicate of that in modern history. This ability had been carried over into the senior year. To a small degree there had been a weeding out process in which the weaker pupils had been eliminated from the upper classes.

Another noticeable feature to be gleaned from the above tables was the fact that while the median and mean scores were considerably raised during the eleventh and twelfth years; at the same time the inter-quartile and ± 1 sigma range became considerably narrower. What can be concluded from this and other data?

The above data probably show that there is a carry-over of ability in the use of the vocabulary tool from one year to the next.

Therefore, the more proficient the pupil becomes in the use of the modern history vocabulary in the sophomore year, the greater will be the ease with which he will pursue his studies in American history in the junior year, and related subjects in the senior year. The data show there is a narrowing of the range of ability scores around the middle scores in the upper grades. There is, however, much room for more efficient teaching of pupils in the sophomore and junior years so as to bring up the ability of the weaker group to more closely approach that of the stronger. In other words, there is probably still too great a gap between the higher and lower abilities in the mastery of the modern history vocabulary.

Comparison of Vocabulary Abilities in First and Second Semesters

The "A" form of the vocabulary ability tests were given again to all the pupils of the Senior High School after a period of eighteen school weeks. It was hoped that it could be determined from the results of these scores to what extent there is a growth in the use of the vocabulary during one semester's time, and in what grade the greatest growth takes place. The main results of this part of the study are shown in Table 19.

Little relative progress was made by the seniors during an eighteen week period. A little more progress was made by the juniors. The sophomores show the greatest progress whether we take the class as a whole, or the drilled or undrilled sophomores.

The relatively little progress made by the seniors may be accounted for by several factors. It is possible that the vocabulary found in present day problems, the social science subject of the senior

Table 19

Comparison of Scores Made on the "A" Form of the Modern History Vocabulary Test When Given Twice at an Interval of Eighteen School Weeks in the Jamestown Senior High School

Class	Pretest or Retest	Total Range	Inter- Quartile Range	Plus & Minus 1 Sigma Range	Median	Mean	
Seniors	Pretest	48-95	73-85	67.06-87.26	79	77.14	
	Retest	53-94	74-85	69.19-87.99	80	78.43	
Juniors	Pretest	42-95	68-83	63.34-84.36	73	73.49	
	Retest	47-93	69-84	66.02-85.34	76	75.68	
Sophomores	Pretest	37-93	63-78	59.75-80.13	69	69.94	
	All Sophomores Undrilled "	Retest	40-95	66-84	63.25-86.54	76	74.85
	Undrilled "	Retest	40-95	67-85	64.00-87.40	78	75.71
	Drilled "	Retest	56-94	71-85	67.51-86.41	78	76.96

year, was so much different and contained so few of the words found in the modern history vocabulary, that the pupils got relatively little training during the senior year in the use of it. It may be true that the modern history vocabulary test devised for use in this study did not cover the vocabulary that the seniors met in their study of present day problems.

Present day problems is a course which includes what are commonly called civics, sociology and economics. In a study made of the vocabulary common to civics and American history¹ in 1930, it was found that one-third of the civics vocabulary was common to that of American history and only one-sixth of the American history vocabulary was common to civics. If the same situation exists in economics and sociology, then probably the small percent of the American history

¹O. W. Stephenson and W. R. McGehee, Journal of Educational Research, 22:55-58, June, 1930.

words that are found in present day problems comprise such a small part of the modern history vocabulary, that an improvement could not be expected in the senior year. It is also probable that the words common to all three subjects are the most commonly used and the most sure to be learned words of the modern history vocabulary and are therefore fully mastered before entering the senior year.

The fact that there was relatively more progress made in the junior than in the senior year probably shows that the large number of words common to the modern and American history vocabularies made it possible for juniors to continue becoming more proficient in the use of the modern history vocabulary tool. It probably suggests that helping sophomores to become more proficient in use of the vocabulary tool will be of great help to them in the study of American history in the junior year.

A very pronounced progress was made in mastery of the vocabulary tool during eighteen weeks in the sophomore class. This suggests that the sophomores were not only learning modern history while they were studying it, but were also learning to use the vocabulary tool which is an essential part of the learning of modern history. It suggests that the teacher should be conscious of the fact that this is the year in which high school pupils are acquiring a large new vocabulary and should see that it gets its due emphasis in instruction.

There was relatively little more progress made in the drilled than in the undrilled sections of the sophomore class. This will be discussed in the next chapter on vocabulary ability and pupil progress.

Vocabulary Ability and Intelligence

Does this study show whether there was any direct relationship between proficiency in the use of the vocabulary tool in modern history and intelligence as revealed by intelligence tests? Most of the pupils in the Senior High School at Jamestown were given the Otis Classification test while in the ninth grade. These scores were available for this study.

Correlations between the scores received on the "A" form of the vocabulary ability tests in modern history and the I. Q. scores on the Otis Classification Tests gave the following results. In the senior class the coefficient of correlation between the two factors was .641 with a probable error or .05. In the junior class it was .707 with a probable error of .03 and in the sophomore class it is .688 with a probable error of .03. This seems to show that there was a strong tendency for the pupils with high I. Q.'s. to be proficient in the use of the modern history vocabulary and vice versa. This being the case, a knowledge of the intelligence scores of the pupils should aid teacher in grouping pupils in classes so that those needing more help with the vocabulary tool are placed in classes where emphasis will be given in that, and where the vocabulary load will be suited to the capacities of the pupils.

Conclusion

It is probable that in the ability to use the modern history vocabulary there is a great range of ability between pupils of the same class; that there is considerable difference in ability between pupils of the tenth, eleventh and twelfth years in high school; that

the greatest progress in developing proficiency in the use of modern history vocabulary takes place in the sophomore year and the least in the senior year; and that there is a relationship between intelligence and the ability to use the vocabulary tool.

The evidence of this chapter would suggest that a teacher must take into consideration the great range of ability of pupils in modern history when arranging classes, so as to be in a position to help those who need special help, and not to retard those who already are proficient in its use. Evidence bears out the contention that the modern history vocabulary is a helpful tool in the study of American history, but not so helpful in present day problems in the senior year. It has been suggested that the teacher can be aided in picking out pupils weak in the ability to use the modern history vocabulary by studying their intelligence scores in connection with the scores they make in a vocabulary ability test. These conclusions are true for the pupils of the Jamestown Senior High School. A further study among other high schools would probably result in the same conclusions.

CHAPTER 7

VOCABULARY ABILITY AND PUPIL PROGRESS

One purpose of this study was to determine whether there is any relationship between the ability to use the modern history vocabulary and the progress a pupil makes in his classes, especially in modern history. If such a relationship exists, it probably follows that anything done to increase a pupil's working vocabulary greatly will be a great help to him in mastering the subject matter. The following four sources of information were used. The modern history vocabulary ability test scores of the pupils in the three Jamestown Senior High School classes were compared with their scholastic averages to date. The same scores in the sophomore class were compared with the scores they received in a modern history achievement test after eighteen weeks of class work. The modern history vocabulary ability test scores of the seniors were compared with the scores they received in the social science part of the Sones-Harry High School Achievement Test.¹ The progress made by two sections of modern history pupils drilled in vocabulary was compared with that of three un-drilled sections. The results and conclusions arrived at follow in this chapter.

Vocabulary Ability and Achievement

The vocabulary ability tests in modern history were given to the whole student body of the Jamestown Senior High School. The scholastic averages of these pupils were available from the school records. A comparison of the scores and averages of these two factors was therefore possible.

¹W. W. D. Sones and D. D. Harry Jr., Sones-Harry High School Achievement Test, World Book Company.

The "A B C D F" system of marks is used in the Jamestown Senior High School. For purposes of determining averages, A was assigned a value of 1, and the other four letters 2, 3, 4, and 5 respectively. To arrive at an average, the mathematical values of the grades secured in all semester units were added up and divided by the total number of semester units taken. The scores from the pretest in form "A" of the modern history vocabulary ability test were used for comparison.

A comparison of the vocabulary ability scores and the scholastic averages shows a correlation between these two factors. The coefficient of correlation for the seniors was .602 with a probable error of .047. For the juniors it was .687 with a probable error of .033 and for the sophomores .687 with a probable error of .03. This indicates that pupils with large or small working vocabularies are probably strong or weak respectively in scholarship.

However, this conclusion is not final. A correlation between modern history vocabulary ability and intelligence quotients was shown in the last chapter. This correlation was almost identical with that found between vocabulary ability and scholastic averages in the paragraph above. How close the two sets of correlations were is shown by the following comparisons. In the sophomore class they were .658-.718 and .657-.717, in the junior class .677-.737 and .654-.720, and in the senior class .591-.691 and .555-.649. The probable error was included in all of the above correlations. The first correlation in each case is between vocabulary ability and intelligence quotients and the second is between the same criteria and scholastic averages. The

sophomore correlations were almost identical. The correlation between vocabulary ability and intelligence quotients in the two upper classes was slightly greater than that for scholastic averages and vocabulary abilities. This probably means that it is undetermined as to what degree the intelligence of the pupil, or the ease with which he handles the vocabulary tool, accounts for the relationship between vocabulary ability and scholastic averages. Probably no comparison of scholastic averages of all subjects should be made with the scores of a vocabulary test in modern history, but there is evidence to show that the results would be the same in a comparison using achievement in the specific field of social science or modern history.

All members of the senior class were given the Sones-Harry High School Achievement Test² in the spring of their last year in school. The scores they made on the social science part of this test were available for use in this study. A comparison of vocabulary ability in modern history with scores on this test showed a coefficient of correlation of .682 with a probable error of .03. These results bear out the conclusion stated in the last paragraph.

A comparison of the scores made by the sophomores in the achievement tests given at the end of an eighteen week period with the vocabulary ability test scores gave a correlation coefficient of .649 with a probable error of .05. This was a trifle lower than the correlation coefficient for scholastic averages and vocabulary ability. The difference, however, is insignificant.

It would seem from the evidence shown in this chapter that

²Ibid.

there is a significant correlation between scholastic averages and vocabulary ability in modern history, and that about the same correlation exists between I. Q. scores and the same criteria. It is therefore quite probable that both factors work hand in hand, but which one is the more potent has not been determined by this study.

Pupil Progress in Drilled and Undrilled Classes in Modern History

As a part of this study, two of the five sections in modern history were chosen as drill classes for the purpose of finding the results of drill in modern history vocabulary upon progress in achievement. It was unfortunate that conditions did not permit an ideal set-up for this. Due to the large increase in enrollment and shifting of teacher loads, the situation existed where two teachers were teaching modern history instead of one. One teacher, referred to as F in this study, had two sections of modern history. One met the first hour in the morning; the other the last in the afternoon. The first hour group was chosen as a drill section. The undrilled group had six more pupils than the drilled section. The other teacher, referred to as A in this study, had three sections. These came during the third, fourth, and fifth periods of the school day. The last section was used as a drill group. The fourth and fifth hour groups were about the same in size but the third hour class was considerably smaller.

Also, because the experimental part of this study did not get under way till after the ninth week, it was difficult to distribute the pupils so that classes would have members with equal ability without disrupting the schedules of nearly all the pupils and teachers in the high school. It therefore resulted in the varying of the ratio between

pupils with an I. Q. of 100 or more to those with an I. Q. below 100 of from 68 to 32 in A's undrilled classes as compared with 57 to 43 in the drilled, and 82 to 18 in F's undrilled classes as compared with 55 to 45 in the drilled. The undrilled classes for each teacher had a greater proportion of pupils with higher I. Q. scores. Because of the varying factors mentioned above, this study could not compare only the results of the drilled and undrilled groups as a whole. Pupils in the two groups were paired according to intelligence quotients and scholastic averages, and the scores and progress of these pairs were studied. However, it is probably true that the kind of work done in a class with a greater proportion of pupils with high intelligence is different from that in which there is a preponderance of children with low I. Q's. It is also probable that a class taught the first hour in the morning is never taught the same as one taught during the last period in the afternoon. The drill sections of both teachers were under the handicap of being composed of pupils with a lower average of intelligence.

The following were the techniques used in the drill classes. The undrilled groups functioned as usual with no special emphasis on vocabulary. In the drilled groups, the pupils were given four ten minute drill tests per week in vocabulary for a period of eighteen weeks. The words upon which they were to be tested were either given them in a list at the beginning of the week, or on the day before. The tests were corrected and handed back to the pupils the next day. The pupils were expected to study the corrected mistakes. This was not the best technique, as is shown later in this chapter.

At the beginning of the eighteen week period, a pretest was given to all the modern history pupils. This was to determine what they already knew before starting the experimental period. This same test was given to all pupils in the same classes at the end of the eighteen week period. The same procedure was followed with the modern history vocabulary ability tests. The results of these scores are discussed below.

Comparison of All Drilled and Undrilled Pupils in Achievement

A comparison of the scores of all the drilled and undrilled pupils in achievement in modern history seemed to show that drilling them in vocabulary did little or nothing to improve their scholastic standing in the subject. As a matter of fact, the undrilled pupils did a trifle better. The undrilled group raised their median score 2.29 points more than the drilled; their mean score was 2.41 points higher; their extreme scores in the total range were two points more; their ± 1 Sigma range was 2.36 points more; and the inter-quartile range scores were 3.93 points more. These comparisons and results are shown in Table 20 on the following page.

How did the drilled and undrilled pupils' improvement in achievement compare in the two different teachers' classes? A's drilled group did a very little better than the undrilled. On the other hand, F's undrilled group made decidedly more progress. The extent of the different results in the two teachers' classes is evident from a study of Table 21 on the following page.

Two reasons may be advanced for the difference in the results in the two teachers' classes. A's pupils in the drilled and undrilled

Table 20

Comparison of the Progress Made by Drilled and Undrilled Pupils in Achievement in All Modern History Classes in the Jamestown Senior High School

Criteria	Drilled	Undrilled
Range of Scores in Pretest	8-48	6-45
Range of Scores in Retest	24-69	22-70
Improvement in Scores	16-21	16-25
Inter-quartile Range of Scores-Pretest	21-28	17-30
Inter-quartile Range of Scores-Retest	37-47	36.36-53.5
Improvement in Scores	16-19	19.36-23.5
± 1 Sigma Range-Pretest	17.31-31.89	15.70-31.98
± 1 Sigma Range-Retest	33.81-52.77	34.35-55.53
Improvement in Scores	16.5-20.88	18.65-23.45
Median Scores-Pretest	25	24
Median Scores-Retest	42	43.29
Improvement in Median Scores	17	19.29
Mean Score-Pretest	24.60	23.84
Mean Score-Retest	43.29	44.94
Improvement in Mean Scores	18.69	21.10

Table 21

Comparison of Improvement in Scores in Achievement of the Drilled and Undrilled Pupils in Each Modern History Teacher's Classes in Jamestown Senior High School

Criteria	Drilled	Undrilled
A's Pupils		
Improvement of Range Scores	17.00-34.00	18.00-21.00
Improvement of Inter-quartile Range Scores	17.00-22.00	17.00-20.00
Improvement of ± 1 Sigma Range Scores	17.05-20.95	17.92-20.44
Improvement in Median Scores	19	18
Improvement in Mean Scores	19	19.19
F's Pupils		
Improvement of Range Scores	16.00-20.00	16.00-32.00
Improvement of Inter-quartile Range Scores	14.92-18.67	23.00-29.00
Improvement of ± 1 Sigma Range Scores	16.32-17.96	19.88-26.48
Improvement in Median Scores	17	19
Improvement in Mean Scores	17.14	24.18

sections were much more alike as revealed by intelligence quotients. The ratio between pupils of high and low I.Q. was 57-43 in the drilled and 68-32 in the undrilled sections as compared with 55-45 and 82-18 in F's classes. The other factor was the time at which the two teachers' classes were taught. A's classes ran from 11 A. M. to 12 o'clock noon, and from 1:15 P. M. to 3:15 P. M. The time factor should not affect these results to any great extent. F's classes were taught at the extreme ends of the day. The drilled class met from 9 to 10 A. M. and the undrilled from 3:15 to 4:15 P. M. It is probable that the first hour class was at a disadvantage over the other, especially on Mondays and on days after holidays. These factors may have affected the results.

Because of the great difference in abilities of pupils in the different sections, a comparison between pupils of equal ability was deemed necessary. Therefore the pupils of each teacher in the drilled and undrilled sections were paired according to I. Q. and scholastic averages. These pairings with scores are found in Table 22 and Table 23.

A comparison of the progress made by the twenty-seven pairs of drilled and undrilled pupils bears out the conclusion that drilling them in the modern history vocabulary did little to improve their mastery of the subject matter (Table 24).

The difference in the amount of progress made by A's and F's paired groups were almost identical with the difference shown in comparing all of their drilled and undrilled pupil. This difference is shown in Table 25.

Table 22

Scores of Paired Pupils in A's Drilled and Undrilled Modern History
Classes Based on Pretest and Retest in Achievement
and Vocabulary Tests

Pupil	I.Q.	Scholastic Average	Achievement		Vocabulary	
			Pretest	Retest	Pretest	Retest
A. Drilled	120	3.0000	29	48	83	84
A. Undrilled	118	3.2500	13	45	80	87
B. Drilled	116	2.5000	20	36	78	80
B. Undrilled	115	2.2500	38	56	77	81
C. Drilled	107	3.5000	19	30	60	62
C. Undrilled	105	3.8571	13	35	71	65
D. Drilled	107	3.2500	32	56	85	86
D. Undrilled	106	3.2500	25	49	74	81
E. Drilled	105	3.2500	20	32	38	69
E. Undrilled	105	3.3750	19	50	69	79
F. Drilled	104	2.5000	24	53	68	80
F. Undrilled	104	2.1250	20	43	70	82
G. Drilled	103	3.5000	29	40	68	73
G. Undrilled	104	3.3750	33	34	68	78
H. Drilled	101	4.1250	22	44	62	71
H. Undrilled	100	3.7143	31	30	65	59
I. Drilled	100	3.2500	12	35	74	82
I. Undrilled	100	3.2500	10	27	72	71
J. Drilled	99	2.7500	35	59	74	82
J. Undrilled	101	2.5556	45	66	92	95
K. Drilled	99	3.8750	15	37	65	60
K. Undrilled	98	3.8571	23	41	53	59
L. Drilled	94	3.6250	27	42	59	72
L. Undrilled	93	3.8750	14	36	57	62
M. Drilled	93	3.5000	25	47	64	78
M. Undrilled	93	3.5000	21	45	52	60
N. Drilled	87	3.8671	25	29	61	63
N. Undrilled	88	3.7500	34	38	60	71

Table 22 (Continued)

Pupil	I.Q.	Scholastic	Achievement		Vocabulary	
		Average	Pretest	Retest	Pretest	Retest
O. Drilled	86	3.7500	15	44	68	66
O. Undrilled	88	3.6250	23	34	51	61
P. Drilled	86	3.7778	15	33	51	58
P. Undrilled	85	4.1677	30	41	58	55

Table 23

Scores of Paired Pupils in F's Drilled and Undrilled Modern History
Classes Based on Pretest and Retest in Achievement
and Vocabulary Tests

Pupil	I.Q.	Scholastic	Achievement		Vocabulary	
		Average	Pretest	Retest	Pretest	Retest
Q. Drilled	120	3.5000	14	47	78	88
Q. Undrilled	120	3.2500	22	39	86	88
R. Drilled	115	2.4445	38	44	86	82
R. Undrilled	114	2.5000	16	39	85	88
S. Drilled	109	2.3750	37	48	86	88
S. Undrilled	108	2.1250	16	49	78	86
T. Drilled	109	2.1875	27	49	86	92
T. Undrilled	107	2.0000	13	46	73	78
U. Drilled	118	2.0000	48	68	93	94
U. Undrilled	118	2.0000	24	55	82	84
V. Drilled	106	2.0000	26	60	86	87
V. Undrilled	107	2.0000	19	43	80	---
W. Drilled	105	4.0000	36	39	68	66
W. Undrilled	106	4.1429	24	49	70	82
X. Drilled	100	3.3750	28	38	73	83
X. Undrilled	100	4.0000	29	37	57	69
Y. Drilled	98	3.6250	26	34	68	73
Y. Undrilled	98	3.6667	16	22	63	69
Z. Drilled	94	3.5000	22	43	69	81
Z. Undrilled	93	3.6250	24	30	56	57
&. Drilled	90	4.0869	25	33	67	73
&. Undrilled	91	4.0000	6	29	55	47

Table 24

Comparison of Improvement in Scores of Twenty-Seven Pairs of Drilled
and Undrilled Pupils in an Achievement Test Given Eighteen
Weeks Apart in the Jamestown Senior High School

Criteria	Drilled	Undrilled
Improvement in Range Scores	17.00-20.00	16.00-21.00
Improvement in Inter-quartile Range Scores	15.00-19.00	18.00-25.00
Improvement in ± 1 Sigma Range Scores	16.13-18.63	17.80-19.46
Improvement in Median Scores	18	19
Improvement in Mean Scores	17.38	18

Table 25

Comparison of Improvement in Scores of Sixteen Pairs of Drilled and
Undrilled Pupils in A's Sections as Compared with Improvement
in Scores of Eleven Pairs of Drilled and Undrilled Pupils
in F's Sections in an Achievement Test Given Eighteen
Weeks Apart in the Jamestown Senior High School

Criteria	Drilled	Undrilled
A's Pupils		
Improvement in Range Scores	17-21	17-21
Improvement in Inter-quartile Range Scores	17-19.5	18-15
Improvement in Median Scores	18	18
Improvement in Mean Scores	19.6	17.4
F's Pupils		
Improvement in Range Scores	19-20	16-26
Improvement in Median Scores	17	20
Improvement in Mean Scores	16.1	20.8

Accounting for the different results in the two teachers' classes is further complicated by the fact that A's drilled pupils had an average score in the pretest of almost three less than those in the undrilled group while in F's sections, the undrilled pupils averaged ten less than the drilled. This may mean that pupils in sections with

a lower average pretest score had more room for improvement and therefore A's drilled group showed a very slight advantage over the undrilled, while F's undrilled group made much more progress than the drilled.

