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Directed Supervised Study Versus Home Study in Sixth Grade History

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Loyola University Chicago

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DIRECTED SUPERVISED STUDY VERSUS HOME STUDY
IN SIXTH GRADE HISTORY

Lilian Mattocks Johnson

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Loyola University

July 1, 1931
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CHAPTER I

STATEMENT OF THE PROBLEM

A. Introduction

The value and advisability of homework for pupils in the elementary school have received considerable attention during the past ten years. It is during the first six years of school that the fundamentals and many habits of study should be taught. Some educators maintain that these study habits are best learned under the direct supervision of the teacher. The term, supervised study, implies a type of pupil guidance in study which will presumably develop in the pupil the desirable types of study habits.

Pupils of the sixth grade have many interests aside from the school room subjects to claim their attention, such as, music, drawing, library reading, girl and boy scout activities, modeling in clay and other art activities in the Saturday classes at the Art Institute. All these interests contribute to the complete living of a healthy individual. Training along the lines of these social activities is probably as essential for complete living as is training in study for the schoolroom work. These activities require time and this time must usually follow the school day.
Then, too, study is only accomplished under conditions favorable for the act of study. Few children can isolate themselves at home with a comfortable desk and the necessary equipment for study. Interesting radio broadcasts often take place during the hour set aside for study. Callers, telephone conversations, and plans of other family members may interfere with home study at some time or other.

Classes which have supervised study in school may, of course, be so motivated that the pupils will need more time to complete their tasks to their own satisfaction than can be found at school. However, unfinished business of the above type which may have to be done at home is quite different from the usual assigned homework.

B. Statement of the Problem

In the above paragraphs the writer has indicated briefly the conditions which have been and are confronting her in the teaching of history to several sixth-grade classes in a Chicago public school. The work in history follows the departmental plan.

Some of the children come from homes of the well-to-do. Much of their time at home is used to promote social talents. Likewise, many of their parents are socially active. Many of the children come from homes which are substantially comfortable. A few come from homes where the elements of our
so-called culture are but few if any. These will be referred to later in greater detail in the present study.

In the present study it will be the aim of the writer to compare the effectiveness of two types of teaching procedures in sixth-grade history:

1. The supervised study plan, and
2. Home study based upon the same assignments as were given to the supervised study group.

The effectiveness of the above methods will be measured in various ways:

1. By a comparison of the achievement of the classes, based upon identical tests given to both the experimental and control groups. Individuals, paired on the basis of mental and initial history achievement tests, were also compared and studied at the end of each unit of work.

2. By a comparison of the extent to which the two groups had acquired certain habits of study. Identical tests of study habits were given to both groups. Individual pupils, paired on the basis of initial tests in the study habits in question and of somewhat like mental ages and I.Q.'s, were also compared as to their gains made after each unit of work.

3. By a comparison of the interest evident in the two groups as revealed by the quality and quantity of the subject-matter of their note-books, and by the voluntary responses and
expressions which were given in their supplementary projects. The paired individuals (see 1 and 2 above) were also compared as to the apparent interest and effort put forth by them.

4. By a study through re-tests of the extent to which retention both in the matter of study habits and subject-matter in history was evident after extended periods of time; four, eight, twelve, and sixteen weeks respectively.
CHAPTER II

THE NEED FOR SUPERVISED STUDY

It is generally understood that a child attends school in order that he may learn. To learn means to devote one's self to the acquisition of such knowledge and skills as seem desirable from the point of view of the school. For this purpose effective methods of study must also be provided in this period of formal education in order that the students may acquire this knowledge effectively.

The method of training in study which has been most frequently discussed in recent years is known as supervised study. In the supervision of study, the teacher is more concerned with preparing the pupils to learn the new lesson, than she is in hearing them recite an old one. Through her supervision the teacher introduces the pupils to new forms of experience and shows how these may be learned so as to become the possession of the learner. The teacher and pupil must pool their efforts. The teacher stimulates, teaches, directs; the child responds by active participation. Finally, there evolves a technique or plan of study that will make him eventually his own teacher.

It is in the elementary school that the child begins
to form habits as a learner. If these habits are properly
guided in their formation it is reasonable to expect that with
use and development there will be an accompanying sense of
power, a knowledge of self that will stimulate greater effort
and higher ambition. Here ideals and attitudes have their
roots. Hallquest says, "Supervised Study is regarded as the
core of all instruction" (8:12).

Contrasted with study which is supervised and properly
controlled in a well-ordered class room, is home study.
The latter is assigned to the pupil to be done outside of
school hours. A lesson which has been carefully and properly
assigned to a class may presumably be studied at home if the
conditions at home are favorable for study. Every child of
elementary-school age eagerly looks forward to some activity
after school, other than studying, however. The home-study
work is usually regularly done later in the evening, according
to the responses of the pupils in the writer's classes. Assum-
ing that the child has a suitable desk or table and a room in
which to study, a fact often denied to many, there are never-
theless other factors which may be present to interfere with
real study. The radio may be in use by other members of the
family, or the telephone by another, or perhaps friends come
to call. All these physical disturbances probably interfere
and at times prevent the home study altogether.
But if physical conditions were all favorable, the inspiration to study might still be lacking, or at best might only be the remnant of the inspiration which the teacher had provided at the time of the assignment.

There is probably no one present during the study time at home to stimulate, to direct, and to encourage the student. The various members of the home have probably sufficient activities of their own to occupy their time. Charles C. Hughes says, that knowing how to study is more important than knowing how to recite and that this important part of the child's training should be accomplished under the direct supervision of the teacher, and not left to the busy home (11:231-32).

The need for supervised study has also been keenly felt by many pupils and teachers of elementary and secondary schools and indeed in colleges as well.

In a recent study made by F. C. Borgeson the students list as fourth in importance in their opinion for causes of failure, "Poor Study Habits" and first in importance, "Lack of Study" (4:543).

The writer, F. C. Borgeson, asked over 1,000 elementary and secondary school pupils the following question: "What do you consider the causes of failure and poor school work?". The pupil had to consider not necessarily why he himself fails but why any of his fellows should or do fail. Seventy-five
per cent of all of the causes given by the pupils were based directly upon the idea that the pupils themselves were primarily responsible. More than one-third of all the causes given related to lack of study and poor study habits. These children consciously placed the responsibility upon their own shoulders for failure in school. They showed discernment, however, in their ability to recognize a need on their part for training in how to study (4:542-48).

Another study by F. P. Wirth presents a list of difficulties in teaching history as discovered by a large number of teachers of history. One difficulty, "Student does not know how to study history," is given as the third most frequent difficulty on the basis of the number of teachers reporting the same.

In this study 71 difficulties or problems in teaching history were listed, and 1,417 teachers reported. The questionnaire asked that history teachers number each difficulty with one figure (1, 2, or 3) according to the degree or rank of its importance. Nine hundred thirty teachers reported that "the student does not know how to study history." Of these, 658 teachers gave this problem a rating of one. One thousand forty one teachers reported that, "Student tries to remember rather than understand history." This was the most frequent difficulty listed. Of the 1041 teachers listing this diffi-
sulty, 660 gave it a rating of one. Most of the 1,417 teachers who reported felt keenly a need for instruction in how to study. Mr. Wirth says, "Systematic instruction in how to study would no doubt be a key to the solution of some of these difficulties" (24:115-22).

The solution to any problem in teaching follows more readily when the problem is understood by the teacher and pupils. This appears to be the work of the supervised study period in school. Since students admit that they do not know how to study, and teachers also realize the lack of this ability in the students, methods of study should probably be taught under teacher supervision in order that the students may succeed with their assignments. W. C. Reavis says, "No technique of teaching has yet been devised which is so flexible and so adaptable to the proper instruction of individuals in groups as supervised study" (18:419).

The need for teaching pupils to study is not only felt by high-school and elementary-school pupils, but also by students in our colleges. Guy M. Whipple reported that among the failures not due to inadequate intelligence, one of the prominent causes is the lack of knowing how to study. An investigation was made by Whipple of 324 college students on probation at the University of Michigan. One-sixth of all the students questioned gave lack of knowing how to study as one of
the chief causes for failure. A lecture was given before a
group of high-school students and an experiment in a high-
school course in teaching students to study was carried on.

Two groups were used. One had instructions in how to study, the other did not. The first group progressed so well and the students in the other group were so impressed that they secretly purchased the textbook used by the first group. When reprimanded, they complained that they were not getting the help in study that the other students were receiving. This shows plainly that the students were eager for training in methods of study. The experiments with college students conducted by Mr. Whipple were made only with the weak students, but he believes that, while improvement in the superior students may not be as evident as in the case of the weaker students, it would be of sufficient value to warrant giving a course on how to study to all entrants to a university (23:1-12). Fortified with the tools for learning, namely proper study habits, the college student may approach each lesson with a feeling of assurance that he can master it. This self-reliance and independence in thought gives him increasing ability to meet new situations successfully. This may indeed be considered one of the real tests of intelligence.

Edward Safford Jones (University of Buffalo) is of the same opinion as Whipple in regard to training students in
Methods of study at the time of entering college. Jones refers to a special course on the technics of study which is given in the University of Buffalo. A detailed report of the requirements of the course and the students' opinions of the same are given in the article. The course is required of all entering freshmen who were in the lower fifths of their high-school classes. The following ten valuable methods of procedure in study are listed in the course:

1 - Practice in Taking Notes - All students were urged to adopt the outline method. Eight lectures in how to study and four on more general topics were given, each an hour in length. At the end of each lecture the notes were collected and carefully graded and marked. The next day each student was interviewed, and his notes were discussed as to their logic, completeness, accuracy, and form. Many of the students had never taken notes before; few had given any attention to the effectiveness of their notes.

2 - Theme Writing - Second in value came drills in writing English themes, followed by conferences with expert college instructors.

3 - Content of the Lectures - Students considered the content of the lectures next in importance. The lectures on purpose, habits, memory, and attentiveness were most frequently mentioned as valuable.
4 - **Drill in Rapid Reading** - Newspaper clippings were passed to each student at least once a day, and a record was kept of their speed of reading and comprehension.

5 - **Training in Assimilating** - The purpose here was to train students to assimilate the contents of books. Assignments were made from three books in how to study, with additional assignments suiting the special purposes of individual students.

6 - **Mathematics** - Problems in mathematics were of value to those planning a mathematics or science major. There was a partial review of the main concepts of intermediate algebra with stress on methods of solving and checking simple problems.

7 - **Library Practice** - Assignments were given to look up information in twenty common miscellaneous reference books. Various dictionaries, encyclopedias, almanacs, etc., were discussed, and students were examined as to their ability to trace the best sources of information for a number of unfamiliar subjects.

8 - **Outside Reading** - Oral ten minute reports were required on outside reading. The form and content of what was discussed were critically examined later.

9 - **Memorization** - Experiments were tried out in memorizing lists of foreign words. There were demonstrations
the use of a set of cards in building up a vocabulary.

10 - Taking Notes from Difficult Material - A good deal of time was spent in taking notes from various abstract excerpts from textbooks.

Value of the Course - The college records of seventy-two students who came from the lower fifths of their high-school classes and who had taken the course were compared with those of ninety students from the middle fifth of their high-school classes who had not taken the course. The conclusions drawn by Jones are as follows:

1 - The "How to Study" group benefits particularly in drill subjects; that is, they are relatively better in foreign languages, English composition and mathematics.

2 - The "How to Study" group was markedly superior in economics.

3 - The least benefit was noted in the subject of history, but this was probably due to the fact that the content of the course in how to study did not prepare students with sufficient definiteness for the special types and methods of work favored by the college history instructors.

4 - In science the members of the "How to Study" group who had had as their college instructor a strict teacher who followed the lecture method, required a great deal of work, and gave frequent tests, did better, but those who had had a
lenient teacher, who surprised the students by failing them at the end of the course, did less well. The conclusion is that a course in how to study is more beneficial in preparing for courses in which the drill method prevails than in preparing for classes where there is more informal discussion.

5 - In general, the number of students surviving the freshman year with an average of C or better was doubled, and the number of failures was reduced from 40 per cent to 15 per cent (12:702-05).

Judging from the author's conclusions the required course on the technic of study was a very valuable one for all those who pursued it. The course which was declared by the students to be "the most arduous toil ever required of them" saved them from possible failure during their first college year (12:702-05). Besides the technical skills learned, the students also probably felt an independence and reliability in themselves which they never before had experienced.

It would have been interesting to follow these students to their various classes throughout their college course.

Another method of attacking the problem of study habits used by college students is to determine how the successful students study. James D. Weinland made a study in this field. A questionnaire of seventy items on methods of studying was prepared. Most of the items were taken from books on how
to study. Honor students in New York University, who were upper classmen in the School of Commerce, were requested to answer the items of the questionnaire. An interview was held with each student answering the questionnaire. The answers to twenty questionnaires, together with the impressions gained from the interviews, form the basis of this study.

The conclusions drawn by Weinland are as follows:

1 - The good students worked and studied alone. He thinks this indicates self-reliance or purpose.

2 - They (the good students) avoided distraction, particularly noise stimuli.

3 - Successful students make it a practice not to work when tired. Short rest periods more than pay for themselves. Alternating tasks prove refreshing. A certain ability to manage time is as important as good intentions.

4 - Most of the good students worked by assignment. The ability to limit and direct effort to the problems assigned by the instructor seems to be more valuable to the average college student than studying things with a personal appeal.

5 - Good students keep fairly complete notes. A systematic review before examinations is quite common. Cramming is considered valuable when necessary.

6 - Successful students have enough interest or purpose in their work to recall and think over what they have
heard or read. Organization of the material is furthered and
the memory strengthened by this process.

7 - Usually the good students eat lightly in the fore
part of the day and heavier in the evening. Many students,
especially freshman, are at a low level of efficiency because,
having left home, their living habits become disorganized and
they have not been able to establish new ones. The poor stu-
dents responded one hundred per cent that they had no general
rules for keeping fit.

8 - The ability to read rapidly and the general con­
fidence displayed by the excellent students would indicate that
success in college is built upon previous successes and skills
already developed.

9 - Most of the good students were social. They have
hobbies, belong to social groups, and usually dance or play
cards. They are not often of the shut-in type.

10 - Some good students mark their books, most of them
do not leave space in their notes for the addition of new ideas.
Though these methods are good they are not fundamental.

11 - In interviews with students regarding methods of
study the exclamation has frequently been made: Why wasn't
this told us when we were freshmen? Methods must become habits
before they are very useful and it takes time to develop habits.
If beginning students were given more training in how to study
more efficient graduates would be produced (22:521-26).

From the foregoing article it is plainly evident that successful students appreciate the need for a good technic in study habits. Although they recognize the value of habits which have proved beneficial to themselves, they are desirous of gaining other habits of study. They adopt a critical attitude upon realizing that there were technics which had not been taught them during their early training in how to study. Certainly the bright students would go even further and the less capable students would be greatly benefited if all beginning students were given training in how to study effectively.

Another type of experiment has been reported by Clay C. Ross (University of Kentucky) and Nira M. Klise (Iowa State College) which analyses study methods on the basis of the students' intelligence and achievement.

A questionnaire was used which contained a number of detailed questions on such topics as:

1. Meaning of Study.
2. Time and place selected for study.
5. Method of distributing time among difficult and easy subjects.
6. Studying alone and with others.
This questionnaire was answered by 540 college students. The intelligence ratings and academic records of 472 of these students were secured. The students were classified as intelligent and unintelligent, successful and unsuccessful, according to their standing in the upper or lower fourth of the entire group in intelligence or academic standing.

Of those students who have had specific instructions in how to study the least intelligent have profited most. Of the least intelligent fourth, 71 per cent of those attaining high scholarship have had specific instructions in how to study (20:551-62).

The present writer personally believes that the least intelligent pupils need help more than do the brighter students. Since 71 per cent of the least intelligent gained high scholarships through instruction in how to study as shown by the experiment just reviewed, it evidently was worth while to have taught the study methods to those students.

Studies have been made, as shown in this chapter, to emphasize the need for specific instruction in study habits for all types of students on all school levels. Since this need for supervised study is apparently keenly felt by many students and teachers alike, the writer is of the opinion that the teaching of habits of study to pupils may profitably be investigated by the classroom teacher in order to determine the validity of our
so-called supervised study procedures from the point of view of success on the part of the pupils in learning the subject-matter and skills presented in the classroom.
CHAPTER III

PSYCHOLOGY OF SUPERVISED STUDY

In order to help a pupil to form correct habits of study it will be necessary for the teacher to determine what the present methods are which the pupil uses in preparing his lessons. These may probably be determined more easily during study periods than during recitations. It is probable that nearly all pupils are using some methods of study for the preparation of their lessons. However, the recitation period comes too late for the giving of any advice as to the intellectual procedures desirable for studying a particular lesson. The observation of study habits is probably the best accomplished during the supervised study period. At this time the teacher may direct the pupils while they are at work so that the intellectual methods which they cultivate will be of the most economical and effective type.

According to Judd, when pupils are confronted with difficult passages and they do not know what to do with them it is simply because they have not been trained in the course of their earlier study to ask questions about difficulties and to find answers to these questions. It is highly important therefore, that they be trained in these matters (13:513).