There seems to be only one conclusion to be drawn from the above data. Drill in modern history vocabulary as conducted in this experiment did not materially help the pupils in the Jamestown Senior High School to master the subject matter. The reason for this may be the fact that the setup was not as scientifically perfect as it should have been and that the drill procedure was faulty. It is probable that the forty minutes a week used in giving the four ten minute drill tests on vocabulary would have given better educational results if used in the regular discussion of the subject matter. It is probable that the results would have been different if instead of giving a daily drill test, one preview test of the new words to be met during the week had been given on Monday and then emphasis had been placed on the most commonly missed words during the rest of the week as they showed up in the regular class discussion.

Improvement of Drilled and Undrilled Pupils in Vocabulary Ability

Did the drill in the modern history vocabulary as carried on in this study aid the pupils in mastering the vocabulary itself? These results are different from that of improvement in achievement. The pupils in the drilled sections made a little more progress than those in the undrilled. This was so whether comparing all or paired pupils in the two kinds of sections, or in comparing the results under the two different teachers. The amount of improvement made by the

paired and unpaired pupils is shown in Table 26 below. The increased progress made by the drilled group was not impressive. It is probable that the method of giving the drills was faulty as carried out in this

Table 26

Comparison of Improvement in Scores Received in Vocabulary Ability Tests in Modern History Given to Five Sections of Pupils in the Jamestown Senior High School at the Beginning and End of an Eighteen Week Period

Criteria	Drilled	Undrilled
All Sophomores		
Improvement in Range Scores	6-1	(-4)-2
Improvement in Inter-quartile Range Scores	5.5-7	4-4
Improvement in ± 1 Sigma Range Scores	5.17-5.27	5.5-5.1
Improvement in Median Scores	8	8
Improvement in Mean Scores	5.22	5.33
Twenty-Seven Pairs of Pupils		
Improvement in Range Scores	20-1	(-4)-2
Improvement in Inter-quartile Range Scores	6-1	4-5
Improvement in ± 1 Sigma Range Scores	8.05-3.29	3.42-5.82
Improvement in Median Scores	12	5
Improvement in Mean Scores	6	4.52
A's Sixteen Pairs of Pupils		
Improvement in Range Scores	20-1	4-3
Improvement in Inter-quartile Range Scores	4-5.5	3-6.67
Improvement in ± 1 Sigma Range Scores	9.06-4.24	4.77-6.11
Improvement in Median Scores	5.25	2.5
Improvement in Mean Scores	6.65	5.44
F's Eleven Pairs of Pupils		
Improvement in Range Scores	7-1	(-8)-2
Improvement in Median Scores	5	8.5
Improvement in Mean Scores	4.9	4.3

study. As there seems to be a relationship between intelligence and vocabulary ability, it is probable that the undrilled sections, with a greater percentage of pupils with high I. Qs., were at a distinct advantage over those of the drilled groups. It is also probable that

the teaching done in the undrilled sections was more effective due to the fact that the pupils were more intelligent than in the others. This would affect the results of the paired pupils.

Conclusion

There seems to be a relationship between the ability to use the modern history vocabulary and scholastic averages. The relationship is about the same as that between vocabulary ability and I. Q. scores of the pupils. There is a relationship between the ability to use the modern history vocabulary and achievement in the same subject as revealed in a comparison of the scores made by the sophomores in the Jamestown Senior High School in vocabulary ability and achievement tests. The relationship between vocabulary ability and achievement was further shown in the comparison made between scores made by seniors of the Jamestown Senior High School in the vocabulary ability tests and the social science part of the Sones-Harry High School Achievement Tests.³ The value of a knowledge of this relationship to the teacher of modern history and the social sciences is that it will make him more conscious of the fact that helping the pupil to become proficient in the use of the vocabulary in the specific subject will make it easier for him to master the subject matter. It is necessary that the teacher recognize the mastery of the specific vocabulary of a subject as one of the objectives in teaching it, if the pupil is to get the most out of his study.

In the attempt to show the effects of drill in vocabulary upon the progress made in the mastery of the subject matter of modern

³Ibid.

history, this study shows that the drill as carried on in this study over a period of eighteen weeks, had little effect upon the results. While it will be granted that possibly the drill in vocabulary had little beneficial effect on the progress of pupils in the mastery of the subject matter due to the fact that time taken for drill might better have been spent upon the subject matter itself, it is probable that two factors contributed to the negative results of this experiment. First, the control sections were not properly controlled. They varied too much in ability. The time of the day in which the sections met were too far apart. The setup was not scientific. Second, the drill procedure was faulty. It is probable that the results would have been different if the teachers had spent the ten minutes used in giving drill tests to emphasize the meanings and use of the difficult words as they came up in the discussion, and instead of giving four ten minute drill tests a week, only given one pretest at the beginning of the week to determine which words should be emphasized.

Drill in vocabulary did very little to improve the ability of pupils to use it. The most that can be said for the results of the drill work done in this study is that they were inconclusive. Further study would be necessary to arrive at a definite conclusion.

CHAPTER 8

SUMMARY AND CONCLUSIONS

There is a vocabulary peculiar to the high school subject of modern history. At the time of this study it consisted of 1988 words used with a frequency of from six to 2,390 times and found in at least six of the eight textbooks in modern history from which it was taken. This vocabulary was used with a frequency of 111,469 times in the eight books. There was a technical vocabulary of 7,519 words used 40,590 times in the eight textbooks. The estimated 1,463,511 other words in the eight textbooks were from the first three thousand in the Thorndike list and were words common to all subjects.

The vocabulary burden of the modern history textbooks varied greatly with the different authors. Some textbooks provided a heavy vocabulary burden due to their greater length and larger total number of running words. Some were more difficult due to the greater range of different words used. The vocabulary burden of some books was much greater due to the large number of difficult words per thousand running words. The vocabulary burdens varied greatly with the different book due to differences in the total and average weighted word values of the vocabulary used.

The vocabulary burden is greatest during the first nine weeks of the school year and becomes easier as the year progresses.

The great differences in the vocabulary burdens of the eight textbooks determine to a large degree the average daily vocabulary load the pupil will have to bear in the use of the different books. Some books are more suitable for pupils of low mental ability than

others. Some books are especially suitable for building large vocabularies among the stronger pupils. Some textbooks are more suitable as reference books than as regular texts for pupils of certain abilities.

A large percent of the modern history vocabulary was found to be common with that of American history. 1172 of the words were common to both vocabularies.

Vocabulary ability tests given to pupils in the Jamestown Senior High School revealed a great difference in the ability of the pupils to use the modern history vocabulary. The ability to use it increased with the number of years the pupils have been in high school. The greatest progress was made by the sophomores in the mastery of the modern history vocabulary. The least improvement was made by the seniors during an eighteen week period. The improvement made by the juniors would seem to indicate that ability to use the modern history vocabulary continues to grow in that year and that sophomores have not completely mastered it by the end of the tenth year in school.

There seems to be a relationship between ability to use the modern history vocabulary and intelligence. There seems to be a relationship between this same ability and achievement as revealed by correlations between vocabulary ability and scholastic averages, between the same factor and social science scores in the Sones-Harry High School Achievement Tests, and between the former and scores in modern history achievement tests.

Drill in the vocabulary of modern history as carried on in this study had little effect on improving the mastery of the subject

matter. This was probably due to the fact that the control sections were not properly controlled and faulty drill procedure. The drilled pupils in the sophomore class showed slightly more improvement in vocabulary ability than the undrilled. The conclusions of this part of the study are indecisive and more experimentation is necessary before making a definite statement concerning the results in achievement and mastery of vocabulary after an effective course of drill procedure for eighteen weeks.

Application of Principles Discovered

Since there is a vocabulary peculiar to modern history, teachers of this subject should know what it is. They should know what part of it is common to American history. They should be conscious of the differences in the vocabulary burden of the textbooks and reference books used. They should be conscious of the great range of abilities of their pupils to use the modern history vocabulary and the relationship between this ability and such factors as intelligence and ability to master the subject matter. If the teacher is conscious of these factors and tries to make use of them in doing a more effective job of teaching, it is probable that the following results can be expected.

First, pupils will be grouped in modern history classes not only according to their intelligence quotients but also according to how well they can handle the vocabulary "tool" as revealed by comprehensive, objective vocabulary ability tests. As there is a considerable relationship between ability to use the modern history vocabulary and achievement, considerable emphasis of the right kind will be given to helping the more retarded pupils to comprehend the words used in

in their textbooks. This will make the mastery of the subject matter easier and probably reduce the number of "flunks".

Second, pupils with a better mastery of the modern history vocabulary when they come into American history in the junior year will be at a distinct advantage over those who have not mastered it in the past. This may make it easier to get pupils interested in the subject matter and the problems that grow out of it because they will comprehend better what they are reading and also hearing.

Third, it is probable that a mastery of the modern history and American history vocabulary will make it easier to create in pupils a lifelong interest in things social, political, and economic. It is probable that the average person does not enjoy reading books, stories, articles, and the like that contain a large vocabulary he does not comprehend. If a better mastery of vocabulary will do this it will be a big step forward in the teaching of modern history, for one of the aims of teaching history is to create a lifelong interest in the social, political and economical world about the pupil and to get him to acquire habits that will make it easier for him to orientate himself to his social environment.

Fourth, teachers will probably suit the textbooks and reference books to the needs and abilities of the pupils who use them. Bright pupils with a highly developed ability to use the modern history vocabulary will be further stimulated by placing in their hands text and reference books that use a more difficult vocabulary. Pupils with a decided weakness both in mental and vocabulary ability will be "fed" from books with an easier vocabulary with the purpose in mind of help-

ing them to master the essential words only and not to discourage them by bringing them in contact with an overwhelming array of difficult words which they do not comprehend at all.

Fifth, teachers can use the modern history vocabulary lists in making out objective tests. The lists can be handed out to the pupils as minimum essentials in vocabulary.

Sixth, teachers will place more emphasis on vocabulary during the first part of the school year when the burden is the greatest.

The results of this study suggest that while there seems to be a relationship between ability to use the modern history vocabulary and achievement in the subject matter, it is still necessary to find out what is the most effective way of teaching pupils to comprehend the words they meet in their study.

As the vocabulary burden of the eight textbooks was quite definitely determined according to the different criteria, it might be profitable to use these data in checking up on the reliability of some of the suggested shortcuts for determining vocabulary burden of textbooks that have been suggested by various research workers.

Another problem for investigation suggested by this study is an experiment to determine to what extent vocabulary ability or intelligence are the determining factors in achievement in a given subject. This could be probably done by having two control sections of equal size and ability and taught by the same teacher under relatively same conditions. One group could be taught by strict textbook method from a textbook using a relatively hard vocabulary. The other section could be taught by same method from manuscripts containing a

simple translation using simple words from the hard textbook. This could be carried out over a period of from six to eighteen weeks.

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APPENDIX A

Alphabetical Modern History Vocabulary List

This list contains all the words ranking four or more on the Thorndike scale and that were found in six or more of eight modern history textbooks with copyright dates of 1931 to 1935 inclusive, with the following exceptions.

First, names of peoples, races, nationalities, tribes, but not including creeds.

Second, words in a foreign language that are explained in the immediate text.

Third, hyphenated words both parts of which are in the first three thousand in the Thorndike list.

Fourth, all words in chapter summaries, introductions, prefaces, questions for discussion, and appendices.

Fifth, all words in full quotations like the Bill of Rights.

Sixth, words barred by use of Thorndike's rules for derivatives.

The number immediately following each word gives the rank of the word on the Thorndike scale. If no number follows the word, it is not in the Thorndike list.

The asterisk after certain words indicates that those words are also in the American history vocabulary.

The numbers in the column to the right of the words show how many times the word was used in the six or more textbooks in which it was found.

abandon 4	144	adventurer 10	44	appreciation 8	22
abbot 7	18	adventurous 7*	19	apprentice 9	45
abdicate 11	57	adviser 8	82	appropriate 7*	46
abdication 15	20	advisory 15	28	appropriation 8*	21
ability 4*	121	advocate 7*	170	approval 7*	67
abolish 5*	431	afflict 5	10	apt 5	8
abolition 8*	163	agency 5*	65	arbitrary 8*	76
absolutely 7	22	agent 4*	72	arbitration 11	100
absolutism	104	aggression 16*	75	archbishop 8	49
absorb 6*	47	aggressive 9*	65	archduke 17*	38
absurd 6	24	agitate 7*	28	architect 7	34
acceptable 9*	14	agitation 7*	175	architecture 7*	45
acceptance 6*	45	agitator 11*	34	ardent 8*	65
access 5	24	agreement 5	264	ardor 8	9
accession 14*	30	agricultural 4	157	argue 5*	51
accomplishment 9*	27	airplane	77	aristocracy 9*	154
accord 4*	29	alien 7*	44	aristocrat 8*	71
accordance 6	35	alienate 11*	12	aristocratic 7*	121
accumulate 8	27	allegiance 5	57	armada 9*	21
accurate 7	22	alliance 7*	515	armament 12*	135
accustomed 9	20	allied 6	303	armistice 14*	67
achieve 4*	132	allowance 7	17	arouse 5*	191
achievement 7*	104	ally 8*	798	arrangement 5*	143
acknowledge 4	41	alphabet 8	14	arrest 4*	71
acknowledgement 8	7	alternate 6	10	artificial 5*	42
acquisition 8*	54	ambassador 5*	93	artillery 7*	47
activity 7*	189	ambitious 4	105	artisan 9*	68
actor 5	8	amend 5*	33	artistic 5	31
actually 6	45	amendment 4*	64	ascendency 15	9
acute 7	31	ammunition 7*	25	aspect 5*	45
additional 5*	49	amusement 5	23	aspiration 8	41
adequate 8	44	anarchy 9*	70	assassin 10*	9
adhere 8*	15	ancestor 4*	62	assassinate 11*	50
adherent 13*	20	Anglican	94	assassination 10*	49
adjourn 9*	25	annex 7*	195	assault 4*	18
adjust 6	27	annexation 11*	131	assent 7*	29
adjustment 8*	14	annihilate 9*	22	assert 4*	90
administer 7*	75	announce 5	101	assignats	16
administration 5*	146	annoy 5	15	assistance 4*	76
administrative 13*	26	anticipate 7*	8	association 4*	114
admirable 6*	26	anti-clerical	39	assumption 8*	9
admiral 5*	19	apartment 5	7	assurance 5*	22
admiration 4*	34	apostle 9	10	astronomer 8	18
admirer 8	24	antiquated 12	9	astronomy 12	36
admission 5*	23	antiseptic 11	13	astute 17	9
adoption 5	74	anti-socialistic	14	asylum 10*	9
adorn 4	9	appal 7	11	atmosphere 5	28
adult 8	25	apparent 4*	89	atrocious 9*	16
advancement 6	12	appointment 4*	44	attendance 5	8
advantageous 11	15	appreciate 5*	26	attitude 5*	160

attract 4	39	blunder 8	23	catholic 4*	881
attractive 4*	16	Bolshevik (i) 18	90	catholicism 4	67
audacity 8	9	Bolshevism 18	32	cautious 6	23
audience 4*	14	Bolshevist 18*	154	cavalier 6*	21
auspices 13*	18	bolster 10	17	cavalry 10*	21
authorize 7*	56	bomb 9*	32	cede 10*	117
autocracy 16	288	bombard 12*	14	celebration 5	12
autocrat 12	71	bombardment 12*	14	cement 4	17
autocratic 15	174	bonfire 12	9	censor 13	22
automatic 7	35	borough 6*	80	ensorship 18	64
autonomous	18	boulevard 11	11	centralization 18*	16
available 8*	44	bounty 4	13	centralize 15*	60
avert 8*	13	bourgeois (ie) 12	258	ceremony 4*	40
avow 11*	170	boycott 16*	40	cession 14*	20
awaken 4	36	breach 6	18	challenge 6*	52
background 8	20	breakdown 14	14	champion 4*	124
bacteria 7	19	bribe 5*	23	chancellor 6*	141
ballot 8*	68	bribery 11*	27	chaos 6	45
bandit 9	15	brigand 14	10	chapter 4*	190
banker 5	85	brilliant 4*	131	characteristic 5*	74
bankrupt 8*	37	broaden 13	23	characterize 9*	37
bankruptcy 10	48	brotherhood 6*	26	charcoal 8	19
baptism 7	10	brutal 6*	38	charitable 7	15
Baptist 8*	16	budget 8*	81	charter 4*	106
barbarian 7	103	Buddhist 18	14	chartist 9	28
barbarous 5	38	bulk 4	67	chemical 8	35
baron 5	34	bullet 5*	15	chemist 8	26
barricade 15	50	bulwark 7*	14	chemistry 9	48
barrier 5*	59	bundesrat	33	cherish 5*	30
basis 4*	119	burdensome 13	20	chieftain 10*	23
Bastille 14	44	bureaucracy 20	14	chivalry 6	17
battlefield 10	17	cabinet 4	418	Christendom 10	34
battleship 10*	31	cable 4*	30	Christianity 11*	113
bayonet 7*	26	calculate 7	10	Christianize 15	9
beginning 5	313	Calvinism 15	36	circulate 8	18
behead 6	14	Calvinist 15	33	circulation 7*	26
belligerent 12*	33	campaign 4	174	citizenship 10*	29
beneficial 8*	20	cancel 8	31	civilian 16*	38
benevolent 16	46	candidate 4	104	civilization 7*	452
bequeath 7	12	canton 8	39	civilize 6*	162
besiege 5*	26	capacity 4*	38	clamor 4*	26
bigotry 15	9	capitalism 20	79	classic 4	32
billion 13	115	capitalist 9*	331	classical 7	43
biologist 15	11	capitalistic 18	35	clergy 8*	411
biology 7	12	cardinal 6	30	clergyman 7*	51
bishop 4*	293	career 4*	71	clerical 11	77
bishopric 14	11	cargo 4*	19	climax 8	19
bitterness 6*	35	caste 9	37	clumsy 8*	18
blockade 7*	93	catechism 10	10	coalition 15	128
bloodshed 9*	50	cathedral 4	36	code 8*	150

coerce 11*	16	confer 4*	40	convict 6*	27
collapse 8*	109	conference 4*	548	conviction 9*	38
colleague 8*	17	confident 5*	18	cooperate 9*	65
collective 14*	76	confine 4	62	cooperation 8*	132
collector 9	22	confirm 4*	59	cooperative 9*	68
colonial 5*	435	confiscate 8*	111	cope 7	15
colonist 4*	117	confiscation 15*	36	cordiale	20
colonize 17*	32	conflagration 11	11	coronation 8	9
colossal 7	17	conflict 4*	321	corporation 5	105
combat 4*	38	conform 8*	16	correspond 4*	42
commander 4*	41	confront 10*	51	correspondence 4*	15
comment 6	14	confuse 5	23	corridor 7	11
commissioner 4*	21	congregation 5*	10	corrupt 4	99
commodity 7*	61	conqueror 4	66	corruption 6*	70
commoner 14	39	conscientious 9*	12	corves 16	13
commons	293	conscious 4	22	counter 5	15
commonwealth 5*	82	conscription 18*	35	counter-revolution 20	14
communard 16	17	consequent 5*	120	countless 6	21
commune 6	77	conservative 7*	475	countryman 7*	24
communicate 6	25	considerable 4	155	coup d'etat 15	46
communication 4*	85	considerably 7	37	courageous 6*	19
communism 16	76	consideration 4*	46	courtier 4*	34
communist 15	254	consistent 8*	17	court-martial 19	11
community 4*	121	consolidate 9*	44	covenant 6*	80
compact 5*	24	conspicuous 6*	27	covet 5*	27
comparison 4*	33	conspiracy 5*	45	craft 5*	31
compensate 9*	24	conspirator 9*	22	creation 4*	81
compensation 8*	109	constitute 5*	74	creditor 6*	25
compete 8*	32	constitutional 8*	300	creed 8	18
competition 6*	107	construction 4*	54	criminal 5*	61
competitive 9*	9	consul 6*	60	cripple 4	28
competitor 8*	23	consume 4*	14	crisis 8*	156
completely 6	90	consumer 9*	16	critic 5	38
completion 10*	30	consumption 6*	26	critical 8*	58
complex 7	31	contemporary 7*	63	criticism 7*	61
complicate 8*	76	contempt 4	41	criticize 8*	47
comply 5*	10	contemptuous 7*	14	crude 6*	19
compose 4	160	contend 4*	20	cruelty 4	45
comprise 7*	51	continental 8*	158	cruiser 10*	27
compromise 7	93	continuous 4*	68	crusade 8*	64
compulsion 11	14	contrast 4	78	crusader 10*	16
compulsory 8*	97	contribute 5*	92	culminate 10*	26
concentrate 7*	43	contribution 7*	86	cultivation 7*	31
concert 4*	51	controversy 6*	45	cultural 14	45
concession 9*	160	convene 9*	15	culture 6*	129
conclusion 5*	65	convenience 5	19	cumbersome 15	8
concordat 16	47	convention 4*	259	curiosity 5	12
concrete 6	19	conventional 9	9	currency 7*	49
condemnation 8*	12	conversion 8*	24	customary 6	18
confederation 9*	223	convert 4*	133	cynical 9	17

dagger 6	10	destiny 5*	34	dispatch 7*	20
deadlock 9*	21	destructive 10*	47	disperse 4	24
decade 7*	123	detail 4*	42	displace 8*	44
decision 4*	78	determination 7*	50	disposal 6*	26
decisive 8	80	dethrone 10	14	dispossess 12	30
declaration 7*	184	devastate 10*	35	disregard 9*	41
decrease 4*	31	development 4*	382	disrupt 20	7
decree 4*	201	device 4*	78	disruption 18	9
dedicate 5*	16	devise 8*	55	dissatisfaction 12*	24
default 10	13	devotion 5*	37	dissatisfy 10*	37
defender 11	24	devour 4	10	dissension 7*	29
defensive 10*	51	devout 6*	24	dissent 9*	21
defiance 5*	24	dialect 7	20	dissenter 11*	41
deficit 16*	16	dictate 5*	54	dissolution 8*	36
define 7	42	dictator 11*	90	distinction 5*	70
definite 6	115	dictatorial	17	distinguished 11	61
definition 8	12	dictatorship	169	distract 5	26
degenerate 7	11	diet 5	87	distribute 5*	64
degrade 6	11	dignify 5*	14	distribution 5*	53
delegate 5*	158	dignitary 13	12	distrust 8	43
delegation 11*	38	dignity 4*	39	disturbance 6*	32
deliberate 6*	43	diminish 5*	19	disturber 19	11
deliberation 8	12	diphtheria 9	9	disunite 16	26
democracy 7*	673	diplomacy 13*	104	diverse 8	17
democrat 6*	91	diplomat 10*	86	dividend 7*	12
democratic 8*	577	diplomatic 13*	133	divorce 4	35
demolish 10	13	director 4*	21	doctrine 4*	300
demonstrate 6*	29	directory 13	74	document 6*	113
demoralize 16*	19	disappointment 4*	28	dogma 11	9
denounce 6*	89	disapprove 9*	12	dole 8	13
dependence 8*	17	disarm 7	22	domain 8*	45
dependency 10*	44	disarmament *	84	dome 4	13
dependent 7*	105	disaster 5*	63	dominant 7*	73
depose 7	58	disastrous 7*	48	dominate 10*	147
depreciate 10*	18	disband 9*	13	domination 10*	56
depression 7*	88	disciple 8	28	dominion 4*	253
deprive 5*	135	discipline 5*	82	doubtful 4	18
deputy 5*	202	disclose 5	11	doubtless 4	32
derive 4*	39	discontent 4*	180	downfall 8	32
descendent 7*	48	discourage 4	28	drama 5	36
descent 5	12	discredit 10*	47	dramatic 8*	56
designate 8	8	discuss 4	104	dramatist 11	14
desirable 5	31	discussion 5*	73	drastic 13*	33
desolate 4	20	disestablish	22	dual 10	73
desperate 4*	109	disestablishment	10	duchy 17	102
despite 4*	68	disgust 5*	30	duel 8*	15
despot 8	98	dislike 5*	64	Duma 19	84
despotic 9*	109	dismissal 10	14	dwindle 6	11
despotism 10	108	disorder 5*	62	dye 4	10
destine 4*	35	disorganize 12	25	dynamo 11	19

dynastic 20	20	empower 8	9	evacuate 14*	24
dynasty 9*	98	empress 6	33	evacuation 14*	11
earnestness 10-	9	enable 4*	177	eventual 8*	18
ecclesiastical 13	34	enact 7*	59	evidence 4	49
eclipse 6	15	enactment 14*	7	evolution 9	44
economic 9*	742	encouragement 8*	29	evolve 14	14
economical 8	59	endanger 12*	30	exaggerate 7	14
economist 8	63	endeavor 4*	57	exalt 4	31
economy 7*	29	endow 5*	18	excellence 7	9
edict 4	52	energetic 8*	23	exception 4*	71
edit 13	14	energy 4	124	excess 4	24
edition 6	14	enforce 5	145	excessive 5*	31
editor 8*	22	enforcement 12*	140	excitement 5*	40
educational 8	66	enfranchise 10	26	exclude 7*	99
effective 7*	184	engagement 5*	13	exclusion 9*	24
efficiency 9*	49	engineer 4*	80	exclusive 4*	58
efficient 8*	88	enlarge 4*	92	execute 4*	86
eighteenth 6	461	enlighten 7*	114	execution 5*	77
elaborate 7*	53	enlightenment *	27	executioner 10	7
elective 15*	36	enlist 6*	23	executive 5*	167
elector 8*	73	enrage 6	15	exempt 6*	25
electoral 11*	54	enrich 5*	38	exemption 13*	18
electorate 20	14	enroll 6*	19	exhaust 4*	61
electrical 6	15	enslave 10	26	exhibit 4	16
electricity 7	58	entangle 6*	8	exile 4*	198
elementary 7	61	entanglement 15	10	exist 4	329
eligible 13	14	entente 18	120	existence 4*	208
eliminate 7*	29	enterprise 5*	162	expand 6*	62
eloquence 5*	22	entertainment 5	13	expansion 7*	152
eloquent 7*	37	enthusiasm 5*	115	expedient 7*	9
emancipate 11*	15	enthusiastic 6*	66	expedition 4*	99
emancipation 9*	70	enthusiastically 18	20	expeditionary 20	15
embark 7*	23	entirely 7	202	expel 5*	85
embitter 10	20	entitle 4*	46	expenditure 8	55
embody 7*	40	envicious 5	8	expensive 4*	58
emerge 6*	53	epidemic 8	15	experiment 5*	170
emergency 7*	17	epic 9*	20	experimentation 18	16
emigrant 9*	67	equality 6*	240	expert 4*	91
emigrate 9*	24	equip 5*	48	expire 4*	15
emigration 10*	29	equipment 6*	42	explanation 5*	54
emigre	45	equitable 13	15	explode 8	11
eminent 6*	21	equivalent 7*	26	exploit 5*	56
emotion 5*	29	era 8*	100	exploitation 17	13
emotional 12	14	espouse 7	15	exploration 5*	52
emphasis 7*	26	essay 6*	20	explorer 7*	37
emphasize 8*	41	essential 5*	142	explosion 8*	15
emphatic 10	9	establishment 5*	199	explosive 8	16
employee 4*	60	estates-general	39	export 5*	108
employer 7*	202	estimate 4*	81	exposition 8*	10
employment 5*	70	Europeanize 4	14	expression 5*	81

expulsion 12*	20	formulate 9	30	guarantee 5*	172
exquisite 5	9	fortification 9*	21	guardian 5*	11
extension 5*	98	fortify 6*	31	guerilla *	11
extensive 5*	62	fortress 4*	58	guidance 9*	30
extent 4	95	foster 5*	74	guild 9	192
external 8*	17	founder 4*	27	guillotine 15	57
extraordinary 4	55	fourteenth 9	39	gunpowder 6	19
extravagance 11*	22	fraction 5	20	habeas corpus *	22
extravagant 7*	27	franc 10	39	hamper 8*	32
faction 6*	73	franchise 11*	81	handful 4	18
factor 7*	69	fraternity 8	60	handicap 8*	30
failure 5	203	freeman 5*	13	handicraft 15	22
fanatic 9*	15	friar 5	24	harmonious 7	17
fanatical 15	22	friktion 7*	37	harsh 4	46
farce 7	10	fringe 4	14	hatred 4*	80
fascism	39	frontier 6*	210	headquarters 5*	18
fascist	182	fruitful 4	15	headway 15	18
fateful 20*	10	fruitless 7	10	heathen 4	26
fatherland 13	29	fulfill 4	23	helpless 4	35
federal 5*	196	fulfilment 11	8	hemisphere 6*	17
federate	29	function 5*	47	hereditary 8*	114
federation 8*	123	fund 4*	29	heresy 8*	29
fertile 4*	64	fundamental 7*	117	heretic 8	39
fertilizer 6*	17	gallant 4	29	heritage 7*	27
fervor 8	15	gallery 4	26	heroic 4*	57
festival 4	15	garrison 6*	50	hesitate 5*	26
feudal 8*	252	gateway 6*	9	highway 4*	23
feudalism 18	98	generosity 7*	12	historian 7*	79
fief 15	30	genial 4	9	historic 5*	48
fifteenth 5	71	genius 4*	133	historical 7*	51
figurehead 19	19	genuine 5	26	hitherto 5	40
filibuster	7	geographical 8*	66	hopeless 4*	48
finance 7*	128	geography 4*	34	horde 9	8
financial 5*	211	germ 6	36	horrify 12	12
financier 10*	17	gigantic 7*	39	horror 4	35
foil 5	14	Girondist	55	horseless	6
follower 4	81	goal 4	32	hostile 5*	169
foodstuff 9*	33	gospel 4	24	hostility 8*	105
foothold 12*	19	Gothic 6	18	householder 18*	13
footstep 4	13	governmental 12*	33	Huguenot 10*	99
forbade 8*	54	governor-general	130	humane 7*	41
forbidden 4	76	grandson 7*	44	humanitarian	38
forcible 7*	17	grasp 4	12	humanity 5*	62
foreigner 4	135	gratify 7*	20	humiliate 9*	53
foremost 4*	26	gratitude 4*	15	humiliation 10*	27
foresee 5*	21	gravitation 9	16	ideal 4*	210
forge 4*	7	greatness 4	29	idealism 12	16
formal 6*	51	greed 16	24	idealist 18	30
formation 6*	77	grievance 7*	61	identify 8	19
formidable 7	28	grumble 5	8	idol 4	14

ignorance 4*	44	indirect 7*	78	intensify 12*	28
ignore 11*	66	indispensable 8*	16	intensive 16	7
illegal 9*	38	induce 4*	73	intention 4*	50
illiteracy 17	25	industrial 9*	733	interallied	9
illiterate 10*	27	industrialize	30	intercourse 7*	29
illustrate 5	43	industrious 4*	28	interfere 6*	138
illustration 6*	32	ineffective 12	7	interference 7*	88
imaginary 7	7	inefficiency 12	19	interior 4	64
imitate 4	56	inefficient 15*	40	internal 5*	103
imitation 8	14	inequality 11	39	international 8*	699
immigrant 7	41	inevitable 5*	80	interpret 5*	29
immigration 11*	39	infantry 10*	18	interpretation 7*	16
impartial 7*	30	inferior 4*	44	interruption 9*	14
impatient 5	10	infinite 4*	17	interval 5*	28
imperial 4*	229	inflict 5*	48	intervene 8*	89
imperialism 13*	159	influential 12	102	intervention 12*	105
imperialist 16	43	ingenious 6*	21	intimate 5*	21
imperialistic	58	inhabit 4*	86	intimidate 15*	22
impetus 11*	28	inhabitant 5*	200	intimidation 17*	10
implement 5*	11	inherit 4*	63	intolerable 8	17
importation 10*	30	inheritance 5*	48	intolerance 13*	29
impose 4*	129	initiate 11*	28	intrigue 9*	51
impoverish 10*	18	initiative 8*	34	introduction 6*	79
impregnable 12*	9	injustice 6*	42	invade 4*	151
impress 5*	41	inland 5*	18	invader 8*	53
impression 4*	32	innumerable 6*	27	invasion 7*	146
impressive 8*	16	inquiry 5	19	inventor 6	58
imprison 5*	108	insane 8*	10	invest 5*	73
imprisonment 6*	64	inseparable 7	8	investigate 6	36
improvement 4*	179	insistence 11*	21	investigation 6*	44
impulse 7*	25	insistent 12*	15	investment 7*	85
inadequate 9*	10	insolent 8	13	invoke 9	9
inaugurate 9*	25	inspiration 5*	35	involve 4*	147
incapable 8	12	inspire 4*	92	irony 12	7
incentive 9*	14	installment 8*	22	irresponsible 13*	13
incessant 7*	18	institute 4*	29	irrigation 7	21
incident 5*	14	institution 4*	318	isolate 7*	42
income 5*	88	insufficient 10	10	isolation 10*	22
incompetence 19	17	insular 16	8	Jacobin 18	109
incompetent 14*	25	insult 4*	35	jealousy 4	40
incorporate 8*	32	insurance 5*	121	Jesuit 12*	33
increasingly 19	21	insure 7	71	journal 5*	27
incredible 7	18	insurrection 7*	99	journalist 17	31
indefinite 8*	19	intact 11	11	judicial 14*	29
indemnity 11*	165	integrity 7*	34	judiciary 16*	9
independence 4*	452	intellect 8*	16	jungle 9	8
indifference 7	16	intellectual 7*	136	junker	32
indifferent 7	23	intelligence 4*	80	jurisdiction 9*	33
indignant 6	22	intelligent 5*	80	jurist 18	9
indignation 4*	28	intense 6	72	jury 6*	39

justification 9*	21	locality 7	23	merge 9*	27
justify 4*	82	locomotive 5*	52	Methodist 12*	15
kaiser 12	98	logical 12*	25	microscope 7	18
khedive	29	loom 5	57	middleman 18	8
kinsman 6	8	loot 13	14	migrate 7*	21
kulturkampf	15	loyal 4*	84	migration 9*	16
label 5	8	loyalty 5*	104	mikado	19
laboratory 8	34	Lutheran 12	44	militant 14	14
laborer 5	236	Lutheranism	26	militarism	98
laborite	16	luxurious 7	10	militaristic	19
laborious 10	10	magazine 4*	12	militia 7*	14
laissez faire	40	magistrate 4*	19	millstone 7	8
landlord 8*	197	magna carta	31	mineral 4*	32
landowner 19	82	magnify 5	10	minimum 3*	24
landscape 5	12	mainland 8*	31	ministry 6*	342
launch 5*	17	maintenance 8*	34	minor 8	28
lavish 5*	15	management 5*	81	minority 8*	113
layman 8	17	manager 6*	22	mir	9
leadership 7*	205	mandate 11*	54	miracle 4	13
lease 7	22	mandatory	30	miserable 4*	30
lecture 4	18	manhood 5*	100	misfortune 5*	20
legal 5*	157	manifesto 16	48	misrule 15	12
legalize 17*	18	manor 10*	56	mission 5*	47
legend 5	24	manual 8	12	missionary 6*	135
legion 4	15	manufacturer 5	150	mixture 4	21
legislature 14*	9	manuscript 7	21	mob 5	126
legislation 7*	230	marine 6*	33	mobilization	38
legislative 9*	138	mariner 5*	24	mobilize 18*	49
legislature 5*	247	maritime 8*	24	moderation 7*	27
legitimate 8*	32	marshal 5*	14	modernize 15	15
legitimatist	16	martial 6*	15	modification 12*	41
leisure 5*	24	martyr 5	20	modify 9*	61
lessen 5	40	marvel 4	11	Mohammedan 11	90
lesser 6	20	massacre 8*	75	momentous 12*	23
levy 6*	113	masterpiece 7	24	monarchist	110
liable 6*	16	mastery 10	23	monarchy 7*	543
liberal 4	841	mathematical 11	13	monastery 9	60
liberalism 18	100	mathematics 6	30	monastic 9	13
liberate 8	26	maximum 9*	27	monk 5	63
liberation 12*	55	meanwhile 4	21	monopolize 19*	29
liberator 16	25	mechanic 4	27	monopoly 7*	114
license 4*	22	mechanical 7*	37	monotonous 8	12
lieutenant 4*	18	mechanism 8	9	morale 18	17
likewise 4	29	medical 5	34	morality 8*	34
limitation 8*	47	medieval 11*	211	mortgage 6*	19
literal 7*	21	membership 7*	64	movable 6	10
literary 5*	71	memorable 8*	19	mule 4	11
literature 4*	215	menace 8*	63	municipal 10*	41
livelihood 8*	19	mercenary 8	13	munition 10*	82
loan 7*	113	merciless 6*	12	museum 4	25

mutiny 7*	45	operate 5	69	paralyze 8*	19
mutual 4*	55	operative 14*	15	parish 6*	56
muzzle 5	15	opium 7	30	parliament 4*	1667
Napoleonic 15	84	opponent 7	101	parliamentary 12*	201
nationalism 19*	291	opposition 5*	337	partial 5	58
nationalist	216	oppress 4*	75	participate 7	25
nationalistic	28	oppression 5*	57	participation 9*	32
nationality 8*	189	oppressive 10*	25	partisan 8*	8
nationalize *	20	oppressor 8	18	partition 7	127
naval 7*	236	orator 6*	46	partnership 9*	8
navigation 7*	53	orbit 8	14	passive 8	18
navigator 8*	16	organism 7	11	patent 5	22
Nazi	104	organization 5*	344	patriot 5	157
necessitate 8	7	organize 4*	447	patriotic 6*	145
needless 5	20	organizer 17	47	patriotism 7*	169
negotiate 8*	54	Oriental 6*	56	patron 4*	15
negotiation 7*	84	origin 5	82	patronage 8*	13
nephew 4	20	originate 8*	34	pauper 13	13
network 8	21	Orleanist	29	peaceable 6	20
neutral 8*	154	orthodox 9	55	peasant 4	771
neutrality 11*	88	outbreak 8*	75	peasantry 11	85
neutralize 8	15	outburst 13*	20	penal 12	31
nevertheless 4	18	outcome 10*	72	penalty 7*	49
nickname 11	12	outlaw 10	38	penetrate 13*	45
nihilist	22	outlet 4	32	penetration 13	22
nineteenth 8	445	outlook 11	32	peninsula 5*	138
nobility 5*	177	outnumber 12*	36	pension 6*	86
nobleman 6	63	output 8*	35	per cent 7	133
nominal 9*	63	outrage 6*	28	perfection 4	14
nominate 8*	17	outright 10	20	peril 4*	35
nomination 6	7	outset 14	20	permanent 4*	188
normal 5	15	outstanding 14*	51	permission 4	23
notable 5*	115	outward 4	15	perpetual 4*	28
notorious 7*	18	overawe 14	21	persecute 5*	48
novel 5	46	overrun 9	33	persecution 6*	94
novelist 10	34	oversea 10	52	persist 6*	36
oath 7*	53	overshadow 10*	19	persistent 8*	23
obedience 4*	44	overthrow 4*	283	personality 7*	37
objection 5*	19	overturn 5	41	petition 5*	100
obligation 5*	87	overwhelm 5*	129	petty 5*	71
obscure 5*	19	ownership 9*	101	phase 10	44
observation 4	31	pacifist *	17	philosopher 4*	143
observer 8	26	pact	76	philosophy 4*	112
obstacle 5*	72	pagan 8	14	phrase 4	45
obstruct 8*	15	pamphlet 8*	44	physical 5	67
obvious 7*	60	panic 7*	35	physics 13	39
occasional 4*	54	papacy 15	41	picturesque 5*	22
offender 6*	21	papal 9	134	pilgrim 4*	16
offensive 7*	64	parade 5	20	pillage 9	19
oligarchy 19	28	parallel 4*	38	pillar 4	7