Probably one of the most important functions of the
mind is the discovery of problems. This ability challenges the student in the early stages of study. Questions may be formed in the pupil's mind, which, if answered to his satisfaction by consulting some other student, preclude further reading or study. If no solution is found through discussion one must turn to books for the answer to the problem. The habit of turning to a book to solve a problem may be cultivated by encouraging the pupil to consider books as his personal friends who are ready to help him when a problem confronts him.

The book method of finding a solution to a problem is a complex procedure which necessitates specific training. It differs from the method used by a scientific investigator who experiments to find a solution to his problem. Social discussion is also a method which is exceptionally valuable when it is necessary to bring out different points of view relative to a problem. Each method has a place and should be adapted to the particular need which it can fill. Which method should be used and how to distinguish between the methods the pupil should be trained to master is a problem in the field of pedagogy.

Reading is a term sometimes reserved for the mechanics of reading while studying is thought of as a form of intensive reading. In the content subjects reading is evidently used as a means to an end. The emphasis is not on the
mechanics of reading but on the thought expressed. In studying, the student has a definite purpose which involves the necessity of handling the materials so as to achieve a desired end.

The end in studying is the solution of the problem which the mind has discovered. Reading is the tool to be used by the student when he turns to books for his solution. Just as tools are used for many purposes and in several ways by different individuals aiming to accomplish the same purpose, so reading techniques vary depending upon the content of the material to be read and the purpose of the reader.

Judd and Buswell studied reading habits of pupils for different types of material. Through their study they found that individuals vary widely in reading habits for different types of material (13:210-11).

Likewise it has been found that it is a common tendency for persons to read at a slower rate than that of which they are capable of reading. Experiments indicate according to Starch that with a moderate amount of definite practice and with a conscious effort to improve, the speed of reading may be increased from 50% to 100% without loss in the comprehension of the ideas read (21:186).

Many people believe that a rapid reader comprehends relatively little of what he reads and that a slow reader makes
up for his slowness by a more complete understanding and mastery of thought. This, however, has been repeatedly doubted and experiments show the contrary to be true. Whipple and Curtis in their study of skimming in reading found that the slowest reader was the poorest reproducer and the best reproducer was one of the fastest readers (21:286).

Starch reports the results of a reading test made in an elementary school in Port Townsend, Washington. The pupils of each grade were divided into six groups according to their speed of reading, putting the slowest sixth together and the next sixth together and so on to the last sixth, consisting of the most rapid readers. The fast group read almost exactly four times as fast as the slowest group and comprehended three and one-third times as much as the slowest group. The rapid reader obtained several times as many ideas. The comparison may be made in another way: of two persons belonging respectively to groups one and six, each reading for one hour, the fast reader would cover four times as much ground and derive three and one-third times as many ideas as the slow reader. The fast reader, therefore, has an astounding advantage over the slow reader (21:284-85).

Similar results have been presented by Judd. A survey of the records of Cleveland pupils was made. These records were divided into "slow," "medium" and "rapid." In a similar
manner the comprehension records were divided into classes of "slow," "medium" and "rapid." The results serve to emphasize the fact that good readers are usually not slow and poor readers are usually not fast. No absolute rule may safely be made. For the purpose of this survey, however, the general fact that high rate and good quality are commonly related is of great importance (21:285).

In observing a class in reading in which the pupils pass from one kind of reading matter to another there are frequently changes in the individual rates of reading. These rates of reading are probably in themselves not significant. They are, however, indications of differences within the subjects' mental abilities and as such are of great interest to educators. A consistently slow rate of reading would no doubt indicate that the pupil's equipment is in some respect incomplete.

The tool of reading for study is used to get thought from the printed page. The evidence of the student's ability to study lies in the nature of the method of study he uses. It is only through the development of proper fundamental habits in study that comprehension will result. Being equipped with the study tool, reading, the student is ready to attack the problem which is confronting him. If he goes to a book expecting to find the information in just the form which the question in his
mind requires, disappointment is likely to follow. The book must be used in its own way and there may be a need for other books to help answer the student's question. The answer may be scattered over several pages of one book. The proper and effective method of asking questions of a book, therefore, can be cultivated only when one learns to look in the different parts of a book where the different parts of the desired information may be found. Often one reads more than is necessary in order to answer his question, but in seeking out just the desired parts, he is learning a fundamental habit of study: that of discrimination. This technic is a most valuable timesaver in studying. If a student has several references in answer to a question, each adding something to the understanding and solution of his problem, he has not only studied, but he has studied discriminately.

An educational advancement is noted when students are not content with merely reciting what has been studied. A stimulated mind seeks constantly to gratify its interests and inquiry in libraries, laboratories and shops. In adult practice we refer to this urge as "research." In younger students their inquiries may be encouraged along their chosen interests. Successful students may then be recognized, not by the mere recitation of material acquired from their textbooks, but by the interest and independent inquiries which they pursue. Self
directed pupils and leaders in problem-solving rather than memorizing followers and lesson learners are the goal of the teacher who looks upon the subject-matter of the curriculum as the means and not the end in education.
CHAPTER IV.

THE TEACHING OF STUDY HABITS

Study habits may be regarded as the tools with which students work in the performance of mastering subject matter. Just as mechanical tools have specific uses and fitness for definite types of service, so habits of study are to be applied to different subjects with varying modifications of the habits. Most important for the mastery of subject matter is the presence of some forms of study habits which may be modified to suit the type of material to be studied.

In the first step of approach to the act of studying the student should know not only what he must do but also he should have a strong desire to accomplish the task. McMurry indicates that the appeal should make itself so strongly felt on the part of the pupil that he will approach the study with zest. (15:5-12) He should also be able to see in the activity required in his study opportunities for expressing his own individuality and look forward with pride to this expression. Burton believes that study should provide the student with vivid experiences and therefore understanding. (6:368)

With a keen desire on the part of the student he is ready to master the use of the required tools, the proper study habits.
In considering the habits necessary for the study of history one must consider first the nature of the subject matter to be mastered. In elementary-school history, the organization of the subject matter is usually in terms of the learner rather than in terms of the subject matter itself. This is illustrated by the discarding of presidential administrations as units of study, and presenting instead, large forces and movements, which the pupils can learn to understand but the details of which they need not memorize. These large topics usually require many details to support the general concept. While the details are forgotten, Archer suggests the "feeling-of-meaning" may remain with the pupil (1:19-31).

It is this feeling which is so important in studying history. To be understood history must be lived. Therefore, the approach to its study must concern itself with supplying the child with experiences which will help him to live in the period which he is studying. Some activities which may help children to learn through living are given by Bobbitt: (1) reading, (2) picture study, (3) oral report, (4) observation, (5) actual performance, (6) repeating, prolonging, and intensifying experiences, (7) problem solving and (8) generalization (3:44-52).

With the suitable material for study at hand and the approach to its study properly set forth by the teacher, the
pupils are fully prepared to attack with interest and determination the task before them.

An interesting report of a study made in teaching pupils to study is recorded by Horrall. All the elementary school teachers in San Jose, during the week of October 8 - 12, 1928 devoted one recitation period to teaching pupils to study some particular subject. In history the plan suggested eight activities.

1. Read with the idea of mastering the thought.
2. Attempt to picture what the author's words mean.
3. Recall an experience you have had through reading, seeing or hearing something similar about this subject.
4. Try to understand a strange word by its setting.
5. Add to what the author says, something you have read or heard.
6. Ask yourself after each paragraph "What question does this paragraph answer"?
7. Summarize the thought of each paragraph in your own words.
8. After reading the whole selection ask yourself what you have learned.

The results of the experiment indicated that some improvement was made in pupil understanding of the history
material read. Of ninety seven teachers who expressed an opinion concerning the plan, eighty-eight said the plan was worth continuing. Some suggested a longer period and others said they had been doing the same type of teaching previously. (10:518-23).

The habit of connecting one's personal experiences with the subject matter of history seems to have an appeal not otherwise felt by the pupil who merely reads the printed words of the history text. There is a marked similarity between the study habits of this experiment and the habits as outlined by Babbitt. (Reported earlier in this chapter)

Horrall also makes some suggestions for the study of all types of subjects:

1. Know what you are to study before you begin.
2. Rely on yourself when studying. 3. Work with a will. 4. Have a definite regular study time. 5. Have a definite place, conveniently arranged materials with good light and air. 6. Believe that you can do the work before attacking it. 7. Do not stop until you have accomplished something definite. 8. Stop at a good breaking off point. 9. Do not worry while studying. 10. Review the lesson briefly before the recitation if possible. 11. To retain the material for a long period, study for a short period every day for several days. 12. Review at regular intervals (10:518-23).
Different types of study would seem to require different habits for mastering the subject matter. Starch classifies all types of studying under three headings:

1. The Reading Type of Studying. In the elementary school probably eight-tenths and in the high school and the university probably two thirds of all studying consists essentially in reading.