pilot 6*	9	prevalent 7	15	pursuit 4*	25
pioneer 5*	53	prevention 8	15	pyramid 7	24
pious 4	18	previous 4	92	quaker 8*	19
pirate 6*	15	pre-war 14	16	qualification 8*	53
planet 4	42	primarily 11	40	quicken 4	8
plantation 5*	27	primary 5*	27	racial 10	91
platform 4*	25	prime 4*	166	radical 7*	416
plebiscite 17	65	primitive 7*	51	radicalism 16	15
plentiful 5	13	principality 8	54	radio 11	44
plight 5	17	procedure 9*	18	raid 8*	9
plunder 5*	46	proceedings 13	20	raider 19	8
poetry 4	15	procession 4*	24	rally 8	47
police 4	66	proclamation 7*	31	rapidity 7	24
policeman 5*	15	producer 10	21	ratification 12*	28
political 4*	1199	production 5*	226	ratify 8*	83
politician 8*	54	productive 8*	27	ratio 7*	10
politics 9*	227	profession 5*	33	ravage 8*	14
poll 4*	32	professional 7*	66	reaction 9*	100
polygamy 15*	9	profitable 5*	64	reactionary 11	137
populace 9*	19	profound 5*	77	reaffirm	7
popularity 8*	48	program 5*	185	reality 5*	24
populous 8*	26	progressive 6*	123	realization 9	13
portrait 9	12	prohibit 5*	69	reaper 8*	11
portray 9*	28	prohibition 7*	31	reasonable 4	43
pose 9	17	project 5*	50	rebellion 5*	157
positive 5	9	proletariat 16	58	rebellious 6*	33
possibility 5	52	prominent 4*	102	rebuild 7	14
postal 5*	31	promote 6*	130	recapture 13*	6
postpone 9*	22	promotion 6*	21	reckless 8*	19
powerless 9*	8	propaganda 11*	107	reckon 4	15
practicable 10	12	prophecy 5*	19	recognition 8*	48
precaution 8*	8	proposal 7*	140	recommendation 5*	33
precede 6*	112	proprietor 7*	43	reconcile 4*	37
precedent 7	35	prosper 4	25	reconciliation 9*	31
precipitate 7	19	prosperity 4*	165	reconstruct 11*	15
precise 6*	28	protective 11*	76	reconstruction 9*	29
predecessor 7*	44	protector 6	41	recovery 8	36
predominant 10	26	protectorate 14*	106	recruit 7	32
prefect 20	11	protest 4*	139	redeem 4*	12
preference 7*	15	Protestant 7*	415	redemption 9*	7
prejudice 6	51	Protestantism 16	66	rediscover 20	8
preliminary 6*	16	provincial 10*	45	reduction 5*	69
premier 11*	99	provisional 19*	119	reelect 14*	16
Presbyterian 9*	63	publication 6*	28	reestablish 10*	43
preservation 8	21	publicity 9*	14	reestablishment	9
preside 5*	29	puppet 13	12	reference 5	30
presidency 9*	43	purge 5	16	referendum 11*	58
pressure 5	27	purify 6	12	reflect 4*	33
prestige 12*	90	Puritan 6*	163	reform 4*	1139
pretense 5*	14	Puritanism *	19	reformer 11*	114

reformation 8*	88	resignation 8*	16	sanction 7*	46
refugee 9*	16	resist 4*	46	sanitary 6*	18
refusal 8*	38	resistance 7*	108	sanitation 8*	23
regain 4	41	resolute 4*	25	satisfactory 5	19
regent 8	12	resolution 5*	56	scandal 6*	25
regime 11*	175	resource 6*	179	scanty 5	16
regiment 6*	42	respectable 7*	14	scheme 4*	118
regularity 10	11	respective 5*	47	scholar 4*	80
regulate 5	52	response 5*	16	scholarship 12	21
regulation 6*	83	responsible 6*	259	scientific 7*	235
reich	21	responsibility 8*	80	scientist 7*	181
reichstag	194	restoration 7*	117	scope 7*	10
reinforcement 12*	19	restraint 5*	17	scourge 4	11
reject 4*	102	restrict 10*	101	scramble 6	21
relationship 8	21	restriction 8*	128	scrap 4	16
relatively	30	resume 4*	22	scruple 6*	10
relax 7*	15	retirement 8*	11	sculptor 8	20
relic 5	7	revenue 5*	89	scythe 8*	6
reluctant 7*	25	reverse 4*	28	seaport 6*	20
remnant 4*	22	revise 7*	52	secede 11*	18
remote 4	38	revision 10*	27	secession 13*	19
removal 8	24	revival 9*	86	secondary 7	31
Renaissance 11*	108	revive 4*	81	sect 6*	42
renewal 9*	17	revoke 9*	13	secular 8	20
renounce 5*	43	revolt 4	391	security 5*	101
reopen 10	14	revolution 4*	2390	seethe 8	16
reorganization 14*	38	revolutionary 7*	442	seizure 9*	39
reorganize 11*	77	revolutionist 12*	167	selection 6	16
reparation 13*	161	revolutionize 12*	44	self-determination 18	90
repay 4	9	revolve 5	31	self-governing	46
repeal 7*	61	ridicule 8*	29	self-government 18	175
replace 5	120	ridiculous 6*	18	selfish 4	69
representation 5*	130	rifle 5	11	selfishness 9	13
repress 9	20	riot 4*	94	senator 4*	20
repression 10	50	rioter 14*	7	sensible 4	9
repressive	27	rivalry 9*	167	sentiment 5*	160
reproduce 7	8	robbery 6	13	sentimental 8	14
republican 4*	444	romance 6	21	separation 5*	77
republicanism	17	romantic 6*	40	separatist 18*	23
repudiate 13*	51	rotation 7*	16	serf 8*	152
repulse 8*	24	roundhead	15	serfdom 18	91
reputation 4*	45	rouse 4*	42	series 4	170
requirement 7	19	rout 6	22	session 6*	83
research 9	32	royalist 15*	109	setback	17
resemblance 8*	11	royalty 7	15	seventeenth 10	304
resemble 4	22	rumor 4*	21	severity 7*	17
resent 7*	53	ruthless 8*	76	shackle 9	11
resentment 8*	29	sacrament 10	12	sham 9	9
reservation 7*	26	safeguard 8*	80	shilling 7*	17
reside 4*	16	salvation 5*	35	shipbuilding 18*	12

shipyard 13	9	stage-coach 17*	12	suppress 5*	300
shoemaker 4	17	stagger 4*	17	suppression 11*	50
shogun	23	startle 4	22	supremacy 9*	92
shopkeeper 12	38	starvation 8*	56	supreme 4*	187
shorten 6	8	statement 4	61	surgeon 7*	11
shrewd 5*	64	statesmanship 13*	25	surgery 8	19
shuttle 11	16	stationary 7*	19	surpass 5*	42
siege 5*	41	status 11*	30	surplus 7	65
signal 4	38	statute 6*	24	surrender 4*	154
signature 5*	14	steamboat 6*	48	survival 10	18
significance 7*	38	steamship 6*	61	survive 5*	76
significant 8*	60	stifle 6	17	suspect 4*	60
simplicity 4*	17	stimulate 7	68	suspend 5*	48
Sinn Fein	35	strategic 14*	36	suspicion 5	50
situation 4*	291	strategy 12*	15	suspicious 6*	20
sixteenth 8	158	strengthen 4	170	sustain 4*	14
skillful 4*	31	strenuous 7*	24	swamp 4*	19
skyscraper 11	9	strict 4	26	symbol 4	58
slaughter 4*	36	stronghold 10*	23	sympathetic 8*	18
slavery 5*	78	structure 7	29	sympathizer *	14
slogan 15*	32	stubborn 4*	36	syndicalist	14
smelt 6	19	stupid 4	25	systematic 10*	23
smuggle 9*	34	subdivide 13	9	systematical	12
socialism 12*	264	subdivision 12	14	tactics 10*	18
socialist 9*	676	submarine 9*	141	taille	11
socialistic 17	62	submerge 7	14	talent 4*	19
solar 9	14	submission 7*	23	tangle 8	14
solution 5*	78	subordinate 9*	55	tariff 7*	275
sovereign 4*	265	subsequent 6*	34	taxation 7*	137
sovereignty 7*	106	subsidy 13*	22	taxpayer 16*	22
soviet 19	275	substantial 4	38	technical 7*	42
span 5	8	substitute 4*	79	teen 7	10
specie 20*	22	succession 5*	115	telegraph 4*	124
specific 7	20	successive 5	22	telescope 8	21
specify 12*	19	successor 6*	121	temporal 8	36
spectacle 4	14	sue 6	15	temporarily 19*	30
spectacular 12*	21	suffrage 7*	314	temporary 5*	59
speculation 8*	26	suffragette	10	tenant 5*	65
spindle 5*	21	suggestion 6*	46	tendency 6*	74
spinner 15	21	suitable 4*	14	tenement 7*	11
spiritual 4*	54	sultan 8	139	tennis 6	11
splendor 4	15	summarize 12	23	terrific 10	22
spokesman 10*	32	summary 10	26	terrify 6	24
spontaneous 8	9	superiority 11*	35	territorial 12*	63
spur 4*	9	superstition 5	25	terrorism	37
squadron 6*	8	supervise 11*	39	terrorist	33
squander 10	9	supervision 9*	39	testament	12
sqire 4	13	supplant 8*	27	textile 10*	61
stability 8	24	supplement 9*	20	theology 8*	27
stabilize 14	21	supporter 8*	73	theory 5*	399

thereupon 4	11	tropical 7*	53	unlike 4	30
thirteenth 7	55	troublesome 6*	15	unlimited 8*	23
thoroughgoing 18	24	truce 11	23	unnecessary 5*	16
threat 5*	35	tsar (czar) 4	460	unofficial *	17
thrifty 6*	10	tunnel 5	11	unparalleled 13	10
thrill 4	11	turmoil 11*	16	unpopular 9*	49
thrive 4*	14	turnip 5	13	unprecedented 10*	18
thwart 6*	13	twelfth 4	28	unprivileged	21
tithe 9	33	twentieth 6	117	unreasonable 6*	17
tolerance 13	13	twofold 10	8	unredeemed	11
tolerant 11	12	typical 12*	36	unrest 13*	30
tolerate 11*	47	tyrannical 10*	23	unrestricted *	15
toleration 9*	114	tyranny 4*	73	unsanitary	9
toll 7*	15	tyrant 4*	44	unsatisfactory 10*	12
tonnage 6*	25	ultimate 7*	55	unscrupulous 10*	33
torpedo 10*	12	ultimatum *	54	unselfish 12*	10
torture 4*	31	unable 5*	91	unsettled 6	17
Tory 10*	116	unanimous 7*	39	unskilled 14*	20
tract 4*	16	unarm 7	9	unsuccessful *	37
tractor 9	23	unceasing 14	9	unusual 4	30
trader 5*	53	uncertain 4*	31	unwilling 5*	70
tradition 4*	126	uncertainty 9*	12	unwise 7*	16
traditional 12*	36	uncompromising 19*	21	upheaval *	68
traffic 4*	51	unconstitutional 13*	11	upheld 9	17
tragedy 4	25	undemocratic	31	uplift 6	8
tragic 7	20	underground 5*	17	uprising *	167
trait 14	14	underlie 16	10	upset 5	22
traitor 4*	40	undermine 12	40	urgent 6	13
trample 4	12	undertook 9	31	usher 7*	21
tranquility 6	11	undeveloped 17	27	utilize 8*	29
transfer 4*	90	undisputed 10*	9	utmost 4*	15
transform 5*	126	undisturbed 6	9	utterly	36
transformation 8	38	undo 5	26	vaccination 9	14
translate 4	22	undoubted 8*	39	vague 6*	20
translation 8	22	unemployed 9*	56	vanquish 6*	21
transmit 9*	18	unemployment	113	vassal 6	75
transplant 10	20	unequal 6	22	Vatican 12	42
transportation 20*	125	unexpected 4*	32	vehicle 7*	9
treason 4*	27	unfair 10*	16	venerable 7*	15
treasury 4	62	unfit 5*	11	verge 6*	28
treaty 5*	954	unfriendly 9*	23	veteran 6*	16
tremendous 5*	118	unification 14	131	veto 10*	71
trench 5	68	uniformity 12*	17	viceroys 11	25
tribunal 8*	46	unify 13	71	vicious 8*	19
tributary 4*	14	unimportant	14	victim 4	40
tribute 4*	21	unionist 17*	36	victor 8	21
tricolor	30	unit 6	51	victorious 4*	98
triple 8*	138	Unitarian	11	vigorous 7*	104
triumphal 8	18	unity 5*	227	violate 4*	45
triumphant 6*	37	universe 6	59	violation 10*	39

virtual 9*	134
vital 5*	65
vogue 10	9
voluntary 6*	64
volunteer 7*	57
voter 6	85
warfare 6*	1460
warlike 6	35
warship 11*	72
wasteful 11*	15
waterway 10*	17
weaken 6	69
weaver 6*	55
wedge 5	10
weld 8	17
welfare 4*	74
westernize	9
Whig 9*	118
wholesale 4*	27
wholly 4	37
widespread 10*	106
wield 6	13
willingness 12*	17
wireless 6*	27
withdrawal 17*	48
withdrew 5	86
withstand 5	7
witty 5	16
woolen 4	26
workable 18	9
workingman 12*	289
workman 4	140
workshop 9	61
worthless 4*	31
wrangle 8*	14
youthful 4	19
zealous 5	26
Zollverein	23

APPENDIX B

Modern History Vocabulary List Arranged According to Frequency

This list contains all the words ranking four or more on the Thorndike scale that were found in six or more of eight modern history textbooks with copyright dates of 1931 to 1935 inclusive, with the following exceptions.

First, names of peoples, races, nationalities, tribes, but not including creeds.

Second, words in a foreign language that are explained in the immediate text.

Third, hyphenated words both parts of which are in the first three thousand in the Thorndike list.

Fourth, all words in chapter summaries, introductions, prefaces, questions for discussion, and appendices.

Fifth, all words in full quotations like the Bill of Rights.

Sixth, words barred by use of Thorndikes rules for derivatives.

The number immediately following each word gives the rank of the word on the Thorndike scale. If no number follows the word, it is not in the Thorndike list.

The asterisk after certain words indicates that those words are also in the American history vocabulary.

The numbers in the column to the right of the words show how many times the word was used in the six or more books in which it was found.

The number at the head of each column gives the rank in this list of the first word in the column in point of frequency with which it was used in the eight textbooks.

1		51		101	
revolution 4*	2390	constitutional 8*	300	reichstag	194
parliament 4*	1667	commons	293	guild 9	192
warfare 6*	1460	bishop 4*	293	announce 5	191
political 4*	1199	nationalism *	291	chapter 4*	190
reform 4*	1139	situation 4*	291	activity 7*	189
treaty 5*	954	workingman 12*	289	nationality 7*	189
Catholic 4*	881	autocracy 16	288	permanent 4*	188
liberal 4	841	overthrow 4*	283	supreme 4*	187
ally 8*	798	soviet 19	275	program 5*	185
peasant 4	771	tariff 7*	275	declaration 7*	184
economic 9*	742	sovereign 4*	265	effective 7*	184
industrial 9*	733	agreement 5	264	fascist 18*	182
international 8*	699	socialism 12*	264	scientist 7*	181
socialist 9*	676	responsible 6*	259	discontent 4	180
democracy 7*	673	convention 4*	259	improvement 4*	179
democratic 8*	577	bourgeois (ie) 12	258	resource 6*	179
conference 4*	548	communist 15	254	enable 4*	177
alliance 5*	515	dominion 4*	253	nobility 16*	177
monarchy 7*	543	feudal 8*	252	agitation 7*	175
conservative 7*	475	legislature 5*	247	regime 11	175
eighteenth 6	461	equality 6*	240	self-government 18	175
tsar (czar) 6	460	naval 18*	236	autocratic 15	174
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tonnage 6*	25	enlist 6*	23	postpone 9*	22
tragedy 4	25	fulfill 4	23	remnant 4*	22
viceroys 11	25	highway 4*	23	resemble 4	22
absurd 6	24	indifferent 7	23	resume 4*	22
access 5	24	locality 7	23	rout 6	22
admirer 8	24	mastery 10	23	specie 20*	22
compact 5*	24	momentous 12*	23	startle 4	22
compensate 9*	24	permission 4	23	subsidy 13*	22
conversion 8*	24	persistent 8*	23	successive 5	22
countrymen 7*	24	sanitation 8*	23	taxpayer 6*	22
defender 11	24	separatist 18*	23	terrific 10	22
defiance 5*	24	shogun	23	translate 4	22
disperse 4	24	stronghold 10*	23	translation 8	22
dissatisfaction 12*	24	submission 7*	23	unequal 6	22
devout 6	24	summarize 12	23	upset 5	22
emigrate 9*	24	systematic 10*	23	appropriation 8*	21
evacuate 14*	24	traitor 4*	23	armada 9*	21
excess 4	24	truce 11	23	cavalier 6*	21
exclusion 9*	24	tyrannical 10*	23	cavalry 10*	21
friar 5	24	unfriendly 9*	23	commissioners 4*	21
gospel 4	24	unlimited 8*	23	countless 6	21
greed 16	24	Zollverein	23	deadlock 9*	21
legend 5	24	absolutely 7	22	director 4*	21
leisure 5*	24	accurate 7	22	dissent 9	21
mariner 5*	24	annihilate 9*	22	eminent 6*	21
maritime 8*	24	appreciation 8	22	foresee 5*	21
masterpiece 7	24	assurance 5*	22	fortification 9*	21
minimum 8*	24	ensor 13	22	increasingly 19	21
procession 4*	24	collector 9	22	ingenious 6*	21
pyramid 7	24	conscious 4	22	insistence 11*	21
rapidity 7*	24	conspirator 9*	22	intimate 5*	21
reality 5	24	disarm 7	22	irrigation 7	21
removal 8	24	disestablish	22	justification 9*	21
repulse 8*	24	editors 8*	22	literal 7*	21
stability 8	24	eloquence 5*	22	manuscript 7	21
statute 6*	24	extravagance 11*	22	meanwhile 4	21
strenuous 7*	24	fanatical 15*	22	migrate 7*	21
terrify 6	24	habeas corpus *	22	mixture 4	21
thoroughgoing 18	24	handicraft 15	22	network 8	21
admission 5*	23	indignant 6*	22	offender 6*	21
amusement 5	23	installment 8*	22	overawe 14	21
blunder 8	23	intimidate 15*	22	preservation 8	21
bribe 5*	23	isolation 10*	22	producer 10	21
broaden 13	23	lease 7	22	promotion 6*	21
cautious 6	23	license 4*	22	reich	21
chieftain 10*	23	manager 6*	22	relationship 8	21
competitor 8*	23	nihilist	22	romance 6	21
confuse 5	23	patent 5	22	rumor 4*	21
embark 7*	23	penetration 13	22	scholarship 12	21
energetic 8*	23	picturesque 5*	22	scramble 6	21

1351		1401		1451	
spectacular 12*	21	suspicious 6	20	surgery 6	19
spindle 5*	21	tragic 7	20	swamp 4*	19
spinner 12	21	transplant 10	20	talent 4*	19
stabilize 14	21	unskilled 14*	20	vicious 5*	19
telescope 8	21	vague 6*	20	youthful 4	19
tribute 4*	21	admiral 5*	19	abbot 7	18
uncompromising 9*	21	adventurous 7*	19	assault *	18
unprivileged	21	bacteria 7	19	astronomer 8	18
usher 7*	21	cargo 4*	19	auspices 13*	18
vanquish 6*	21	charcoal 8	19	autonomous 4	18
victor 8	21	climax 8	19	breach 6	18
abdication 15	20	concrete 6	19	circulate 8	18
accustomed 9	20	convenience 5	19	clumsy 3*	18
adherent 13*	20	courageous 6*	19	confident 5*	18
background 8	20	crude 6*	19	creed 8	18
beneficial 8*	20	demoralize 16*	19	customary 6	18
burdensome 13	20	diminish 5*	19	depreciate 10*	18
cession 14*	20	dynamo 11	19	doubtful 4	18
contend 4*	20	enroll 6*	19	endow 5*	18
cordiale	20	figurehead	19	eventual 3*	18
desolate 4	20	foothold 12*	19	exemption 13*	18
dialect 7	20	gunpowder 6	19	Gothic 6	18
dispatch 7*	20	identify	19	handful 4	18
dynastic 20	20	indefinite 8*	19	headquarters 5*	18
embitter 10	20	inefficiency 12	19	headway 15	18
enthusiastically 18	20	inquiry 5	19	impoverish 10*	18
epoch 9*	20	livelihood 8*	19	incessant 17*	18
essay 6*	20	magistrate 4*	19	incredible 7	18
expulsion 12*	20	memorable 8*	19	infantry 10*	18
fraction 5	20	mikado 9	19	lecture 4	18
gratify 7*	20	militaristic	19	legalize 7*	18
lesser 6	20	mortgage 6*	19	lieutenant 4*	18
martyr 5	20	objection 5*	19	microscope 7	18
misfortune 5*	20	obscure 5*	19	nevertheless 4	18
nationalize *	20	overshadow 10*	19	notorious 7*	18
needless 5	20	paralyze 3*	19	oppressor 8	18
nephew 4	20	pillage 9	19	passive 8	18
outburst 13*	20	populace 9*	19	pious 5	18
outright 10	20	precipitate 7	19	procedure 9*	18
outset 14	20	prophecy 5*	19	ridiculous 6*	18
parade 5	20	Puritanism 6*	19	sanitary 6*	18
peaceable 6	20	quakers 8*	19	secede 11*	18
proceedings 13	20	reckless 8*	19	survival 6	18
repress 9	20	reinforcement 20*	19	sympathetic 8*	18
sculptor 8	20	requirement 7	19	tactics 10*	18
seaport 6*	20	satisfactory 5	19	transmit 9*	18
secular 8	20	secession 13*	19	triumphal 6	18
senator 4*	20	smelt 6	19	unprecedented 11*	18
specific 7	20	specify 7*	19	allowance 7	17
supplement 9*	20	stationary 7*	19	battlefield 10	17

1501		1551		1601	
bolster 10	17	Baptist 8*	16	charitable 7	15
cement 4	17	centralization 18*	16	convene 9*	15
chivalry 6	17	coerce 11*	16	cope 7	15
colleague 8*	17	conform 8*	16	correspondence 4*	15
colossal 7	17	consumer 9*	16	counter 5	15
communard 6	17	crusader 10*	16	duel 8*	15
consistent 8*	17	dedicate 5*	16	eclipse 6	15
cynical 9	17	deficit 16*	16	electrical 6	15
dependence 8*	17	exhibit 4	16	emancipate 11*	15
dictational	17	experimentation 18	16	enrage 6	15
diverse 8	17	explosive 8	16	epidemic 8	15
emergency 7*	17	gravitation 8	16	equitable 13	15
external 8*	17	idealism 12	16	espouse 7	15
fertilizer 6*	17	impressive 8*	16	expeditionary 20	15
financier 10*	17	indifference 7	16	expire 4*	15
forcible 7*	17	indispensable 8*	16	explosion 8*	15
harmonious 7	17	intellect 8*	16	fanatic 9*	15
hemisphere 6*	17	interpretation 7*	16	fervor 8	15
incompetence 19	17	laborite	16	festival 4	15
infinite 4*	17	legitimatist	16	fruitful 4	15
intolerable 8	17	liable 6*	16	gratitude 4*	15
launch 5*	17	migration 9*	16	insistent 12*	15
layman 8	17	navigator 8*	16	kulturkampf	15
morale 17	17	pilgrim 4*	16	lavish 5*	15
nominate 8*	17	preliminary 6*	16	legion 4	15
pacifist *	17	prewar 14	16	martial 6*	15
plight 5	17	purge 5	16	Methodist 12*	15
pose 9*	17	reelect 14*	16	modernize 15	15
renewal 9*	17	refugee 9*	16	muzzle 5	15
republicanism 4	17	reside 4*	16	neutralize 8	15
restraint 5*	17	resignation 8*	16	normal 5	15
setback	17	response 5*	16	obstruct 8*	15
severity 7*	17	rotation 7*	16	operative 14*	15
shilling 7*	17	scanty 5	16	outward 4	15
shoemaker 4	17	scrap 4	16	patron 4*	15
simplicity 4*	17	seethe 8	16	pirate 6*	15
stifle 6	17	selection 6	16	poetry 4	15
stagger 4*	17	shuttle 11	16	policeman 5*	15
underground 5*	17	tract 4*	16	preference 7*	15
uniformity 12*	17	turmoil 11*	16	prevalent 7	15
unofficial *	17	unfair 10*	16	prevention 8	15
unreasonable 6*	17	unnecessary 5*	16	radicalism 16	15
unsettled 6	17	unwise 7*	16	reckon 4*	15
upheld 9	17	veteran 6*	16	reconstruct 11*	15
waterway 10*	17	witty 5	16	relax 7*	15
weld 8	17	adhere 8*	15	roundhead	15
willingness 12*	17	advantageous 11	15	royalty 7	15
assignate	16	annoy 5	15	splendor 4	15
atrocious 9*	16	bandit 9	15	strategy 12*	15
attractive 4*	16	bullet 5*	15	sue 6	15

1651		1701		1751	
toll 7		15 publicity 9*		14 squire 4	13
troublesome 6*		15 ravage 8*		14 thwart 6*	13
unrestricted *		15 rebuild 7		14 tolerance 13	13
utmost 4*		15 reopen 10		14 turnip 5	13
venerable 7*		15 respectable 7*		14 urgent 6	13
wasteful 11*		15 sentimental 8		14 wield 6	13
acceptable 9*		14 signature 5*		14 advancement 6	12
adjustment 8*		14 solar 9		14 alienate 11*	12
alphabet 8		14 spectacle 4		14 bequeath 7	12
anti-socialistic		14 subdivision 12		14 biology 7	12
audience 4*	14	submerge 7	14	celebration 5	12
behead 6	14	suitable 4	14	condemnation 8*	12
bombard 12*	14	sustain 4*	14	conscientious 9*	12
bombardment 12*	14	sympathizer 11*	14	curiosity 5	12
breakdown 14	14	syndicalist 13	14	definition 8	12
Buddhist 18	14	tangle 8	14	deliberation 8	12
bulwark 7*	14	thrive 4*	14	descent 5	12
bureaucracy 20	14	trait 14	14	dignitary 13	12
comment 6	14	tributary 4*	14	disapprove 9*	12
compulsion 11	14	unimportant 8	14	dividend 7*	12
consume 4*	14	vaccination 9	14	generosity 7*	12
contemptuous 7*	14	wrangle 8*	14	grasp 4	12
counter-revolution20	14	avert 8*	13	horrify 12	12
dethrone 10	14	antiseptic 11	13	incapable 8	12
dignify 5*	14	bounty 4	13	landscape 5	12
dismissal 10	14	corvee 16	13	magazine 4*	12
dramatist 11	14	demolish 10	13	manual 8	12
edit 13	14	default 10	13	merciless 6*	12
edition 6	14	disband 9*	13	misrule 15	12
electorate 20	14	dole 8	13	monotonous 8	12
eligible 13	14	dome 4	13	nickname 11	12
emotional 12	14	engagement 5*	13	portrait 9	12
Europeanize 4	14	entertainment 5	13	practicable 10	12
evolve 14	14	exploitation 17	13	puppet 13	12
exaggerate 7	14	footstep 4	13	purify 6	12
fell 5	14	freeman 5*	13	redeem 4*	12
fringe 4	14	householder 18*	13	regent 8	12
idol 4	14	insolent 8	13	sacrament 10	12
imitation 8	14	irresponsible 13*	13	shipbuilding 18*	12
incentive 9*	14	mathematical 11	13	stage-coach 17*	12
incident 5*	14	mercenary 8	13	systematical 16	12
interruption 9*	14	miracle 4	13	testament 7	12
loot 13	14	monastic 9	13	tolerant 11	12
marshal 5*	14	patronage 8*	13	torpedo 10*	12
militant 14	14	pauper 13*	13	trample 4	12
militia 7*	14	plentiful 5	13	uncertainty 9*	12
orbit 8	14	realization 9	13	unsatisfactory 10*	12
pagan 8	14	revoke 9*	13	appall 7	11
perfection 4	14	robbery 6	13	biologist 15	11
pretense 5*	14	selfishness 9	13	bishopric 14	11

1801		1851		1901	
boulevard 11	11	dye 4	10	genial 4	9
conflagration 11	11	entanglement 15	10	impregnable 12*	9
corridor 7	11	exposition 8*	10	interallied 8	9
court martial 19	11	farce 7	10	invoke 9	9
degeneration 16	11	fateful 20*	10	judiciary 16*	9
disclose 5	11	fruitless 7	10	jurist 18	9
disturber	11	impatient 5	10	legislate 14*	9
degrade 6	11	inadequate 9*	10	mechanism 8	9
dwindle 6	11	insane 8*	10	mir 4	9
evacuation 14*	11	insufficient 10	10	pilot 6*	9
explode 8	11	intimidation 17*	10	polygamy 15*	9
guardian 5	11	laborious 10	10	positive 5	9
guerilla 13*	11	luxurious 7	10	raid 8*	9
implement 5*	11	magnify 5	10	reestablishment 10	9
intact 11	11	movable 6	10	repay 4	9
marvel 4	11	ratio 7*	10	sensible 4	9
mule 4	11	scope 7*	10	sham 9	9
organism 7	11	scruple 6*	10	shipyard 13	9
prefect 20	11	suffragette 7	10	skyscraper 11	9
reaper 8*	11	teem 7	10	spontaneous 8	9
regularity 10	11	thrifty 6*	10	spur 4*	9
resemblance 8*	11	underlie 18	10	squander 10	9
retirement 8*	11	unparalleled 13	10	subdivide 13	9
rifle 5	11	unselfish 12*	10	unarm 7	9
scourge 4	11	wedge 5	10	unceasing 14	9
shackle 9	11	adorn 4	9	undisputed 10*	9
surgeon 7*	11	antiquated 12	9	undisturbed 6	9
taille	11	ardor 8	9	unsanitary 17	9
tenement 7*	11	ascendency 15	9	vehicle 7*	9
tennis 6	11	assassin 10*	9	vogue 10	9
thereupon 4	11	assumption 8*	9	westernize	9
thrill 4	11	astute 17	9	workable 18	9
tranquility 6	11	asylum 10*	9	actor 5	8
tunnel 5	11	audacity 8	9	anticipate 7*	8
unconstitutional 13*	11	bigotry 15	9	apt 5	8
unfit 5*	11	bonfire 12	9	attendance 5	8
Unitarian	11	Christianize 15	9	cumbersome 15	8
unredeemed 19	11	competitive 9*	9	designate 8	8
afflict 5	10	conventional 9	9	entangle 6*	8
alternate 6	10	coronation 8	9	envious 5	8
apostle 9	10	diphtheria 20	9	fulfillment 11	8
baptism 7	10	disruption	9	grumble 5	8
brigand 14	10	dogma 11	9	horde 9	8
calculate 7	10	earnestness 10	9	inseparable 7	8
catechism 10	10	emphatic 10	9	insular 16	8
comply 5*	10	empower 8	9	jungle 9	8
congregation 5*	10	excellence 7	9	kinsman 6	8
dagger 6	10	expedient 7*	9	label 5	8
devour 4	10	exquisite 5	9	middleman 18	8
disestablishment	10	gateway 6*	9	millstone 7	8

1951	
partisan 8*	8
partnership 9*	8
powerless 9*	8
precaution 8*	8
quicken 4	8
raider 19	8
rediscover 20	8
reproduce 7	8
shorten 6	8
span 5	8
squadron 6*	8
twofold 10	8
uplift 6	8
acknowledgment 8	7
apartment 5	7
disrupt	7
enactment 14*	7
executioner 10	7
filibuster 17	7
forge 4*	7
imaginary 7	7
ineffective 12	7
intensive 16	7
irony 12	7
necessitate 8	7
nomination 6*	7
pillar 4	7
reaffirm 17	7
redemption 9*	7
relie 5	7
rioter 14*	7
withstand 5	7
horseless 3	6
recapture 13*	6
scythe 8*	6

APPENDIX C

COPY OF VOCABULARY TEST-FORM A

Each word in the column to the left on the page below is followed by five words or phrases. One of these words or phrases means almost the same as the word in the column. Underline the word that means the same as that in the column.

Example

moist--dry...much...damp...raise...must

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1

treaty--gift...law... funds...treatment...agreement between nations
abolish--establish...maintain...print...enforce...destroy
tremendous--trivial...quavering...heavy...steady...extraordinary
colonial--of a colony...officer...of column...military formation...rural
deputy--agent...station...nobleman...dignity...sheriff

6

parliament--convention...legislature...building...political...parley
revolution--battle...complete change...opposition...resolution...return
liberal--progressive...pliable...royalist...conservative...reactionary
peasant--landlord...bird...burgher...jolly...small farmer
organize--unite...divide...disrupt...play an organ...arrange

11

independence--restraint...bondage...needy...freedom...undecided
conference--trustworthy...certainty...conclusion...confidence...discussion
doctrine--religion...evidence...medical officer...law...belief
prosperity--depression...steep cliff...descendants...well being...property
conflict--find guilty...take by force...dissatisfied...struggle...shorten

16

sovereign--remembrance...politician...highest ruler...governor...the vote
supreme--excellent...wonderful...highest in degree...strong...extreme
laborer--artisan...workman...artist...skilled workman...employer
bishop--cardinal...head of diocese...pope...parish head...monk
development--behavior...runaway marriage...settlement...addition...growth

21

dominion--home...judgment...self-governed territory...sacrament...order of monks
convention--assembly...change to new life...gift...dispute...twisting
revolt--cancel...turn around...repeal...withdraw...rebel
surrender--be around...astonish...put off...hang from above...give up
permanent--lasting...penetrating...allowable...the sky...scolding

26

series--thoughtful...continued story...one after another...earnest...dangerous
imperial--danger...not perfect...necessary...haughty...of an empire
exist--oppose...endure...give off...use...be
genius--origin...class...kindly...well-bred...extraordinary ability
scholar--school...professor...teacher...scientist...learned student

31

institution--organization...convention...building...restoration...consideration
campaign--wine...camp ground...deception...contest winner...a drive
invade--valueless...sick...enter with force...criticize...tempt
charter--written grant...diagram...war-horse...cleaner...chapter
induce--supply...bring in...support...humor...persuade

36

executive--killing...legislative...skilled...forgiven...administrative
 federation--political party...republican...alliance...democracy...rebel state
 hostile--favorable...quick...unfriendly...cordial...sickly
 rebellion--treason...revolt...treachery...unfaithfulness...stubbornness
 inhabitant--resident...custom...locality...habit...intemperate

41

manhood--monk's hood...adult...monk...strength...full grown male
 program--organized murder...recreation...a plan...diversion...public notice
 responsible--truthful...guilty...liable...favorable...quick to answer
 ambassador--general...official messenger...building...prime minister...foreigner
 essential--necessary...incidental...timely...thoughtful...rising

46

experiment--happening...skill...trial...authority...expert
 internal--damnable...space...interior...everlasting...heavenly
 mob--floor washing device...crowd...loose hair...sulk...attack
 overwhelm--turn over...crush...fight...antagonize...outnumber
 patriot--father...lover of country...bishop...supporter...enduring

51

plunder--drive...loot...sink...push...dip
 representation--group of delegates...giving...gift...donation...showing
 theory--religion...a god...rule...problem...hypothesis
 attitude--height...extent...feeling...scope...laxity
 imprison--idea...mask...impress...release...place in jail

56

petition--division...solemn request...separation...repeating...law
 ministry--cabinet...aid...clergyman...musician...entertainer
 civilization--culture...civility...society...country...people
 frontier--explorer...soldier...adventurer...border...courier
 Puritan--Presbyterian...Separatist...Methodist...Catholic...Episcopalian

61

communist--socialist...Bolshevist...anarchist...capitalist...commune
 equality--fraternity...likeness...characteristic...amount...liberty
 oriental--occidental...western...eastern...American...African
 parish--death...favor...local church unit...priest...gaudy
 persecution--defense...untiring...oppression...suffering...massacre

66

precede--continue...take place...go before...follow...income
 responsibility--non-reliable...respoken...sympathy...burden...trustworthiness
 successor--predecessor...follower...favor...winner...leader
 vassal--dependent...ship...vase...lord...farmer
 intellectual--physical...mental...bodily...external...moral

71

radical--original...generous...bigoted...narrow...different
 invasion--retreat...forcible entrance...division...change...interruption
 scientific--orderly...colorful...artistic...consistent...of science
 democracy--republic...monarchy...government by the people...oligarchy...aristocracy
 barbarian--Asiatic...savage...barber...invader...enemy

76

effective--active...infectious...easy...sincere...insulting
 proposal--announcement...proof...decision...understanding...suggestion
 resistance--assistance...submission...hostility...persistence...insolence
 legislation--enacted laws...lawmaker...constitution...treaty...law-making body
 ally--opponent...lane...associate...liar...soothe

81

international--universal...voluntary...thorough...interval...between nations
 clergy--office worker...official...noble...priesthood...clerk
 feudalism--strife...contest...landholding system...dark age...dueling
 confederation--faith...kingdom...republic...conference...league
 gentry--nobles...class below nobles...yeomanry...gentleman...lords

86

serf--breaking waves...villain...landowner...laborer...person bound to land
 canteen--drinking vessel...Swiss state...gallop...choral composition...denial
 hereditary--sneaky...heretical...unlike...inheritable...destructive
 massacre--crowd...slaughter...religious rite...rubbing...masquerader
 despotic--autocratic...soiled...royal...wretched...hopeless

91

anarchy--archway...treason...absence of government...enemy...kingdom
 papal--Catholic...written...of the pope...fatherly...curving
 veto--ballot...trained soldier...consent...approve...refuse enactment
 franchise--suffrage...openness...punishment...league...club
 indemnity--reparation...guilt...condemn...likeness...ensay

96

arbitration--mediation...stubborn...judge...decision...consideration
 medieval--wicked...middle ages...average...ordinary...thoughtful
 despotism--tyranny...sarcasm...desperate...poverty...hopelessness
 literature--form of worship...illiterate...writings...book...lawsuit
 tsar--king...queen...Caesar...general...officer

APPENDIX D

COPY OF VOCABULARY TEST-FORM B

Each word in the column to the left on the page below is followed by five words or phrases. One of these words or phrases means almost the same as the word in the column. Underline the word that means the same as that in the column.