2. The Laboratory Type of Studying. This type obviously consists of the manipulation of apparatus, the observation of material, the recording of observations and experimental data, and the interpretation of these data.

3. The Analytical or Reasoning Type of Studying. This type is involved in those subjects in which the amount of reading is relatively little, but in which the task consists of a thorough mastery of a relatively small amount of text. Such studying is obviously involved in mathematics and in a few other types of difficult reading, as for example, certain branches of philosophy and the speculative and theoretical aspects of the sciences." (21:179)

In the study of history it is evident that the reading type above is the method most applicable to the subject matter to be mastered.

It may be well to refer briefly at this point to certain physical requirements for efficient study. These may
be said to function in preparation for the act of study. For example, a proper physical or bodily attitude for work may assist the learner in frame of mind which will necessitate a minimum amount of voluntary effort on the learner's part to start the mental machinery going. Likewise, various physical distractions whether they be visual or auditory no doubt usually interfere with study activities. It is desirable that noises or other distractions should be eliminated from the immediate field of attention before study begins. Again, an excellent physical condition of the body will serve to promote healthy mental activities. A definite and regular time for study is also a very desirable habit to cultivate.

When the external conditions have been made favorable and an alert and mentally active student is ready for study we are ready to take up the second habit (consider regular time for study as the first regular study habit) to be mastered, that of knowing exactly what to do. To understand thoroughly the assignment is the first step in attacking a problem. When a student understands thoroughly what he is to do, the question of how he shall proceed will follow closely.

Starch gives as a rule for study, "Make a rapid preliminary survey of the assigned material" (21:187). Not only should the student have an understanding of what he is to do, but he should also know the approximate extent of the assign-
that is, how much there is to the problem from the point of view of the unfamiliar, the probable amount of review that will be necessary, and the time allotment which he should provide for the lesson.

The next step involves the attack on the problem. In history it is a reading problem. We will assume that the assignment is clear and that the proper references have been given for study. The method of reading will first involve locating the related passages in the references. Judd says: "If a person goes to a book and insists on getting the information in just the form in which the question is present in the mind, he is likely to be disappointed. When one tries to get information out of a book, one must use the book in its own way. Perhaps the information which one wants is scattered over three or four pages. Possibly it is to be found only by consulting two or three different books. . . . Usually one has to read in the book many things that are not needed for the answering of the questions. . . . One very frequently gets more information than one needs when asking a question. The inquirer must learn to make selections" (13:512).

This, then, is our third habit of study, namely the technic of skimming while reading. The pupil learns to select only that material which seems to be directly related to the solution of the problem or question in hand. To skim means
more than to disregard. Some writers believe, and Judd is one, that a student should cultivate the habit of skimming through all sorts of related books besides the ones assigned and get a general impression of what a book contains even before he studies the details of the book.

While reading and selecting, the pupil should have the problem in mind which he is seeking to solve. One of the most important functions of the mind is to discover problems and relate them to similar past experiences for possible explanations. Here we have a fourth study habit, therefore, in the study of history, namely, the selecting from the materials read those facts which answer the question one has in mind. This habit is best acquired by pausing after reading each paragraph which probably contains the answer and mentally reviewing its meaning until the new knowledge is thoroughly experienced and understood by the reader. This step is called "picture study" by Bobbitt (3:44-62), and means picturing to one's self the meaning of the printed words. When this has been done, recall plays a part in bringing to the attention related past experiences which are not necessarily similar, but which may help to give meaning and understanding to the new material. Judd gives an example of this process, "If a pupil is reading history and finds the statement that, while the United States was passing through a certain series of events, England made such and such
a representation to our government, the question ought instantly to arise in his mind: Why was England interested in making this representation? This question, in turn, should raise in the pupil's mind the general question, What other incidents in international history are there which justify or do not justify England's contentions? (13:515) This appreciation of a need for fuller information is one of the most desirable outcomes of training in history. If through the study of history the pupil gains this appreciation, the subject of history will have served at least a twofold purpose: training in methods of study and the development of a critical attitude toward the facts of history.

Following this important habit is a fifth habit, that of applying the knowledge acquired. Starch says, "In all your work apply your knowledge as much as possible and as soon as possible." (21:187)

It is in the class recitation that opportunities for the application of the subject matter acquired during study are provided for the pupils. During the socialized recitation contributions may be made by others which may add to the general fund of information. But the real value for the individual pupil lies in the opportunity to express that which proper study habits have made possible for him.

The final step or sixth habit of study to be formed
the habit of generalizing from the ideas gathered in reading reciting which have contributed to the solution of the original problem. When this has been done we hope that memory will safeguard the information gained through the study processes until the time when recall shall require this knowledge in the understanding of another problem. It will no doubt be economical for the purpose of the reader to summarize briefly these essential steps or successive study habits which are considered desirable for the study of history. They are given in their order of use by the pupil.

**Study Habit One**

A definite and regular time for study is essential for the best results in studying history. Through regularity the mind and body become routinized and less effort is required for application to the work to be mastered.

**Study Habit Two**

A thorough understanding of the lesson assigned is necessary for the proper attack on the problem. Knowing just what to do is an excellent starting point for doing it in the study of history.

**Study Habit Three**

A technique called skimming is desirable during the preliminary study of a history lesson. During the skimming process the text materials should be scanned to find that sub-
matter which is related to the study problem. The pupil is to get a general impression of what the material contains.

Study Habit Four

The next important habit to use in the study of a history lesson is that of selection. One should practice selecting from the materials read those facts which answer the question one has in mind.

Study Habit Five

The habit of applying the knowledge acquired whenever possible is next in order. It is an enjoyable habit as well as an important one for the study of history. Applying tends to fix the facts in mind, to link them up with other facts and experiences. When the pupil can apply what he has learned he has truly learned.

Study Habit Six

The final habit, that of generalizing, is essential in studying history. Using the ideas gathered in class and in reading the pupil should learn to generalize, or to draw inferences. In this way he will equip himself with a set of guiding principles which, through frequent use in the school room, he learns to apply to the current history in the making all around him.
CHAPTER V
Experiments in Supervised Study

There has been considerable experimentation in the field of supervised study both in the general methods of study and in the study preparation for various individual subjects. It will be the aim of the writer to review in this chapter, first, some of the experiments which consider supervised study as a tool for the improvement of study habits in subjects other than history. This will constitute Part A of this chapter.

Part B will present a discussion of some of the experiments which apply particularly to the field of supervised study in history.

**Part A  Experiments in Supervised Study; Subjects other than History**

An experiment was performed by Breslich to determine the effect of supervised study in algebra. An algebra class was divided into two sections. One group of students had the usual recitation work and home study, while the work of the other group was conducted by confining all the study activities to the recitation period of 45 minutes during school hours only. This time was devoted partly to the supervision of study under the direction of the teacher and partly to recitation work. The groups consisted of pupils of approximately equal ability.
as indicated by the marks for the preceding semester's work; an average of 81.4 for the home study group and 79.4 for those who constituted the supervised study class. The home study class devoted approximately two hours to each lesson including the 45 minutes for the recitation period. The experiment was continued for a period of fourteen lessons. At the end of that period the same examination on the work covered by both groups was given to all the students. The supervised study group made an average of 65.5, and the home study group made an average of 62.8 (5:505-15).

It will be noted that the supervised study group secured a slightly higher average score than the home study group although the time spent in study and recitation was only about two-fifths as much as that spent by the home study group. From the point of view of efficiency the supervised study group leads. However, no consideration was given to matters of convenience and favorable study conditions for the supervised group as compared to the home study group. (5:505-15). In this study of Breslich's the supervised study group appears to be the more successful.

Let us observe the results of an experiment by Minnich in plane geometry. He divided a group of thirty-six pupils of a geometry class into two groups. One division had supervised study, the other did not. The study was continued
for a period of fifteen weeks. At the conclusion of the experiment the supervised group had averaged about 86 per cent for the fifteen weeks. The unsupervised group averaged 84 per cent for the fifteen weeks. (16:670-75) The fluctuations in improvement and failure to improve are more marked in the case of the unsupervised group. For example, during the thirteenth week, the average was only 77 per cent and one week later, namely, the fourteenth week, the average for the week mounted to 91 per cent, only to drop again to 85 per cent for the fifteenth week. In the case of the supervised group, however, the weekly averages tended to approximate the final average of 86 per cent with but one exception, an average of 83 for the eleventh week. A more constant mastery is noted throughout the study with the supervised group. (16:670-75)

From the above experiment one would conclude that the supervised study group in plane geometry made relatively more consistent progress; that the advantage in the matter of scholarship rested with the supervised group.

Proctor, who made a survey of schools on the Pacific coast, reported that he found forty-two high schools that employed supervised study in one form or another. The results indicated that wherever a plan for supervision of study had been used long enough to make the compiling of statistics possible as to the effect of supervised study on scholarship, there was
practically unanimous agreement that the number of failures had been reduced and the standards of scholarship had been raised. No specific subject was considered for all of the schools. At Snohomish, Washington, the high school pupils taking elementary algebra had an average percentage of failures of 28 per cent for the two years prior to the adoption of supervised study. But for the two year period following the adoption of supervised study the failures in the same subject were reduced to 17 per cent. In another city, Hoquiam, Washington, another type of improvement was noted. The average marks of the students ranged 10 per cent higher than previously and also the number of honor students had been doubled since supervised study was introduced. In still another high school, in Arcata, California, the average mark of the freshman class had been raised from the grade of 78 per cent to that of $82\frac{3}{4}$ per cent during the first year of supervised study. A comparison of high marks and low failures was made in Santa Cruz, California, for the periods preceding and following the experiment with supervised study. The results showed an increase of 157 per cent in the total number of high marks, and a decrease in low failures of 188 per cent. A report from Reno, Nevada, indicated a decrease of 45 per cent in the number of failures following supervised study and an increase of 24 per cent in the number of students making excellent marks. (17:326-27)
From the results obtained by Proctor it seems evident that the method of study which involves teacher-supervision is likely to be most successful regardless of the subject being studied, and that the bright pupils are benefited as well as the duller students. Educational leaders realize that a pupil's success in school and in later life depends largely upon his methods of work. To this end many high schools and colleges have organized courses in methods of study as indicated in the present report.

Another experiment in which comparisons were made of the work of pupils who had been given a course in how to study and those who had not been given such a course was conducted by D. Fred Gatchel. For this study eighty-five pupils of low and medium mentality were selected from pupils who comprised a ninth-year English class, a tenth-year class in junior business practice, and an eleventh-year history class, all of which were taught by the writer of the article. Each of these three classes was divided into two groups, which were designated as Group A and Group B throughout the experiment. Group A was given the how-to-study course, for which the book, "The Technique of Study," by Claude C. Crawford, Houghton Mifflin Co., 1928, was used to provide the basic content. Group B was given no course in study methods. The two groups were equated as nearly as possible according to chronological age, mental
age, intelligence quotient, reading score, total score in the Stanford Achievement Test, and an initial objective test in the subjects which the pupils were to pursue. Forty-three pupils were given the course in how to study, and forty-two were not. The experiment extended over a period of eight weeks. Group B used the class period for work on the assignments in each of the subjects named previously. Group A met in another room and received through the lectual method instructions in how to study. The content of the lectures was organized under six divisions: 1 - the characteristics of a good student; 2 - environment and equipment necessary for effective study; 3 - classroom attitude; 4 - habits of study as they effect the preparation of lessons; 5 - methods of review; and, 6 - preparation for tests. Note-taking was required in the form of principal points. Stress was laid on actual application of the methods of study taught, and students were requested to report on how they applied the information to their daily work in other courses. At the close of the eight weeks period both groups were again given the objective tests which they had taken at the beginning of the experiment. The results of the how to study course were judged by a comparison of the improvement of Group A and Group B in these objective tests in the subjects studied, and also by the marks received by the two groups in all their subjects. The experimental group A was followed in
its various subjects in order to determine the extent to which the instruction given in methods of study had influenced the marks received from their various teachers.

Improvement was measured on the basis of the unit of gain made in each subject. From the grade C to B, or from B to A, was regarded as one unit of gain. A decrease in the mark, such as from A to B or from B to C, was indicated by a negative unit of gain.

The most significant data were compiled in a table form for efficient comparison. This table indicates that Group A made more improvement than Group B in every subject except mathematics, ninth-grade physical education, and typing. In mathematics and physical education the groups were tied, and in typing, Group B was slightly higher. An interesting observation from the table shows that the "how to study" group under the heading of "Gain in all subjects" improved 26, or about one-fourth of a mark. Group B improved only .01, or one one-hundredth of a mark. Careful observation during the entire study revealed an attitude of increased enthusiasm and alertness among the students of the "how-to-study" group.

The students when asked to record the benefits which they had derived from the course mentioned: 1 - saving time and energy in preparing a lesson, 2 - more interest in their work, and 3 - increased comprehension in reading.
The teachers of these eighty-five pupils were asked to indicate which students had, in their opinion shown improvement in class attitude and quality of work. Since these teachers did not know the grouping of the pupils, their ratings should have significant bearing on the results of the experiment. An analysis of their opinions showed that 50 per cent of the "how-to-study" group had improved in attitude and in quality of work as compared to only 30 per cent of the group that had not had the course in "how to study" (7:123-30).

From a consideration of the data of this experiment it seems evident that it is possible to train pupils in methods of study and that such training carries over into a variety of subjects. It is also apparent that the "how-to-study" group made the superior improvement during the period of the experiment.

It is interesting to note that teachers not participating in the experiment as well as the writer who conducted the study and also the pupils themselves, appreciated the gain in power that was reflected in all of the work done by the "how-to-study" group (7:123-30).

From the results of the experiments just reported it would seem reasonable to conclude that methods of study are worth while tools for use in mastering any subject to which they are applied. Just as it is necessary to use proper tools
for the tasks for which the tools are intended so it is necessary to use the proper study habits for the purposes for which the habits are appropriate. Students who have gained an appreciation of the value of study habits also gain an independence in study and self-reliance for the tasks assigned them. This feeling of responsibility which is accompanied by a sense of confidence is one of the real values of mastering useful habits of study.

Part B Experiments in Supervised Study in History

Some notable investigations contribute rather strong evidence that pupils often lack the ability to study their textbooks understandingly. Certain specific types of reading habits are required for the preparation of history lessons. These differ from the type of training required for the reading of, say, poetry or fiction. Special methods must be devised which will help pupils to develop these special reading abilities. A technic is necessary which will aid pupils in how to read and study history for the purposes of interpretation, fact gathering, generalizations, and the like.

An experiment was made by Adelaide M. Ayer to ascertain children's difficulties by comparing responses to difficult paragraphs and to the same material simplified. An analysis of the types of difficulties, particularly the one involving abstract ideas was made.
Groups of fifth-grade and seventh-grade pupils were tested on paragraphs taken from typical history texts of the fifth grade. The results showed an astonishing inability on the part of both fifth- and seventh-grade pupils to comprehend these fifth-grade history paragraphs. Pupils who had average sixth-grade ability, according to standard tests, attained only twenty-five per cent comprehension on these paragraphs, and pupils with seventh-grade ability attained fifty per cent comprehension (2).

This experiment bears evidence that pupils of sixth-grade and seventh-grade ability in other subjects did not have sufficient power of comprehension of fifth-grade history material. Probably the technic for reading history understandingly had not been mastered.

A study was made by Judd and Buswell of pupils in the sixth grade and in high school to learn what the effects were upon the reading process when the pupils were told that they would later be quizzed upon the subject matter they read. Also they were urged to study it. The results showed that the effects varied greatly with different pupils, but they were generally unsatisfactory. The investigators conclude: "It is safe to say, in the minds of most students the expectation of questions does not lead to any well ordered plan of attack on the content of the passage read. There is probably little more
than a vague feeling of anxiety, a restless distraction arising from the idea of tomorrow's recitation and its dangers... One cannot escape the conviction that pupils have been left to work out their own devices of meeting the demands imposed on them in preparing their lessons through reading.

An interesting study was made by F. M. Giles of some difficulties in study experienced by the high-school pupils in his school. One supervised study period each week was provided for each class. During this period the teacher gave individual help to those needing it, and directed the methods of study for all the students. A check upon the work was kept. In mathematics, science, and history the methods of study were found to be especially helpful. In history the students were directed to pick out leading events in a given historical topic.

Besides teaching the students methods of study, it was found that improper methods could also be detected and corrected. Time was used to advantage and was apparently never wasted by those who had previously been habitual time wasters. The teachers spent the period in teaching methods of working to the pupils (9:153-56).
An interesting experiment was made by Rickard in the grouping of students according to their study habits in history. The students were placed in three groups. The students having the most efficient methods of study procedures were put into group one. Those having the poorest methods were placed in group three. The remaining students constituted the second or middle group. The classroom teachers then grouped the same students according to their opinions of class achievement, but they did not inform the experimenter of the nature of their groupings before the experiment was completed. It was found that the students stood well in history in proportion to the extent to which they were explicitly conscious of methods of study for that subject as indicated by the study habit examination. In the same school, in 1913, the lower half of a class in history was subjected to supervised study. Here they were made explicitly conscious of methods of study in history. These students improved rapidly in ranking and grades. A group of equal ranking and grades was allowed to proceed in the usual manner and gained nothing in ranking. (19:673-77)

From these studies by Rickard one may conclude that a knowledge of study methods in history increased the students' abilities in that subject enough to affect their rankings in the class. A knowledge of methods of study which give students confidence of mastery is probably also an excellent asset to
students.