Example

moist--dry...much...damp...raise...must

.....
1
amendment--constitutional change..mandate..command..compensation..large patch
expert--amateur...having skill...goods shipped abroad...hope...bungler
convert--talk...transmit...change...find guilty...adjourn
despite--before...by way of...concerning...notwithstanding...regarding
gross--fretful...delicate...slender...peevish...rank

6
protest--protect...foresee...object...shield...excuse
wholly--having holes...entirely...sacredly...partially...unanimously
agent--old person...gentleman...era...representative...employer
agricultural--of farming...rural...rustic...pastoral...educational
conqueror--soldier...general...contestant...king...victor

11
considerable--similar...serious...thoughtful...deliberate...noteworthy
gallant--rude...friendly...tall...chivalrous...beautiful
improvement--wastefulness...discourtesy...betterment...recklessness...movement
meantime--after...meanwhile...before...now...then
peril--danger...security...disaster...mishap...reverse

16
treasury--storehouse for money...wealth...disburser of funds...riches...hoarder
cruelty--compassion...crudeness...hatred...roughness...brutality
degree--edict...rank...mandate...humiliation...law
exile--breathe out...depart...punish...banish...exist
expedition--prospect.expense.journey for special purpose.usefulness.convenience

21
association--a party...declaration...desire...murder...a society
brilliant--splendid...intelligent...acute...knowing...artistic
desperate--gloomy...strong...vicious...despairing...violent
forbidden--forgivable...prohibited...to be dreaded...invited...allowed
previous--following...future...earlier...valuable...precious

26
bulk--mass...mistake...ship...projection...body
communication--communism...intercourse...locality...commonwealth...commission
correspond--lose heart...write...be in harmony...familiarize...formulate
heroic--smart...inspired...handsome...popular...daring
occasional--habitual...customary...constant...infrequent...casual

31
riot--decay...crowd...scream...put to flight...public disturbance
financial--rich...economical...political...monetary...bankrupt
fragment--piece...pleasing odor...a tear...glare...a bite
legal--kingly...lawful...loyal...upright...courtly
petty--charming...beautiful...mean...short...pliable

36

agreement--health...concurrence...pleasantness...toleration...ailment
 enforce--execute...kill...fortify...approve...wound
 administration--preaching...esteem...appreciation...ruler...execution
 enthusiasm--wonder...thoroughness...enjoyment...eagerness...anxiety
 insurance--happening...revolt...guarantee...plot...secrecy

41

diet--death...disease...order...coloring...congress
 monk--friar...cook...animal...humor...clown
 nobility--bravery...noble rank...being easily moved...splendor...magnificance
 shrewd--scolding...old...bad-tempered...clever...concealing
 survive--view...restore...outlive...repeat...revive

46

barbarous--cutting...uncivilized...barbed...numerous...scanty
 baron--nobleman...desolation...carrier...nakedness...sterility
 intelligent--agile...complete...bright...entire...obscure
 slavery--bondage...work...Russian...labor...enterprise
 succession--prosperity...suction...fortune...sequence...follower

51

document--wharf...belief...court...penalty...paper
 allied--untruthful...mixed...militaristic...inferior...united
 borough--donkey...English town...cave...loan...governmental department
 regiment--regulation...ruler...body of soldiers...band...sinew
 brutal--strong...frugal...mutual...cruel...feudal

56

missionary--religious emissary...delegation...letter...pamphlet...bandit
 session--a ceding...a sitting...pause...a giving up...stop
 agitation--collection...an attack...excitement...irritation...holiday
 approval--engagement...proof...estimation...support...valuation
 indirect--straight...not discreet...confused...incomplete...roundabout

61

naval--middle...artless...torn...native...of the navy
 expansion--cost...large building...driving out...extension...outlay
 historian--novelist...poet...chronicler...politician...caretaker
 interference--nonsense...interposing...attachment...inference...entrance
 penalty--punishment...reward...interest...loan...account

66

sanction--holiness...refuge...faction...extension...permission
 cooperation--united effort...company...delegation...convention...to work
 ballot--shot...dance...act of voting...poise...simple song
 continental--cheap...frequent...satisfied...of mainland...adjoining
 efficient--capable...enough...adequate...lacking...elderly

71

leadership--snobbery...vanity...independence...aggressiveness...leading ability
 tropical--of a type...of a topic...luxurious...stormy...of the tropics
 neutral--of the sea...trim...naughty...on neither side...natural
 ratify--apportion...measure...confirm...purify...make scarce
 collapse--cheer...breakdown...grasp...extend...magnify

76

minority--largest number...smaller number...mine...feebleness...superior quality
 Presbyterian--Calvinist--Lutheran...Catholic...Puritan...Separatist
 submarine--diving bell...diver...seaman...depth bomb...sub-surface boat
 monastery--huge creature...money...clergyman...cloister...chimes
 rivalry--babble...festivity...competition...merrymaking...hatred

81

yeoman--minister...dwarf...small landowner...forest ranger...soldier
 Huguenot--Spaniard...French Protestant..ruling family.political party.an Asiatic
 munition--wage...rebellion...torture...military store...change
 Christendom--baptism...naming...civilization...conversion...all Christians
 municipal--of local affairs...generous...communistic...principal...plentiful

86

dependency--colony...reliability...discouragement...monarchy...hopelessness
 clerical--political...office-like...non-religious...informal...of the clergy
 referendum--preference...problem...plebescite...arbitration...recommendation
 virtually--courageously...essentially...innocently...morally...excellently
 reactionary--swift...progressive...revolutionary...reverting...revolting

91

centralize--consolidate...guarantee...telephone...certify...exchange
 feudalism--warfare...feudal...antagonism...federation...hatred
 Fascism--socialism...Italian political movement.a sect.a schism.a German party
 reichstag--empire...weapon...legislative body...premier...military force
 serfdom--suffering...kingdom...martyrdom...vassalage...government

96

dictatorship--secretary...oration...authorship...confidence...absolute authority
 protestantism--political belief.defiance.temperance.all Protestants...all pro-
 traitor--business man...enemy...betraye...trader...messenger (testers
 intervention--gathering...interference...discovery...hindering...meaning
 enclosure--fenced up space...proximity...an embrace...prevention...revelation

APPENDIX E

COPY OF MODERN HISTORY ACHIEVEMENT TEST

Underscore the word or phrase that makes the statement correct.

1. The Protestant Revolt began in (England, France, Germany, Italy, Spain).
2. Luther believed that a person's religion should be determined by (the government of a country, the Church, each individual for himself).
3. Small landowners in England in the seventeenth century belonged to the (noble, merchant, yeoman, artisan) class.
4. The Habeas Corpus Act (gave religious toleration to Protestant Dissenters, gave parliament control over taxation, granted security against unlawful imprisonment).
5. Members of the British Cabinet (must at the same time be members of Parliament, cannot at the same time be members of Parliament, may serve regardless of whether they are members of parliament or not).
6. Napoleon's first great campaign was against the (Italians, Austrians, British) in (Egypt, Italy, Austria).
7. An opponent of the English Corn Laws was (Louis Blanc, Joseph Proudhon, Robert Peel).
8. "The Charter of 1815" in France was given it by (the king, parliament, people).
9. The Directory in France was established by the (Constitution of 1789, Constitution of Year I, Constitution of Year III).
10. (Luther, Calvin, Loyola, Servitus) founded the Jesuit order.
11. The (Catholics, Presbyterians, Episcopal, Lutheran) church became the state church of England during Queen Elizabeth's reign.
12. The landlords who inclosed the common fields of England in the sixteenth century did so for the purpose of (raising sheep, raising flax, raising grain).
13. A "responsible government" means (the cabinet must obey the king, the cabinet must obey parliament, Parliament is made up of able men who take their duties seriously).
14. Mirabeau, (member of the Jacobin club in Paris, German liberal imprisoned for violating the Carlsbad Decrees, leader of the National Assembly of France-1789-91).
15. Members of the American Cabinet (must at the same time be members of Congress, cannot at the same time be members of Congress, may serve whether they are members of Congress or not).
16. Napoleon was born in (Paris, Marseilles, Corsica, Italy, Spain).
17. The Holy Alliance was first suggested by (Alexander I, Metternich, Tallyrand).
18. Belgium declared its independence from (Austria, France, Holland) in 1830.
19. The Edict of Nantes (forbade any religion save Catholicism in France, gave religious toleration to the Huguenots, gave religious toleration to the Catholics).
20. The religious trouble in England in the seventeenth century was

- chiefly between the High Church party of the Episcopal Church and (Catholics, Puritans, Methodists).
21. Robespierre, (representative of France at the Congress of Vienna, conservative member of the national assembly, radical member of the national assembly).
 22. (The king of England, the Prime Minister of England, the President of the United States) has the power to veto a bill which has been passed by the legislature.
 23. (Australia, Egypt, India, St Helena) is a member of the British Commonwealth of Nations.
 24. (Disraeli, Gladstone, Lloyd George, McDonald) finally signed the treaty establishing the Irish Free State.
 25. Holland was forced at the Congress of Vienna to agree to the loss of (Ceylon, Belgium, New Netherlands).
 26. Bismarck's policies for German union included (war with Italy, war with England, War with France).
 27. The French ruler at the time of the Franco-Prussian War was (Charles X, Louis Philippe, Louis Napoleon).
 28. The reign of terror ended with the death of (Danton, Louis XVI, Robespierre).
 29. In 1830 (Charles X, Louis XVIII, Louis Philippe) was crowned the French king.
 30. Decrees checking democracy in Germany were framed at (Paris, Carlsbad, Berlin).
 31. Richelieu's chief object in ruling France was (personal gain, the political supremacy of France, the supremacy of the Catholic Church).
 32. A great Reform Act was passed in England in (1815, 1830, 1832, 1848).
 33. The Peace of Augsburg gave (people themselves, ruling princes, pope, emperor) the right to choose the religions of the different political divisions of the empire).
 34. Forced labor on roads in France previous to the French Revolution was known as (gabelle, corvee, assignats).
 35. The statesman whose plans resulted in the unification of Italy was (Metternich, Charles Albert, Cavour, Mussolini).
 36. (Philip II, Gustavus Adolphus, Charles V) reigned at the same time as Queen Elizabeth.
 37. (The Hanovers, Hapsburgs, Hohenzollerns, Romanoffs) were the rulers of Prussia.
 38. Alexander I was (King of Prussia, Tsar of Russia, Emperor of Austria).
 39. The Invincible Armada was defeated in (1529, 1492, 1588, 1648).
 40. The Peace of Westphalia (strengthened the power of the Emperor, restored the power of the papacy, strengthened the power of the separate states of the Empire).
 41. Napoleon was appointed (director, consul, king, emperor) at the time of the coup d'etat.
 42. The Treaty of Tilsit was made with (Francis II, Alexander I, Wellington).
 43. At the Congress of Vienna Poland was given to (Austria, Prussia, Russia).

44. Louis XIV (tried to banish all Huguenots to America, encouraged the Huguenots to stay in France and build up the manufactures, tried to compel the Huguenots to become Catholics).
45. The Industrial Revolution began in England about the time that (Voltaire was attacking the abuses of the Old Regime in France, Napoleon was defeated at Waterloo, Louis Philippe was chosen King of France).
46. One of the chief reasons why France failed to colonize in the New World was because (she paid no attention to her colonies, the French failed in colonizing because she could not get along with the Indians, she taught the colonists to depend too much on the mother country).
47. A benevolent despot is a ruler who (tries to extend his realm for the benefit of his own house, works for the good of his people, encourages the people to learn to govern themselves).
48. Necker was (a finance minister of Louis XVI, one of Napoleon's generals, an English statesman opposed to intervention in France).
49. Louis Philippe became king of France in (1815, 1830, 1848, 1871).
50. Napoleon was finally banished to (Elba, St Helena, America, England).
51. Members of the British cabinet are responsible to (the King, the House of Lords, the House of Commons).
52. (The King of England, the Prime Minister of England, the President of the United States) has the power to introduce new bills into the legislature.
53. (The Corn Law, the Penny Post Act, the Employers' Liability Act) was a law passed for the protection of workmen in factories.
54. (Grey, Gladstone, Disraeli) was prime minister when the Reform Bill of 1832 was passed.
55. The Union of South Africa is a (dominion, crown colony, mandate).
56. Napoleon decisively defeated the Prussians at (Jena, Wagram, Austerlitz).
57. A great English statesman who brought about Napoleon's downfall was (Stein, Nelson, Pitt).
58. The unification of Germany was encouraged by (rulers of small states, Prussia, Austria Hungary).
59. On July 14, the French celebrate the anniversary of the (Tennis Court Oath, the fall of the Bastille, the establishment of the first French republic).
60. Gibraltar is a (dominion, a crown colony, an independent nation, a mandate).
61. The Continental System was directed mostly against (France, Austria, England, Russia).
62. According to custom the three orders of the French States General should (sit in separate houses and each house have one veto, organize into a single unit legislature with each house having one vote, organize into a Council of Elders and an Assembly of Five Hundred).
63. (Necker, Turgot, Colonne) increased discontent of the French people by publishing the report on the finances of France before the French Revolution.

64. The "Reign of Terror" was used during the French Revolution to (exterminate all nobles, terrorize all enemies of the republic into submission, intimidate foreign invaders).
65. France was governed from 1795-1799 by (directory, Committee of Public Safety, Revolutionary Tribunal).
66. Cavour's policies included (submission to Austria, foreign alliance against Austria, alliance with the pope).
67. Bismarck accomplished the union of Germany by (cooperation with parliament, union with Denmark, war with Austria).
68. Italian unity was aided (by the help of Austria, the Crimean War, the allegiance of the Pope).
69. (Adam Smith, Voltaire, Diderot, Rosseau, Montesquier) wrote "Wealth of Nations".
70. (Copernicus, Galileo, Newton, Francis Bacon) helped to make the scientific method more common.
71. The industrial revolution in England displaced (the guild system, domestic system, factory system) of manufacturing.
72. According to the mercantile theory (a country should import more than it exports, export more than it imports, manufacture goods for home consumption only).
73. Alsace Lorraine has at different times in European History belonged to (France and Austria, France and Germany, France and Italy).
74. Pomerania is a part of what now is (Germany, France, Italy, Poland, Russia).

Total Number of correct answers _____

Name _____ Date _____

APPENDIX F

Correlation Between Scores in Vocabulary Ability Test in Modern History and I. Q. Scores in the Senior Class at Jamestown Senior High School

X Values Represent Vocabulary Scores

	50	55	60	65	70	75	80	85	90	95	f	d	fxd	fxd^2	xy	
130								1			1	6	6	36	6	
125												5				
120								3	1		4	4	16	64	24	
115							1				1	3	3	9		
110						2	1	2	5	1	11	2	22	44	26	
105					2	1	3	2	3		11	1	11	11	3	
100	1	2	1		1	1	1	2	2		11	0	0	0	0	
95			1		1		4				6	-1	-6	6	6	
90			1	3	1	2	2				9	-2	-18	36	34	
85	1	1		1							3	-3	-9	27	42	
80	1				1						2	-4	-8	32	32	
75													-5			
70													-6			
65		1									1	-7	-7	49	35	
f	3	4	3	4	6	6	12	10	10	2	60		10	314		
D	-6	-5	-4	-3	-2	-1	0	1	2	3			167	5.233	208	3.467
fxd or ΣX	-18	-20	-12	-12	-12	-6	0	10	20	6	-44	ΣX	ΣX^2	Σxy	$\Sigma xy/N$	
fxd^2 or ΣX^2	108	100	48	36	24	6	0	10	40	18	390	ΣX^2	ΣX^3	Σxy	$\Sigma xy/N$	

Y Values Represent Intelligence Quotients

$$M_x = \text{Assumed Mean} + \frac{\Sigma X}{N} \cdot C.I_x \text{ or } = 76.33$$

$$M_y = \text{Assumed Mean} + \frac{\Sigma Y}{N} \cdot C.I_y \text{ or } = 100.83$$

$$\sigma_x = \sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot C.I_x = 12.2$$

$$\sigma_y = \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2} \cdot C.I_y = 11.4$$

$$r = \frac{\frac{\Sigma xy}{N} - \left(\frac{\Sigma X}{N} \cdot \frac{\Sigma Y}{N}\right)}{\sigma_x \cdot \sigma_y} = .641$$

$$P.E. = .6745 \frac{1-r^2}{N} = .05$$

APPENDIX G

Correlation Between Scores in Vocabulary Ability Test in Modern History and I. Q. Scores in the Junior Class in the Jamestown Senior High School

X Values Represent Vocabulary Scores

	40	45	50	55	60	65	70	75	80	85	90	95	f	d	fx	fx ²	xy
130										1	2	2	5	6	30	180	96
125														5			
120										1	3		4	4	16	64	44
115								2	2	2	2		8	3	24	72	36
110							1	4	2	4			11	2	22	44	18
105						1	3	2	2	1	3	1	13	1	13	13	12
100					2	2	4	2	2	5			17	0	0	0	0
95				1	1	3	6	5	1	2			19	-1	-19	19	14
90	1		1	3	2	4	3	1		1			16	-2	-32	64	78
85					1	1	2						4	-3	-12	36	21
80							1						1	-4	-4	16	4
75																	
70				1	1								2	-6	-12	72	42
f		1		1	5	7	11	20	16	9	17	10	3		100	26	580
D		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4				
fx		-7		-5	-20	-21	-22	-20	0	9	34	30	12		-10	26	365
fx ²		49		25	80	63	44	20	0	9	68	90	48		496	496	365

$M_x = \text{Assumed Mean} + \frac{\sum X \cdot d}{N} \cdot C.I_x$ or
 $= 74.5$

$M_y = \text{Assumed Mean} + \frac{\sum Y \cdot d}{N} \cdot C.I_y$ or
 $= 101.3$

$\sigma_x = \sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} \cdot C.I_x$
 $= 11.1$

$\sigma_y = \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2} \cdot C.I_y$
 $= 11.95$

$r = \frac{\sum XY - \left(\frac{\sum X \cdot \sum Y}{N}\right)}{\sqrt{\frac{\sum X^2}{N} \left(\frac{\sum X}{N}\right)^2} \cdot \sqrt{\frac{\sum Y^2}{N} \left(\frac{\sum Y}{N}\right)^2}}$
 $= .707$

P.E. = $.6745 \frac{1-r^2}{\sqrt{N}}$
 $= .03$

Y Values Represent Intelligence Quotients

APPENDIX I

Correlation Between Vocabulary Ability and Scores in the Social Science Section of the Sones-Harry Achievement Test of the Seniors of the Jamestown Senior High School

X Values Represent Vocabulary Ability Scores		50	55	60	65	70	75	80	85	90	95	f	d	$f \times d$	$f \times d^2$	xy		
	90									1		1	7	7	49	14		
	85								2	3	1	6	6	36	216	48		
	80								1		1	2	5	10	50	20		
	75								3	2		5	4	20	80	28		
	70						2	1	7	5		15	3	45	135	45		
	65					1	1	3	1			6	2	12	24	4		
	60				1		3	1	2			7	1	7	7	4		
	55						4	7	1	1		13	0	0	0	0		
	50	1			1	1	2	3	5			13	-1	-13	13	8		
	45		1		1	1	4	4				11	-2	-22	44	32		
	40		1	3		1	1	1	2			9	-3	-27	81	55		
	35		1			1		1				3	-4	-12	48	32		
	30			1		2	1					4	-5	-20	100	65		
	25			1	1		1					3	-6	-18	108	66		
	f		2	4	4	5	7	17	21	24	12	2		98	25	955	413	8
	D		-6	-5	-4	-3	-2	-1	0	1	2	3			Σd	Σd^2		
	$f \times d$ or ΣX		-12	-20	-16	-15	-14	-17	0	24	24	6		-40	255	9.74	405	4.13
	$f \times d^2$ or ΣX^2		72	100	64	45	28	17	0	24	48	18		416	4.24	ΣX^2	Σxy	Σxy^2

$M_x = \text{Assumed Mean}$
 $+ \frac{\Sigma X}{N} \cdot C.i.x$ or
 $= 79.59$

$M_y = \text{Assumed Mean}$
 $+ \frac{\Sigma Y}{N} \cdot C.i.y$ or
 $= 55.255$

$\sigma_x = \sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot C.i.x$
 $= 10.05$

$\sigma_y = \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2} \cdot C.i.y$
 $= 15.55$

$r = \frac{\Sigma xy - \left(\frac{\Sigma X \cdot \Sigma Y}{N}\right)}{\sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2}}$
 $= .682$

P.E. = $.6745 \frac{1-r^2}{\sqrt{N}}$
 $= .03$

Y Values Represent Achievement Test Scores

APPENDIX J

Correlation Between Scores Made in Modern History Vocabulary Ability Test and Scholastic Averages of Seniors in the Jamestown Senior High School