By the use of the questionnaire procedure, Wayland found several varying responses to the question, why do pupils dislike history? Among the reasons given was that the pupils did not understand the book used as a text, it being too difficult for them. (9:252-53) J. H. Minnick in an investigation found that dislike and the feeling of uselessness of history were the prevailing reasons for boys' and girls' wanting to drop that subject. (9:253)

A symposium at Columbia University reported by Hall-Quest gives as the measure of the effectiveness of supervised study fourteen worthwhile results. One of them is that supervised study "Inspires pupils to study because they know how." (9:283)

It has been shown that the study of history requires certain specific types of training in reading for study. When pupils have had this training they enjoy using it and it is through the repeated use of these abilities that efficiency and enjoyment in performance result. Knowing how inspires and encourages one to do that for which he has been trained. The difficulties encountered by the pupils in the experiments, resulted from the inability to study history correctly. But when training was given in study habits for this subject improvement usually resulted.
When pupils learn how to read history understandingly they will see it big with world meaning and electric with life movements. History will no longer be regarded by students as useless and uninteresting. The average normal high school pupil will be moved by the adventure and romance which constitute this most fascinating subject in the school program.
Chapter VI

The Present Experiment

A. The Procedure

1. The Method: The method used in teaching history in this experiment involved two types of pupil study, namely, home study and directed supervised study in class. Two groups of beginning sixth graders were used. Both groups were given the same assignments and the same amount of time for the completion of a unit, in this case, four weeks. An initial test in history was given to both groups before any assignments were made in order to determine what information the students of each group had of the subject matter to be taught. A pre-test on study habits was also given to determine the amount of knowledge of certain study habits the pupils of each group possessed previous to teaching these habits of study. The history assignment for the first unit, "Ancient Civilization," was then given to both groups. The assignment was given to the classes in printed forms. The control or home study group studied at home and came back ready to recite on the assignment. The directed supervised study group came to class and was first taught the proper use of reference books. Five other study habits were also taken up during the first week. These study habits were reviewed from time to time for the experimental or directed study group. This group worked only under the writer's supervision in class writing the answers
to the questions of the assignment in their note books. Both
groups were required to keep note books in which they wrote
answers to the questions of the assignment. The same test cov­
ering all the work of the unit was given to both classes when
they had completed the unit after four weeks. The tests were
given and scored by the writer. A four week period then fol­
lowed during which time both classes prepared their history
lessons by silent reading and class discussion with no required
study or printed assignments. No notebooks were kept during
this four week period. The recitations for both classes were of
an informal nature stressing only the appreciation of the mate­
rial read from a supplementary history, "What the Old World
Gave the New." The elimination of printed assignments and
written notebooks contributed to the informality of this type
of appreciation lesson.

The purpose of this four week period was to break
away from the method of directed supervised study for the group
that had had this method. Likewise it was desirable that the
home study group should be freed from the psychological influ­
ences attending their procedure. In this way it was hoped that
the two groups would return to a reasonably similar plane of
learning. A four week period when study habits were not being
stressed, and no written answers to printed assignments were
made, or any home study required, deviated from the previous
experimental methods enough to probably re-establish a common ground for new learning. During these four weeks both classes showed reasonably similar appreciation of the subject matter read and discussed.

A "Long Haul Memory" test was then given on the work of the first unit for the purpose of checking on the amount of knowledge retained by each group after four weeks had passed since instruction on Unit I. A study habit test was also given to note how well the pupils had retained the study habits over this additional period of four weeks. Eight weeks had elapsed since the beginning of the experiment.

The second unit, "The Romans" was then assigned to both groups. The group which had had directed supervised study during the first unit was now given home study during this second unit. The home study group of the first unit was given directed supervised study for the second unit. The classes were, therefore, now reversed as to the procedures for study. A pretest in history on this unit (Unit II) was given to each of the groups before work on Unit II was started. A pre-test was also given on study habits to each group. Then directed supervised study and home study were continued for four weeks until Unit II was completed. A final history test on this unit was given to both groups immediately following the completion of the unit.
The two classes continued the study of history during the next four weeks by silent reading and discussion in a fashion similar to the procedure for the second four weeks. The purpose of this four week period was similar to the purpose of the second four week period of instruction. At the end of that time a "Long Haul Memory" test was given on Unit II in history to determine how much of the history material was retained four weeks after the close of the instruction period on this unit. A test in study habits was also given to note how well the pupils still retained their knowledge of study habits four weeks after the completion of Unit II. Since all the pupils had been taught study habits during either the first or second unit the difference between the scores on the study habit tests accompanying Unit II History will not be as significant as in the case of the first experiment. This is due to the hang-over influence in the case of the Experimental or directed supervised study group of the training in "how to study" or study habits, which this group received in the first experiment and which no doubt influenced their home study during the second experiment using Unit II History. The data secured through this method of procedure constitute the objective evidence of this experiment.

2. Limitations of the Method: One of the obvious limitations of reversing the groups in measuring the amount of gain in
ability to use study habits and their influence on learning history in the second experiment is the fact that the study habits have already been taught to one of the groups during the directed supervised study periods in the first experiment. The "carry over" effect will no doubt be manifested in these pupils' increased ability to attack the second history unit. It will probably also decrease the net amount of gain possible in the ability to use study habits for the group which in the second experiment by reversal becomes the control or home study group. Several sets of classes following the same teaching procedures simultaneously without later reversing the groups may prove more satisfactory. There would then be no previous training "carried over" to effect the next experiment.

2. Then too, the length of time consumed in this experiment, sixteen weeks, gives opportunity for absences which may have caused losses in achievement. Such absences, however, balanced one another reasonably well in the two groups in this experiment.

3. Again, the amounts of interest in study shown by the two classes were roughly compared by the writer. This item being definitely a subjective one is difficult to measure. One must know, for example, something of the pupils' abilities for the expression of interest in order to compare their respective interests. Plenty of opportunity for expressing interest was
provided for members of both groups. The assignments suggested a variety of activities. The notebook which each pupil made for each unit may have been replete with illustrations sketched or carefully drawn. Clay models were brought in daily. Huge chalk drawings hung on the walls. Soap carvings were brought in, likewise cork carvings. Pictures cut from magazines, and also original drawings accompanied all the written work. The notebook covers rivaled one another in lettering and design. Every pupil found some means of expression according to his interest. The writer feels that measuring pupil-interest through pupil-expression is a fair procedure.

The above three limitations represent in the writer's opinion the most critical ones in this experiment. No doubt the reader may discover others. The writer freely admits that the number of classes involved permits of no more than tentative suggestive conclusions for this type of experiment. Especially weak are the conclusions based upon the pairs of pupils because of the limited number of such pairs available.

3. The Study Habits Used in this Experiment: Some study habits which were taught in this experiment were:

1 - The proper use of the table of contents of a book.
2 - The proper use of an index of a book.
3 - The selection of the main points of the subject matter of an assignment.
4 - The practice of skimming when reading.

5 - The making of an outline for simple summarizing.

6 - The relating of knowledge found in books to other experiences, in school and out of school.

The study habits listed above were chosen as important ones to teach because they gave the pupil the required training in the use of books for getting information. The first two habits, namely, the use of the table of contents and the index are good mechanical aids for attacking a problem in history study. They are essential for modern methods of studying history because several reference books are usually used in present day teaching as compared with the older methods of teaching in which only one text was usually studied by the pupils. Frequently the assignments were given only by pages as well.

The habit of selection is likewise important in studying history. The pupil must be trained to read and compare statements and to judge for himself their relative value for solving the problem set for him. Thus he learns to ask himself questions while he reads in order to select the important materials which bear on the problem in hand.

The habit of skimming is a valuable one for history students because through this practice the pupil gets a general impression of a whole topic in the same amount of time required
to study some detail. Then knowing what the whole is about he has a better starting point for studying the problem and a keener desire to study.

The habit of making an outline is a fine one for teaching organization of thoughts in studying history. The student learns to appreciate a logical sequence of developments when he can outline the facts he learns for summarizing.

The final habit is probably the one most enjoyed when it is practiced. That is to connect the knowledge one learns from books with everyday experiences. When a pupil reads current news and is reminded of some historical subject matter it is a pleasure for him to relate these facts. Likewise when pictures of ruins recall some historical facts the pupil delights in connecting his past vicarious experiences with his current ones. Training in the application of learning is the basis for this later pleasure.