Y Values Represent Scholastic Averages	X Values Represent Vocabulary Scores													f	d	fXd	fXd ²	xy								
	35	40	45	50	55	60	65	70	75	80	85	90	95					+	-							
1.00													1	1	2	8	16	128	40							
1.25															2	7	14	98	28							
1.50															2	6	12	72	12							
1.75													1	1	1	3	5	15	75	15						
2.00													2	1	5	2	1	11	4	44	176	40				
2.25															1	2	1	1		3						
2.50													1	4	4	1	10	2	20	40	10					
2.75													3	4	3	1	11	1	11	11	2					
3.00													2	1	1	2	2	2	1	11	0	0	0	0		
3.25													2	2	1	1	1	7	-1	-7	7	3				
3.50													1	1	1	2	1	5	2	2	15	-2	-30	60	52	
3.75													2	2	2	1	4			1	14	-3	-42	126	99	
4.00																					2	-4	-8	32	40	
4.25																					1	-5	-5	25	10	
f																					96		47	895	351	3
D																							.47	9.32	348	3.62
fXd																										
fXd ²																										
Σf																					96		47	895	351	3
ΣD																							.47	9.32	348	3.62
ΣfXd																										
ΣfXd ²																										
ΣX																					473		4.92			
ΣX ²																					473		4.92			

$$M_x = \frac{\sum X}{N} = \frac{473}{96} = 4.925$$

$$M_y = \frac{\sum Y}{N} = \frac{351}{96} = 3.645$$

$$\sigma_x = \sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} = 10.75$$

$$\sigma_y = \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2} = .7525$$

$$r = \frac{\sum XY - \left(\frac{\sum X}{N} \cdot \frac{\sum Y}{N}\right)}{\sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} \cdot \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2}} = .602$$

$$P.E. = \frac{1-r^2}{\sqrt{N}} = .047$$

APPENDIX K

Correlation Between Scores Made in Modern History Vocabulary Ability Test and Scholastic Averages of Juniors in the Jamestown Senior High School

X Values Represent Vocabulary Test Scores

	40	45	50	55	60	65	70	75	80	85	90	95	f	d	$f \cdot d$	$f \cdot d^2$	xy		
1.00											1	2	3	9	27	243	99		
1.25										1			1	8	8	64	16		
1.50									2		4		6	7	42	289	98		
1.75										2			2	6	12	72	24		
2.00							1	1	1	1	2		5	5	25	125	45		
2.25							1		3	2	1		7	4	28	112	36		
2.50					1				2	4	2		9	3	27	81	39		
2.75						1	1	2	1	1		1	7	2	14	28	8		
3.00						2	4	3		3			12	1	12	12	2		
3.25					1	1	2	5	4		1		14	0	0	0	0		
3.50			1	1	1	1	5	6	1	3	1		20	-1	-20	20	9		
3.75					1	5	5				1		12	-2	-24	48	30		
4.00		1			3	3	1	4					12	-3	-36	108	102		
4.25						1		3					4	-4	-16	64	24		
4.50						1							1	-5	-5	25	15		
f			1		1	5	9	12	28	16	10	18	12	3		94	1286	545	2
D			-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4					
$f \cdot d$			-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4					
$f \cdot d^2$			49	36	25	16	9	4	1	0	1	4	9	16					
ΣX			49		25	80	81	48	28	0	10	72	108	48		549			
ΣX^2																549			
ΣY																94			
ΣY^2																94			
ΣXY																11.18		543	4.72
$\Sigma XY/N$																			

$M_x = \text{Assumed Mean} + \frac{\Sigma X}{N} \cdot C.I_x$ or 74.175

$M_y = \text{Assumed Mean} + \frac{\Sigma Y}{N} \cdot C.I_y$ or $= 3.4542$

$\sigma_x = \sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot C.I_x = 10.9$

$\sigma_y = \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2} \cdot C.I_y = .81$

$r = \frac{\Sigma XY - \left(\frac{\Sigma X \cdot \Sigma Y}{N}\right)}{\sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2}} = .687$

P.E. = $.6745 \cdot \frac{1-r^2}{\sqrt{N}} = .033$

Y Values Represent Scholastic Averages

APPENDIX L

Correlation Between Scores Made in Modern History Vocabulary Ability Test and Scholastic Averages of Sophomores in the Jamestown Senior High School

X Values Represent

Vocabulary Test Scores

Scholastic Averages	Vocabulary Test Scores														f	d	fxd	fxd ²	xy	
	35	40	45	50	55	60	65	70	75	80	85	90	95	+					-	
1.00									1		3				4	9	36	324	90	
1.25							1	1				2		1	5	8	40	320	80	
1.50											3	1			4	7	28	196	91	
1.75																6				
2.00							1	1	1	3	3		1		10	5	50	250	100	
2.25							1			3		2	1		7	4	28	112	48	
2.50							2	3	1	4	2	1			13	3	39	117	51	
2.75							1	4	3	3	2				13	2	26	52	28	
3.00							3	2	2		2				9	1	9	9	5	
3.25		1				1	2	4	4	1	2				15	0	0	0	0	
3.50				2	3	3	4	5	3	1					21	-1	-21	21	22	
3.75	1			2	1	4	4	3	2						17	-2	-34	68	56	
4.00		1	1	1	3	3	2	4	1						16	-3	-48	-144	93	
4.25					1	3									4	-4	-16	64	36	
4.50			1												1	-5	-5	25	25	
f		1	2	2	5	8	14	21	27	21	12	21	3	2	139		132	1702		
D		-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5						
fxd		-7	-12	-10	-20	-24	-28	-21	0	21	24	63	12	10			95	12.2	745	5.36
fxd ²		49	72	50	80	72	56	21	0	21	48	189	48	50	756	5.45	12.2	745	5.36	

Y Values Represent Scholastic Averages

$$M_x = \text{Assumed Mean} + \frac{\sum X}{N} \cdot C \cdot I_x \text{ or}$$

$$= 70.3$$

$$M_y = \text{Assumed Mean} + \frac{\sum Y}{N} \cdot C \cdot I_y \text{ or}$$

$$= 3.49$$

$$\sigma_x = \sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} \cdot C \cdot I_x$$

$$= 11.65$$

$$\sigma_y = \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2} \cdot C \cdot I_y$$

$$= .8275$$

$$r = \frac{\sum XY - \left(\frac{\sum X}{N} \cdot \frac{\sum Y}{N}\right)}{\sqrt{\frac{\sum X^2}{N} \left(\frac{\sum X}{N}\right)^2} \cdot \sqrt{\frac{\sum Y^2}{N} \left(\frac{\sum Y}{N}\right)^2}}$$

$$= .687$$

$$P.E. = .6745 \frac{1-r^2}{\sqrt{N}}$$

$$= .03$$

APPENDIX M

Correlation Between Odd and Even Questions on "A" Form of Modern History Vocabulary Ability Test

X Values Represent Odd Questions

	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	f	d	$f \times d$	$f \times d^2$	xy
100													2			2	5	10	50	40
95											3	4	6	2		15	4	60	240	208
90								1	3	7	24	21	9	1		66	3	198	594	474
85								2	6	7	12	11	3			41	2	82	164	148
80						4	4	5	17	10	15	3	2			60	1	60	60	32
75						10	8	10	11	4						43	0	0	0	0
70				1	3	14	17	22	4			1				62	-1	-62	62	51
65			2	1	2	5	9	4	6			1				30	-2	-60	120	118
60		1		1	4	9	8	1	3							27	-3	-81	243	216
55					6	3	2	3	1							15	-4	-60	240	160
50	1		1	3	4	2	3	1								15	-5	-75	375	290
45			1													1	-6	-6	36	36
40			1													1	-7	-7	49	42
35			1													1	-8	-8	64	48
f	1	1	6	5	17	26	50	42	68	39	58	41	22	8		379		51	2297	
D	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6					
$f \times d$ or ΣX	-8	-7	-36	-25	-68	-78	-100	-42	0	59	116	123	88	15		17		245	1348	6.06
$f \times d^2$ or ΣX^2	64	49	216	125	272	234	200	42	0	39	232	369	352	75		269		6.97	1863	4.91

Y Values Represent Even Questions

$$M_x = \text{Assumed Mean} + \frac{\Sigma X}{N} \cdot C.i.x \text{ or } = 70.224$$

$$M_y = \text{Assumed Mean} + \frac{\Sigma Y}{N} \cdot C.i.y \text{ or } = 75.674$$

$$\sigma_x = \sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot C.i.x = 2.446 \times 5 \text{ or } 12.23$$

$$\sigma_y = \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2} \cdot C.i.y = 2.458 \times 5 \text{ or } 12.29$$

$$r = \frac{\Sigma XY - \left(\frac{\Sigma X \cdot \Sigma Y}{N}\right)}{\sqrt{\frac{\Sigma X^2}{N} \left(\frac{\Sigma X}{N}\right)^2} \cdot \sqrt{\frac{\Sigma Y^2}{N} \left(\frac{\Sigma Y}{N}\right)^2}} = .817$$

$$P.E. = .6745 \frac{1-r^2}{TN} = .01$$

APPENDIX N

Correlation Between Odd and Even Questions on "B" Form of Modern History Vocabulary Ability Test
 X Values Represent Odd Questions

	35	40	45	50	55	60	65	70	75	80	85	90	95	100	f	d	$f \cdot d$	$f \cdot d^2$	xy
100									1						1	5	5	25	
95												5	3	1	9	4	36	144	128
90										5	3	11	6	3	28	3	84	252	249
85								1		2	8	10	1		22	2	44	88	102
80					2			1	7	12	5	8	1		36	1	36	36	41
75					1		5	6	1	7	11	4			35	0	0	0	0
70					1	6	4	10	5	1	1	1			29	-1	-29	29	34
65					1	1	1	1	2	3					9	-2	-18	36	32
60					1	4	3	2	3	2					15	-3	-45	135	111
55					2	1	2								5	-4	-20	80	80
50		1	1		3	2	1								8	-5	-40	200	205
45																-6			
40																-7			
35			1			1									2	-8	-16	128	88
30					1										1	-9	-9	81	45
f		1	2		3	13	13	12	23	19	27	28	39	11	4	200	28	1234	
D		-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5				
$f \cdot d$ or ΣX		-8	-14		-40	-42	-39	-24	-23	0	27	56	117	44	20	74	37	14	6.17
$f \cdot d^2$ or ΣX^2		64	98		200	208	117	48	23	0	27	112	351	176	100	1524	7.62		1112
																			5.56
																			Σxy
																			$\Sigma xy/N$

$M_x = \text{Assumed Mean}$
 $+ \frac{\Sigma X}{N} \cdot C_1 \cdot i_x$ or
 $= 76.85$

$M_y = \text{Assumed Mean}$
 $+ \frac{\Sigma Y}{N} \cdot C_1 \cdot i_y$ or
 $= 75.70$

$\sigma_x = \sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot C_1 \cdot i_x$
 $= 13.675$

$\sigma_y = \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2} \cdot C_1 \cdot i_y$
 $= 12.399$

$r = \frac{\Sigma xy - \left(\frac{\Sigma X}{N} \cdot \frac{\Sigma Y}{N}\right)}{\sqrt{\frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2} \cdot \sqrt{\frac{\Sigma Y^2}{N} - \left(\frac{\Sigma Y}{N}\right)^2}}$
 $= .807$

$P.E. = .6745 \frac{1-r^2}{\sqrt{N}}$
 $= .016$

Brown's Formula
 Nr^2
 \sqrt{N} or .887

Y Values Represent Even Questions

APPENDIX P

Correlation Between Scores Made in Modern History Vocabulary Ability Test and Achievement Test by Sophomores in the Jamestown Senior High School

X Values Represent

Vocabulary Test Scores

	35	40	45	50	55	60	65	70	75	80	85	90	95	f	d	$f \cdot d$	$f \cdot d^2$	$\frac{xy}{N}$		
70												1	1	2	5	10	50	45		
65											1	1		2	4	8	32	28		
60								1		7			1	9	3	27	81	66		
55							2	2	3	3	6	1		17	2	34	68	58		
50							2	4	2	1	4			13	1	13	13	14		
45			1			2	5	5	6	5	3	1		28	0	0	0	0		
40					2	3	3	7	3	1	2			21	-1	-21	21	4		
35	1		2	2	3	5	4	5	3	1				26	-2	-52	104	86		
30		1		2	2	2	2	2	1					12	-3	-36	108	75		
25						1		1						2	-4	-8	32	8		
20							1							1	-5	-5	25	5		
f	1	1	2	5	7	13	10	26	19	11	23	4	2	133		-30	534			
D	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5							
$f \cdot d$	-7	-6	-10	-20	-21	-26	-19	0	19	22	69	16	10	27		20	23	4.076	389	2.98
$f \cdot d^2$	49	36	50	80	63	52	19	0	19	44	207	64	50	733		5.57	2.3			

Y Values Represent Achievement Scores

$$M_x = \text{Assumed Mean} + \frac{\sum X}{N} \cdot C.I_x \text{ or}$$

$$= 71.015$$

$$M_y = \text{Assumed Mean} + \frac{\sum Y}{N} \cdot C.I_y \text{ or}$$

$$= 43.855$$

$$\sigma_x = \sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} \cdot C.I_x$$

$$= 11.65$$

$$\sigma_y = \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2} \cdot C.I_y$$

$$= 10.025$$

$$r = \frac{\sum XY - \left(\frac{\sum X}{N} \cdot \frac{\sum Y}{N}\right)}{\sqrt{\frac{\sum X^2}{N} - \left(\frac{\sum X}{N}\right)^2} \cdot \sqrt{\frac{\sum Y^2}{N} - \left(\frac{\sum Y}{N}\right)^2}}$$

$$= .649$$

$$P.E. = .6745 \frac{1-r^2}{\sqrt{N}}$$

$$= .05$$

APPENDIX Q

Data Based on Pretest and Retest Achievement Test Scores of Paired Pupils in the Two Drill Sections of Modern History in the
Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
48	1	23	23	529	68	1	25	25	625
38	1	13	13	169	60	1	17	17	289
37	1	12	12	144	56	2	13	26	338
36	1	11	11	121	53	1	10	10	100
35	1	10	10	100	49	1	6	6	36
32	1	7	7	49	48	2	5	10	50
29	2	4	8	32	47	2	4	8	32
28	1	3	3	9	44	3	1	3	3
27	2	2	4	8	43	1	0	0	0
26	2	1	2	2	42	1	-1	-1	1
25	3	0	0	0	40	1	-3	-3	9
24	1	-1	-1	1	39	1	-4	-4	16
22	2	-3	-6	18	38	1	-5	-5	25
20	2	-5	-10	50	37	1	-6	-6	36
19	1	-6	-6	36	36	1	-7	-7	49
15	3	-10	-30	300	35	1	-8	-8	64
14	1	-11	-11	121	34	1	-9	-9	81
12	1	-13	-13	169	33	2	-10	-20	200
					32	1	-11	-11	121
					30	1	-13	-13	169
					29	1	-14	-14	196
Totals	27		21	1858		27		4	2440

21	{fd	4
.778	{fd/N	.16
1858	{fd ²	2440
68.8	{fd ² /N	90.4
29	Q ₃	48
25	Median	43
20	Q ₁	35
12-48	Range	29-68
25.778	Mean	43.16
8.258	S.D.	9.506
17.52-34.04 ± 1 S.D.		33.65-52.67

APPENDIX R

Data Based on Pretest and Retest Achievement Test Scores of Paired Pupils in the Three Undrilled Sections of Modern History in the Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
45	1	23	23	529	66	1	25	25	625
38	1	16	16	256	56	1	15	15	225
34	1	12	12	144	55	1	14	14	196
33	1	11	11	121	50	1	9	9	81
31	1	9	9	81	49	3	8	24	192
30	1	8	8	64	46	1	5	5	25
29	1	7	7	49	45	2	4	8	32
25	1	3	3	9	43	2	2	4	8
24	3	2	6	12	41	2	0	0	0
23	2	1	2	2	39	2	-2	-4	8
22	1	0	0	0	38	1	-3	-3	9
21	1	-1	-1	1	37	1	-4	-4	16
20	1	-2	-2	4	36	1	-5	-5	25
19	2	-3	-6	18	35	1	-6	-6	36
16	3	-6	-18	108	34	2	-7	-14	98
14	1	-8	-8	64	30	2	-11	-22	242
13	3	-9	-27	243	29	1	-12	-12	144
10	1	-12	-12	144	27	1	-14	-14	196
6	1	-16	-16	256	22	1	-19	-19	361
Totals	27		7	2105		27		-3	2519

7	Σfd	-3
.259	Σfd/N	-.11
2105	Σfd ²	2519
77.9	Σfd ² /N	93.3
24	Q ₃	49
22	Median	41
16	Q ₁	34
6-45	Range	22-66
22.26	Mean	40.89
8.82	S.D.	9.65
13.44-31.08	±1 S.D.	31.24-50.54

APPENDIX S

Data Based on Pretest and Retest Scores in Vocabulary Ability Test
Form "A" of Paired Pupils in the Two Drilled Sections of
Modern History in the Jamestown Senior High School

Pretest					Retest				
Score	f	d	fd	fd ²	Score	f	d	fd	fd ²
93	1	23	23	529	94	1	18	18	324
86	4	16	64	1024	92	1	16	16	256
85	1	15	15	225	88	2	12	24	288
83	1	13	13	169	87	1	11	11	121
78	2	8	16	128	86	1	10	10	100
74	2	4	8	32	84	1	8	8	64
73	1	3	3	9	83	1	7	7	49
69	1	-1	-1	1	82	3	6	18	108
68	4	-2	-8	16	81	1	5	5	25
67	1	-3	-3	9	80	2	4	8	32
65	1	-5	-5	25	78	1	2	2	4
64	1	-6	-6	36	73	3	-3	-9	27
62	1	-8	-8	64	72	1	-4	-4	16
61	1	-9	-9	81	71	1	-5	-5	25
60	1	-10	-10	100	68	1	-8	-8	64
59	2	-11	-22	242	66	2	-10	-20	200
51	1	-19	-19	361	63	1	-13	-13	169
38	1	-32	-32	1024	62	1	-14	-14	196
					60	1	-16	-16	256
					58	1	-18	-18	324
Totals	27		29	4087		27		20	2648

29	$\sum fd$	20
1.07	$\sum fd/N$.74
4087	$\sum fd^2$	2648
151.37	$\sum fd^2/N$	98.1
83	Q ₃	84
68	Median	80
62	Q ₁	68
38-93	Range	58-94
71.07	Mean	76.74
12.26	S.D.	9.88
58.81-83.33	± 1 S.D.	66.86-86.62

APPENDIX T

Data Based on Pretest and Retest Scores in Vocabulary Ability Test
Form "A" of Paired Pupils in the Three Undrilled Sections of
Modern History in the Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
92	1	23	23	529	95	1	22	22	484
86	1	17	17	289	88	2	15	30	450
85	1	16	16	256	87	1	14	14	196
82	1	13	13	169	86	1	13	13	169
80	1	11	11	121	84	1	11	11	121
78	1	9	9	81	82	2	9	18	162
77	1	8	8	64	81	2	8	16	128
74	1	5	5	25	79	1	6	6	36
73	1	4	4	16	78	2	5	10	50
72	1	3	3	9	71	2	-2	-4	8
71	1	2	2	4	69	2	-4	-8	32
70	2	1	2	2	65	1	-8	-8	64
69	1	0	0	0	62	1	-11	-11	121
68	1	-1	-1	1	61	1	-12	-12	144
65	1	-4	-4	16	60	1	-13	-13	169
63	1	-6	-6	36	59	2	-14	-28	392
60	1	-9	-9	81	57	1	-16	-16	256
58	1	-11	-11	121	55	1	-18	-18	324
57	2	-12	-24	242	47	1	-26	-26	676
56	1	-13	-13	169					
55	1	-14	-14	196					
53	1	-16	-16	256					
52	1	-17	-17	289					
51	1	-18	-18	324					
Totals	26		-20	3296		26		-4	3982

-20	$\sum fd$	-4
-.77	$\sum fd/N$	-.15
3296	$\sum fd^2$	3982
126.77	$\sum fd^2/N$	153.15
77	Q_3	82
69.5	Median	74.5
57	Q_1	61
51-92	Range	47-95
68.23	Mean	72.85
11.2	S.D.	12.4
57.03-79.43	± 1 S.D.	60.45-85.25

APPENDIX U

Data Showing How Much Paired Pupils Increased Scores in Retest over
Pretest in Vocabulary Ability in Two Drilled and Three Un-
drilled Sections of Modern History in the Jamestown
Senior High School