It may be well at this point to indicate briefly some of the procedures used in teaching the study habits mentioned above. The first habit, namely, the proper use of the table of contents, was handled in this manner. The pupils were told the name of the unit they were to study. In the first unit this was "Ancient Civilization." Then they were asked to find something about the unit in the book and tell where it was found. Many thumbed the pages. Some started with the preface and quite by
accident found the table of contents which they proceeded to read. The first pupil to find a clew was called upon and commended for the speed with which he located the topic. A rule for locating chapter contents was formed at once. "Always consult the Table of Contents first."

The second study habit, the proper use of an index, was taught by asking the pupils to find as many different passages as they could about the same topic. As before, many started looking through the book. The first one to locate the index with its page references was asked to tell what he had found. Curiosity and imitation help each pupil to locate all of the index references. The competition in speed also makes this habit an easy one to teach. The writer found all pupils anxious to use both the table of contents and the indices of books for topics in other subjects besides history.

The third study habit, the selection of the main points of the subject matter was taught by reading one paragraph and telling in one sentence what the paragraph was about. The topic sentence was then found. The topic sentences were usually found to be the first or last sentences in the paragraph. The pupils were asked which topic sentences on the page were most important for our topic. This study habit was one of the hardest to learn and required daily practice. One text used as a reference book had all important facts italicized.
This helped in a mechanical way.

The fourth study habit, practice in skimming when reading, followed easily when the pupils had learned to select the topic sentences. Very few of the pupils were satisfied to start careful study before having skimmed through a whole topic. Many said that they liked to know all of the Romans' activities before studying about any one of them. This habit of skimming needs to be checked in order not to permit the pupil to have only a superficial knowledge. Skimming is only a study habit for beginning the study process. Detailed study must follow. The writer stressed skimming only when the topics of a new assignment were made.

The fifth study habit, the making of an outline, was taught by summarizing at the end of each day's work what had been done. Daily summaries were very popular for the reason that each pupil tried to include all he had done. Each day pupils read the outline of the work he had covered.

The sixth study habit, relating knowledge found in books to other experiences, was taught by pausing to ask the class, "Have you ever heard of that before?", whenever some fact previously learned could be applied. Much time and thought in questioning was often required to start the proper recall. When practiced the pupils enjoyed using this study habit most. For example, they delighted in relating their study of the Egyptians
to a papyrus exhibit brought out from the Field Museum.

The teaching of the six study habits discussed above gave the writer a feeling that the pupils had learned how to help themselves in the process of learning through study. Independence and self reliance can be felt by those pupils who have mastered the tools for learning, namely, study habits.

4. Procedures in Testing: The first test which was given to both groups of pupils was the Otis Classification Test, Form A, Part II. From these scores the M. A. was determined for each pupil. The I. Q. for each pupil was secured by dividing his M. A. by his C. A., each given in months.

The initial history test (Unit I) was given to both groups. This printed test contained forty points in the form of a completion test of fact questions. The last question asked for a short story to include the contributions made to civilization by the ancient peoples. The same test was repeated immediately after Unit I was completed. The same test was again used for the "Long Haul Memory" test four weeks after Unit I was completed. The probability of memorizing the answers for use in the "Long Haul Memory" tests is doubtful - since the pupils were unaware that this test was to be given. Again, the pupils having handed in their papers when they had finished the test did not see their papers again. They were not discussed or corrected in class. The two classes were always given their
tests on the same day and since they followed one another with no recess or other intermission than that required for passing from one room to another, there was little or no opportunity for the exchange of information.

An initial study habit test of ten questions was also given to both groups before History Unit I was assigned to ascertain what the pupils already knew about the six study habits which were to be consciously taught to the supervised study group. Another form of this test was again given immediately after Unit I History had been completed. A third form of this study habit test was administered to determine how well the pupils remembered the study habits after a four week period had elapsed following the Unit I History instruction. In the case of the study habits tests a different form was used each time. All six forms, however, tested the pupils' ability to use the same six habits which were taught by the writer to the group having directed supervised study and training in how to study.

The same method of testing was followed before assigning History Unit II. The pupils of both groups were given an initial history test of 25 points on Unit II and also an initial study habit test before beginning this assignment. At the end of the study of Unit II, the same Unit II History test was repeated to determine the gain in history knowledge. Also another form of study habit test was given to determine what growth or
gain in study habits had taken place.

Following a four week interval the same test in History Unit II was repeated and still another form of study habit test was given to measure the amount of retention in history and study habits. In all there were six different forms of study habit tests administered. Two different history tests, (one for each unit) were each given three times. The Otis Intermediate Classification Test, Part II, was given at the beginning of the experiment to determine the pupils' mental ages. Copies of these tests will be found in the appendix.

5. Non-quantitative Evidence: Evidence of a non-quantitative type in this experiment results from the pupils' expressions of interest in the work of the assignments. These expressions have taken various forms, such as drawings and sketches to accompany the note books. Also suggestions in the assignment have been varied to suit the abilities of the pupils. As a result each pupil did at least one piece of work in addition to the note book which was required. The contributions included:

1. Large chalk drawings of the pyramids and sand regions of Egypt. Pictures of carvings illustrating Egyptian picture writing.

2. Colorful drawings of Roman chariot races, gladiatorial combats, and heroic deeds such as "Horatius at the Bridge." A huge drawing of a Roman Aqueduct was exceptionally
well done.

3. Soap carvings and cork carvings constituted another exhibit.

4. A group of four pupils worked out a project on Egypt on the sand table. Each pupil contributed some representation of Egyptian life. The Nile and the pyramids were prominent. Within a pyramid mummies were exposed. Papyrus writing and modes of travel were also shown.

5. The finished note books had uniform covers which could be designed to suit the individual pupil. Here again the manner and extent of expression by the pupil may be said to represent in a concrete manner his depth of interest. Lettering, design, a suitable picture mounted with proper color combinations, an original drawing or painted sketch, or free hand cuttings to illustrate some phase of the contents adorned each of the note books.

Although the measure of interest is a subjective performance the physical evidences were relatively concrete enough to be compared as to quality and quantity. The writer believes they were fairly compared in this experiment.
B. THE OBJECTIVE DATA OF THE EXPERIMENT

The objective data of the present experiment are presented in table form. We shall proceed, therefore, to analyze and discuss the data in the successive tables.

Table I presents the two groups of pupils. The initials of the various pupils are given in this table in order that the checking of the data from the original test papers might be accurate. The pupils in each group (Control and Experimental) are listed in the order of their mental ages as derived from the intermediate Otis Classification Test, Part II. Their I. Q.'s and the results of the initial tests in Unit I History (Ancient Civilization) and Study Habits are given in the successive columns. Each pupil is given a number and letter (e.g., 1A designates him as pupil number one in the A group). Hereafter, only these numbers are used for the purpose of identification.

The control Group A was given regular class instruction of the recitation and discussion type supplemented by the same assignments which were given to the Experimental Group B. In the case of the Control Group A the assignments were studied as homework with no special training in how to study other than such discussion as was needed to make the assignments clear. In the case of Group B (Experimental Group for Unit I) the assignments were studied in school under the direction of the
<table>
<thead>
<tr>
<th>Control Group A</th>
<th></th>
<th>Experimental Group B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.S.</td>
<td>1A</td>
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<td>147</td>
</tr>
<tr>
<td>B.H.</td>
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<td>14-0</td>
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</tr>
<tr>
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<td>3A</td>
<td>13-9</td>
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</tr>
<tr>
<td>A.M.</td>
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<td>13-9</td>
<td>116</td>
</tr>
<tr>
<td>R.L.</td>
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<td>13-9</td>
<td>116</td>
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<td>A.T.</td>
<td>7A</td>
<td>13-2</td>
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</tr>
<tr>
<td>E.G.</td>
<td>8A</td>
<td>13-0</td>
<td>116</td>
</tr>
<tr>
<td>A.M.</td>
<td>9A</td>
<td>13-0</td>
<td>106</td>
</tr>
<tr>
<td>C.B.</td>
<td>10A</td>
<td>12-10</td>
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<tr>
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<td>12-7</td>
<td>125</td>
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<tr>
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<td>12-7</td>
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</tr>
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<td>101</td>
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<td>J.E.</td>
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<td>12-3</td>
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<td>A.S.</td>
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<td>12-0</td>
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<td>19A</td>
<td>12-0</td>
<td>91</td>
</tr>
<tr>
<td>D.L.</td>
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<td>J.S.</td>
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<td>G.M.</td>
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<td>10-10</td>
<td>95</td>
</tr>
<tr>
<td>H.K.</td>
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<td>10-10</td>
<td>94</td>
</tr>
<tr>
<td>H.V.</td>
<td>31A</td>
<td>10-10</td>
<td>92</td>
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<td>10-7</td>
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<tr>
<td>C.B.</td>
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<td>10-7</td>
<td>74</td>
</tr>
<tr>
<td>D.D.</td>
<td>35A</td>
<td>10-6</td>
<td>94</td>
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<tr>
<td>L.A.</td>
<td>36A</td>
<td>10-6</td>
<td>85</td>
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writer. Group B was also given instruction in certain habits of study at the beginning of the experiment with Unit I in history. This training in how to study was reiterated from time to time during the four weeks devoted to Unit I. From the point of view of procedure, it was the plan of the writer to allow the directed supervised study and training in certain habits of study to be the factors which would operate in the case of the Experimental Group B and not in the Control Group A.