Score	Drilled				Score	Undrilled			
	f	d	fd	fd ²		f	d	fd	fd ²
31	1	24	24	576	12	3	8	24	192
22	1	15	15	225	11	2	7	14	98
14	1	7	14	196	10	2	6	12	72
13	1	6	6	36	8	1	4	4	16
12	1	5	5	25	7	1	3	3	9
10	2	3	6	18	6	3	2	6	12
9	1	2	2	4	5	2	1	2	2
8	2	1	2	2	4	2	0	0	0
7	1	0	0	0	3	2	-1	-2	2
6	2	-1	-2	2	2	2	-2	-4	8
5	2	-2	-4	8	1	1	-3	-3	9
4	1	-3	-3	9	-1	1	-5	-5	25
2	4	-5	-20	100	-3	1	-7	-7	49
1	4	-6	-24	144	-7	1	-11	-11	121
-2	1	-9	-9	81	-8	1	-12	-12	144
-3	1	-10	-10	100	-10	1	-14	-14	196
-5	1	-12	-12	144					
Totals	27		-10	1670		26		7	955

-10	$\{fd$	7
-.37	$\{fd/N$.26
1670	$\{fd^2$	955
61.85	$\{fd^2/N$	36.73
10	Q_3	10
5	Median	5.5
1	Q_1	2
(-5)-31	Range	(-10)-12
6.63	Mean	4.26
7.85	S.D.	6.05
(-1.22)-14.48 ± 1 S.D.		(-1.79)-10.31

APPENDIX V

Data Showing How Much Paired Pupils Increased Scores in Retest over
 Pretest in Achievement in Two Drilled and Three Undrilled
 Sections of Modern History in the Jamestown Senior
 High School

Score	Drilled				Score	Undrilled			
	f	d	fd	fd ²		f	d	fd	fd ²
34	1	17	17	289	33	2	16	32	512
33	1	16	16	256	32	1	15	15	225
29	1	12	12	144	31	1	14	14	196
24	2	7	14	98	25	1	8	8	64
23	1	6	6	36	24	3	7	21	147
22	4	5	20	100	23	3	6	18	108
21	1	4	4	16	22	2	5	10	50
20	1	3	3	9	21	2	4	8	32
19	2	2	4	8	18	2	1	2	2
18	1	1	1	1	17	2	0	0	0
16	1	-1	-1	1	11	2	-6	-12	72
15	1	-2	-2	2	8	1	-9	-9	81
12	1	-5	-5	25	6	2	-11	-22	242
11	3	-6	-18	108	4	1	-13	-13	169
10	1	-7	-7	49	1	1	-16	-16	256
8	2	-9	-18	162	-1	1	-18	-18	324
6	1	-11	-11	121					
4	1	-13	-13	169					
3	1	-14	-14	196					
Totals	27		8	1790		27		7	955

8	$\sum fd$	38
.296	$\sum fd/N$	1.41
1790	$\sum fd^2$	2480
66.29	$\sum fd^2/N$	91.85
22	Q_3	24
19	Median	21
11	Q_1	11
3-34	Range	(-1)-33
17.296	Mean	18.41
8.13	S.D.	9.48
9.136-25.426	± 1 S.D.	8.93-27.89

APPENDIX W

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in the Two Drill Sections of Modern History in the James-
town Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
48	1	23	23	529	69	1	27	27	729
38	1	13	13	169	68	1	26	26	676
37	1	12	12	144	65	2	23	46	1058
36	2	11	22	242	60	1	18	18	324
35	1	10	10	100	55	1	13	13	169
34	1	9	9	81	53	2	11	22	242
32	1	7	7	49	51	1	9	9	81
31	3	6	18	108	49	2	7	14	98
29	2	4	8	32	48	2	6	12	72
28	4	3	12	36	47	5	5	25	125
27	2	2	4	8	46	4	4	16	64
26	5	1	5	5	44	3	2	6	12
25	5	0	0	0	43	3	1	3	3
24	3	-1	-3	3	42	2	0	0	0
23	4	-2	-8	16	41	2	-1	-2	2
22	2	-3	-6	18	40	3	-2	-6	12
21	5	-4	-20	80	39	3	-3	-9	27
20	2	-5	-10	50	38	2	-4	-8	32
19	2	-6	-12	72	37	4	-5	-20	100
18	1	-7	-7	49	36	2	-6	-12	72
17	1	-8	-8	64	35	1	-7	-7	49
16	1	-9	-9	81	34	2	-8	-16	128
15	3	-10	-30	300	33	2	-9	-18	162
14	1	-11	-11	121	32	2	-10	-20	200
12	1	-13	-13	169	30	2	-12	-24	288
10	1	-15	-15	225	29	1	-13	-13	169
8	1	-17	-17	289	24	1	-18	-18	324
Totals	57		-23	3040		57		74	5218

-23	$\sum fd$	74
-.4	$\sum fd/N$	1.29
3040	$\sum fd^2$	5218
53.3	$\sum fd^2/N$	91.54
28	Q_3	47
25	Median	42
21	Q_1	37
8-48	Range	24-69
24.6	Mean	43.29
7.29	S.D.	9.48
17.31-31.89	± 1 S.D.	33.81-52.77

APPENDIX X

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in the Three Undrilled Sections of Modern History in the
Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
45	1	21	21	441	70	1	26	26	676
40	1	16	16	256	66	1	22	22	484
38	4	14	56	784	65	1	21	21	441
37	1	13	13	169	62	2	18	36	648
35	1	11	11	121	61	3	17	51	867
34	2	10	20	200	60	1	16	16	256
33	4	9	36	324	59	1	15	15	225
32	1	8	8	64	58	1	14	14	196
31	2	7	14	98	57	7	13	91	1183
30	5	6	30	180	56	1	12	12	144
29	2	5	10	50	55	1	11	11	121
28	3	4	12	48	54	1	10	10	100
27	1	3	3	9	53	1	9	9	81
26	6	2	12	24	52	2	8	16	128
25	6	1	6	6	51	2	7	14	98
24	4	0	0	0	50	1	6	6	36
23	3	-1	-3	3	49	4	5	20	100
22	5	-2	-10	20	48	2	4	8	32
21	2	-3	-6	18	47	2	3	6	18
20	2	-4	-8	32	46	2	2	4	8
19	6	-5	-30	150	45	3	1	3	3
17	4	-7	-28	196	44	2	0	0	0
16	4	-8	-32	256	43	5	-1	-5	5
15	1	-9	-9	81	41	5	-3	-15	45
14	4	-10	-40	400	39	3	-5	-15	75
13	4	-11	-44	484	38	4	-6	-24	144
12	1	-12	-12	144	37	4	-7	-28	196
11	1	-13	-13	169	36	7	-8	-56	448
10	1	-14	-14	196	35	1	-9	-9	81
9	1	-15	-15	225	34	3	-10	-30	300
6	1	-18	-18	324	33	1	-11	-11	121
					32	1	-12	-12	144
					31	1	-13	-13	169
					30	2	-14	-28	392
					29	2	-15	-30	450
					27	2	-17	-34	578
					22	1	-22	-22	484
Totals	84		-14	5572		84		79	9477

-14 $\sum fd$ 79
 -.16 $\sum fd/N$.94
 5572 $\sum fd^2$ 9477
 66.32 $\sum fd^2/N$ 112.82
 30 Q_3 53.5
 24 Median 43.29

17 Q_1 36.36
 6-45 Range 22.70
 23.84 Mean 44.94
 8.14 S.D. 10.59
 15.7-31.98 ± 1 S.D. 34.35-55.53

APPENDIX Y

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in A's Undrilled Sections in Modern History in the
Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
45	1	20	20	400	66	1	23	23	529
40	1	15	15	225	62	1	19	19	361
38	3	13	39	507	61	1	18	18	324
35	1	10	10	100	57	4	14	56	784
34	2	9	18	162	56	1	13	13	169
33	4	8	32	256	54	1	11	11	121
31	1	6	6	36	53	1	10	10	100
30	2	5	10	50	52	2	9	18	162
29	1	4	4	16	51	2	8	16	128
28	2	3	6	18	50	1	7	7	49
27	1	2	2	4	49	2	6	12	72
26	4	1	4	4	48	2	5	10	50
25	3	0	0	0	47	1	4	4	16
24	1	-1	-1	1	46	1	3	3	9
23	3	-2	-6	12	45	3	2	6	12
22	2	-3	-6	18	43	2	0	0	0
21	2	-4	-8	32	41	3	-2	-6	12
20	1	-5	-5	25	38	4	-5	-20	100
19	3	-6	-18	108	37	2	-6	-12	72
17	3	-8	-24	192	36	6	-7	-42	294
15	1	-10	-10	100	35	1	-8	-8	64
14	3	-11	-33	363	34	2	-9	-18	162
13	3	-12	-36	432	33	1	-10	-10	100
10	1	-15	-15	225	31	1	-12	-12	144
9	1	-16	-16	256	30	1	-13	-13	169
					29	1	-14	-14	196
					27	2	-16	-32	512
Totals	50		-12	3542		50		47	4711

-12	$\sum fd$	47
-.24	$\sum fd/N$.94
3542	$\sum fd^2$	4711
70.84	$\sum fd^2/N$	94.22
31	Q_3	51
25	Median	43
19	Q_1	36
9-45	Range	27-66
24.76	Mean	43.95
8.4	S.D.	9.66
16.36-33.16	± 1 S.D.	34.28-53.6

APPENDIX Z

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in A's Drill Section in Modern History in the Jamestown
Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
35	1	12	12	144	69	1	17	17	289
34	1	11	11	121	65	2	14	28	392
32	1	9	9	81	53	1	11	11	121
31	1	8	8	64	48	1	6	6	36
29	2	6	12	72	47	3	5	15	75
27	1	4	4	16	46	3	4	12	48
26	1	3	3	9	44	2	2	4	8
25	3	2	6	12	42	2	0	0	0
24	3	1	3	3	40	2	-2	-4	8
23	1	0	0	0	39	2	-3	-6	18
22	1	-1	-1	1	37	3	-5	-15	75
21	4	-2	-8	16	36	1	-6	-6	36
20	2	-3	-6	18	35	1	-7	-7	49
19	2	-4	-8	32	34	1	-8	-8	64
16	1	-7	-7	49	33	1	-9	-9	81
15	3	-8	-24	192	32	1	-10	-10	100
12	1	-11	-11	121	30	1	-12	-12	144
					29	1	-13	-13	169
Totals	29		3	951		29		3	1713

3	$\sum fd$	3
.10	$\sum fd/N$.10
951	$\sum fd^2$	1713
32.93	$\sum fd^2/N$	59.1
25	Q ₃	47
23	Median	42
20	Q ₁	37
12-35	Range	29-69
23.1	Mean	42.1
5.74	S.D.	7.69
17.36-28.84	$\pm 1.S.D.$	34.41-49.79

APPENDIX AA

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in F's Undrilled Sections in Modern History in the
Jamestown Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
38	1	15	15	225	70	1	26	26	676
37	1	14	14	196	65	1	21	21	441
32	1	9	9	81	62	1	18	18	324
31	1	8	8	64	61	2	17	34	578
30	3	7	21	147	60	1	16	16	256
29	1	6	6	36	59	1	15	15	225
28	1	5	5	25	58	1	14	14	196
26	2	3	6	18	57	3	13	39	507
25	3	2	6	12	55	1	11	11	121
24	3	1	3	3	49	2	5	10	50
22	3	-1	-3	3	47	1	3	3	9
20	1	-3	-3	9	46	1	2	2	4
19	3	-4	-12	48	44	2	0	0	0
17	1	-6	-6	36	43	3	-1	-3	3
16	4	-7	-28	196	41	2	-3	-6	18
14	1	-9	-9	81	39	3	-5	-15	75
13	1	-10	-10	100	37	2	-7	-14	98
12	1	-11	-11	121	36	1	-8	-8	64
11	1	-12	-12	144	34	1	-10	-10	100
6	1	-17	-17	289	32	1	-12	-12	144
					30	1	-14	-14	196
					29	1	-15	-15	225
					22	1	-22	-22	484
Totals	34		-18	1834		34		90	4794

-18	$\sum fd$	90
-.53	$\sum fd/N$	2.65
1834	$\sum fd^2$	4794
53.94	$\sum fd^2/N$	141
28	Q_3	57
23	Median	44
16	Q_1	39
6-38	Range	22-70
22.47	Mean	46.65
7.3	S.D.	11.6
15.17-29.77	$\pm 1.S.D.$	35.05-58.25

APPENDIX BB

Data Based on Pretest and Retest Achievement Test Scores of All Pupils
in F's Drill Section in Modern History in the Jamestown
Senior High School

Score	Pretest				Score	Retest			
	f	d	fd	fd ²		f	d	fd	fd ²
48	1	22	22	484	68	1	25	25	625
38	1	12	12	144	60	1	17	17	289
37	1	11	11	121	55	1	12	12	144
36	2	10	20	200	53	1	10	10	100
31	2	5	10	50	51	1	8	8	64
28	4	2	8	16	49	2	6	12	72
27	1	1	1	1	48	1	5	5	25
26	4	0	0	0	47	2	4	8	32
25	2	-1	-2	2	46	1	3	3	9
23	3	-3	-9	27	44	1	1	1	1
22	1	-4	-4	16	43	3	0	0	0
21	1	-5	-5	25	41	2	-2	-4	8
18	1	-8	-8	64	40	1	-3	-3	9
17	1	-9	-9	81	39	1	-4	-4	16
14	1	-12	-12	144	38	2	-5	-10	50
10	1	-16	-16	256	37	1	-6	-6	36
8	1	-18	-18	324	36	1	-7	-7	49
					34	1	-9	-9	81
					33	1	-10	-10	100
					32	1	-11	-11	121
					30	1	-13	-13	169
					24	1	-19	-19	361
Totals	28		1	1955		28		5	2361

1	$\sum fd$	5
.04	$\frac{\sum fd}{N}$.18
1955	$\sum fd^2$	2361
69.82	$\frac{\sum fd^2}{N}$	84.32
29	Q ₃	48.67
26	Median	43
22.75	Q ₁	37.67
8-48	Range	24-68
26.04	Mean	43.18
8.36	S.D.	9.18
17.68-34.4	± 1 S.D.	34-52.36

APPENDIX CC

Data Based on Pretest and Retest Achievement Test Scores of Paired Pupils in A's Drilled and Undrilled Sections of Modern History in the Jamestown Senior High School

Drilled			Undrilled		
Pretest	Retest	Increase in Score	Pretest	Retest	Increase in Score
35	56	29	45	66	32
32	56	24	38	56	31
29	53	24	34	50	24
29	48	23	33	49	24
(28)	(47.5)	(22.5) Q_3	(32)	(47)	(23.5)
27	47	22	31	45	23
25	44	22	30	45	22
25	44	22	25	43	22
24	42	19	23	41	21
(23)	(41)	(19) Median	(23)	(41)	(19.5)
22	40	19	23	41	18
20	37	18	21	38	18
20	36	16	20	36	17
19	35	15	19	35	11
(17)	(34)	(13.5) Q_1	(16.5)	(34.5)	(11)
15	33	12	14	34	11
15	32	11	13	34	4
15	30	11	13	30	1
12	29	4	10	27	-1
364	662	291 Totals	392	670	278
21.8	41.4	18.2 Means	24.5	41.9	17.4

^aNumbers in parenthesis are calculated quartile and median scores and not actual scores of the paired pupils.

APPENDIX DD

Comparison of the Progress Made by Drilled and Undrilled Pupils in
Achievement in A's Sections in Modern History in the
Jamestown Senior High School

Criteria	Drilled	Undrilled
Range of scores in pretest	12-35	10-45
Range of scores in retest	29-56	27-66
Improvement in range of scores	17-21	17-21
Inter-quartile range of pretest scores	17-28	16.5-32
Inter-quartile range of retest scores	34-47.5	34.5-47
Improvement in inter-quartile scores	17-19.5	18-15
Mean score in pretest	21.8	24.5
Mean score in retest	41.4	41.9
Improvement in mean scores	19.6	17.4
Median score in pretest	23	23
Median Score in retest	41	41
Improvement in median scores	18	18
Range of increases in scores	4-29	(-1)-32
Inter-quartile range of increases	13.5-22.5	11-23.5
Median increase in scores	19	19.5
Mean increase in scores	18.2	17.4

APPENDIX EE

Data Based on Pretest and Retest Achievement Test Scores of Paired Pupils in F's Drilled and Undrilled Sections of Modern History
in the Jamestown Senior High School

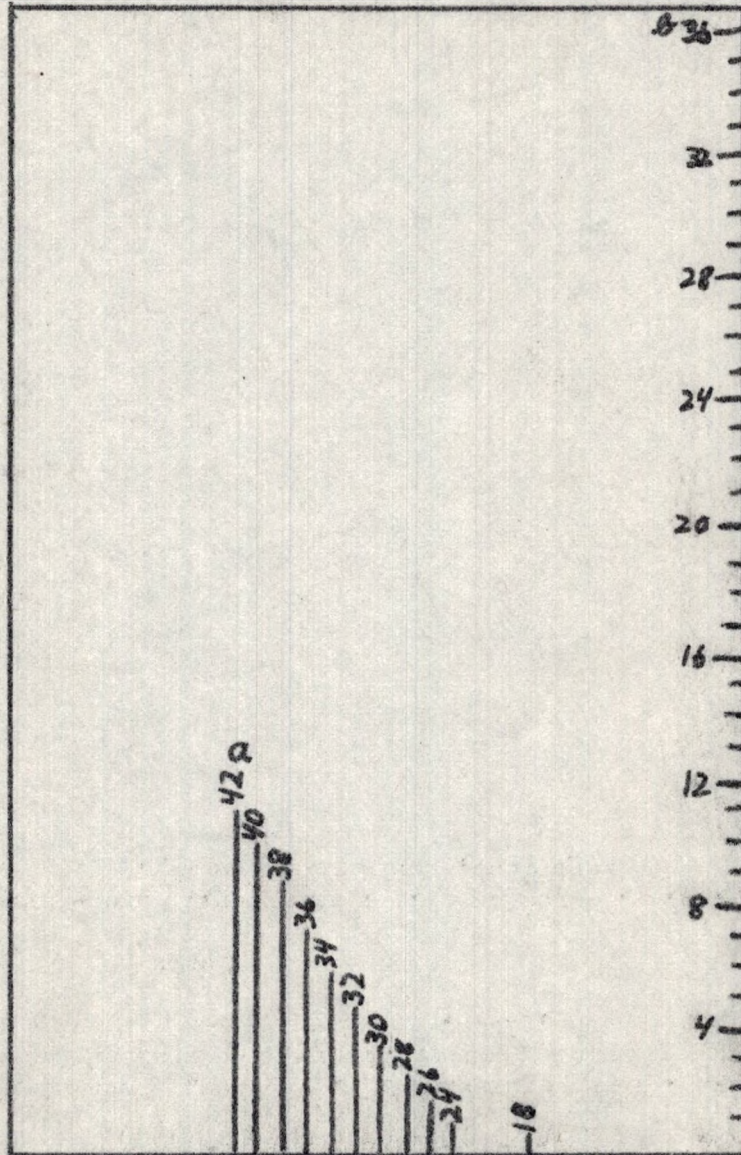
Drilled			Undrilled		
Pretest	Retest	Increase in Score	Pretest	Retest	Increase in Score
48	68	34	29	55	33
38	60	33	24	49	33
37	49	22	24	49	25
36	48	21	24	46	24
28	47	20	22	43	23
27	44	11	19	39	23
26	43	10	16	39	21
26	39	8	16	37	17
25	38	8	16	30	8
22	34	6	13	29	6
14	33	3	6	22	6
327	504	176	Totals	209	438
29.7	45.8	16	Mean	19	39.8
					219
					19.9

Comparison of the Progress Made by Drilled and Undrilled Pupils in
Achievement in F's Sections in Modern History in the
Jamestown Senior High School

Criteria	Drilled	Undrilled
Range of scores in pretest	14-48	6-29
Range of scores in retest	33-68	22-55
Improvement in range of scores	19-20	16-26
Mean score in pretest	29.7	19
Mean score in retest	45.8	39.8
Improvement in mean scores	16.1	20.8
Median score in pretest	27	19
Median score in retest	44	39
Improvement in median scores	17	20
Range of increases in scores	3-34	6-33
Median increase in scores	11	23
Mean increase in scores	16	19.9

APPENDIX FF

Copy of a Transparent Scanning Sheet Used to Determine the Amount of Space to Be Deducted for Pictures, Chapter Headings, Questions for Discussion and Other Such Deductions



^aThese lines and numbers stand for letters in the line.
^bThese marks and numbers stand for lines on the page.