Table II presents the results of the final tests in Unit I History and in the study habits after four weeks of instruction of the two groups as indicated above. Tables I and II may be considered as representing the basic data for the first experiment of this study.
A casual inspection of Table I reveals the fact that the pupils in the Experimental Group B range from nine years, three months to eighteen years in mental ages, whereas the mental ages of the pupils in the Control Group range from eight years, six months to fifteen years, ten months mentally. In Table VII the evidence of the superiority of the experimental group is more clearly presented. The middle fifty percent of the pupils in Group A have mental ages between 10-9 and 12-10, whereas the middlemost fifty percent of the pupils in Group B have mental ages between 11-4 and 14-7. The I.Q.'s likewise indicate that the rate of mental development is also somewhat higher for the Experimental Group B.

It seemed desirable, therefore, to consider a procedure for eliminating the intelligence factor and noting the results. Pupils of the same (except 6A and 18B who differ in mental ages by only one month) mental ages and with but small variations in I.Q. were paired from the two groups. Table III represents the pupils (thirteen pairs) who were paired on the basis of mental age and I.Q. When it is noted that the study habit test consisted of ten questions and the initial Unit I History Test consisted of forty points or questions and that the scores given in the tables are in terms of percent, it will be seen that these thirteen pairs of pupils are fairly evenly matched not only mentally but in the achievements measured as
<table>
<thead>
<tr>
<th>Pupil No.</th>
<th>Group A Control</th>
<th>Group B Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M.A.</td>
<td>I.Q.</td>
</tr>
<tr>
<td>1A</td>
<td>15-10</td>
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<tr>
<td>15A</td>
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<td>29A</td>
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<td>32A</td>
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<td>33A</td>
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</tr>
<tr>
<td>39A</td>
<td>9-7</td>
<td>73</td>
</tr>
</tbody>
</table>
Hence, we may assume that the influence of training in study habits and directed study are the factors which are primarily responsible for the gains or losses made in achievement over the four week period of instruction for these thirteen paired pupils. Table IV presents the scores for the paired pupils on the final tests in Unit I History and Study Habits.

Table V reveals the gains which each of these pupils made on the final tests at the end of Unit I History when compared with the pre-tests or initial tests. It appears that the pupils with the relatively high mental qualifications made the greater gains in the final history test. This was true in the case of both pupils in each pair, e.g. 1A and 3B; 5A and 16B; etc. In practically every case the pupils of the pairs who were in the Experimental Group B did much better on the final study habit test than did the control members of the pairs. See Table IV. This indicates a positive value for direct instruction in how to study. In the case of the pupils whose I. Q.'s were above 110, it is evident that the control group members of the pairs do as well or better on the final history tests (Unit I) as do the pupils who were provided with directed study and training in how to study. It is probable, of course, that these pupils have developed methods of work which are quite effective for them and yet are not recognized by the writer's study habit tests.
Table IV.

Final Unit I History Test Scores and Final Study Habit Test scores for Paired pupils from the Control and Experimental groups after Four Weeks of Instruction (Paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Final Unit I History Test Score</th>
<th>Final Test Score in Study Habits at end of 4 weeks</th>
<th>Pupil Number</th>
<th>Final Unit I History Test Score</th>
<th>Final Test Score in Study Habits at end of 4 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>97</td>
<td>50</td>
<td>3B</td>
<td>82</td>
<td>90</td>
</tr>
<tr>
<td>2A</td>
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<td>16B</td>
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<td>6A</td>
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<td>82</td>
<td>50</td>
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<td>86</td>
<td>20</td>
<td>20B</td>
<td>85</td>
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<tr>
<td>15A</td>
<td>65</td>
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<td>23B</td>
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<td>67</td>
<td>30</td>
<td>28B</td>
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<td>40</td>
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<tr>
<td>29A</td>
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<td>34B</td>
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<td>20</td>
<td>42B</td>
<td>55</td>
<td>20</td>
</tr>
</tbody>
</table>
Table V

Gains Made by Paired Pupils in the Final Tests on Unit I History and Study Habits when Compared with the Initial Test Scores (Paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Gains made on Final Hist. Unit I Test</th>
<th>Gains made on Study Habit Test</th>
<th>Pupil Number</th>
<th>Gains made on Final Hist. Unit I Test</th>
<th>Gains made on Study Habit Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>85</td>
<td>30</td>
<td>3B</td>
<td>70</td>
<td>70</td>
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<tr>
<td>5A</td>
<td>73</td>
<td>10</td>
<td>16B</td>
<td>63</td>
<td>60</td>
</tr>
<tr>
<td>6A</td>
<td>70</td>
<td>20</td>
<td>18B</td>
<td>72</td>
<td>20</td>
</tr>
<tr>
<td>11A</td>
<td>69</td>
<td>10</td>
<td>20B</td>
<td>65</td>
<td>20</td>
</tr>
<tr>
<td>15A</td>
<td>55</td>
<td>30</td>
<td>23B</td>
<td>58</td>
<td>40</td>
</tr>
<tr>
<td>18A</td>
<td>53</td>
<td>20</td>
<td>24B</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>21A</td>
<td>50</td>
<td>10</td>
<td>28B</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>29A</td>
<td>53</td>
<td>50</td>
<td>34B</td>
<td>62</td>
<td>30</td>
</tr>
<tr>
<td>32A</td>
<td>43</td>
<td>20</td>
<td>35B</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>33A</td>
<td>35</td>
<td>10</td>
<td>36B</td>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>35A</td>
<td>47</td>
<td>20</td>
<td>37B</td>
<td>45</td>
<td>40</td>
</tr>
<tr>
<td>39A</td>
<td>25</td>
<td>10</td>
<td>42B</td>
<td>45</td>
<td>20</td>
</tr>
</tbody>
</table>
Table VI
Average and Median Gains Made by Paired Pupils from Control and Experimental Groups in Unit I History and Study Habits Tests after 4 weeks of Instruction.

<table>
<thead>
<tr>
<th></th>
<th>Group A - Control</th>
<th>Group B - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit I History</td>
<td>53</td>
<td>54.7</td>
</tr>
<tr>
<td>Study Habits</td>
<td>20</td>
<td>19.1</td>
</tr>
</tbody>
</table>
In Table VI the writer has attempted to compare the general effectiveness of directed supervised study coupled with training in how to study with ordinary home study for the two groups of paired pupils. In so far as training in study habits is concerned the median and average gains made by the Experimental Group B which was provided with specific training in how to study were double the gains made by the Control Group A which was made up of the second pupil of each pair. In the case of the median and average gains made in the final history tests, the evidence, while not so conclusive, does indicate an advantage for the Experimental Group B as a whole. Further experimental evidence would be necessary if a definite conclusion is to be drawn. It appears from the present evidences that the nature of the pupil's mentality plays an important part.
Table VII

Medians, $Q_3$, and $Q_1$ for Mental Ages, I.Q.s, Initial History
Unit I Test and Initial Study Habit Test of the Control Group A
and Experimental Group B

<table>
<thead>
<tr>
<th></th>
<th>Control Group A</th>
<th>Experimental Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$Q_1$</td>
<td>Md.</td>
</tr>
<tr>
<td><strong>M.A.</strong></td>
<td>10-9</td>
<td>11-6</td>
</tr>
<tr>
<td><strong>I.Q.</strong></td>
<td>93</td>
<td>100</td>
</tr>
<tr>
<td><strong>Initial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Test</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unit I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>History</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initial</strong></td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td><strong>S.H.Test</strong></td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>
The writer next proceeded to consider comparisons between the results of the various tests for the Control Group A as a whole and the Experimental Group B as a whole. In Table VII are presented the results of the initial Unit I history and Study Habits tests. It appears that for the groups as wholes the general central tendencies (medians) and dispersions (as measured by \(Q_3 - Q_1\)) are approximately alike both for the initial history (Unit I) and study habits tests. In the case of the initial history test it appears that the presence of the exceptionally bright students in the Experimental Group B has raised \(Q_3\) an amount equivalent to two correct answers (the test involved 40 points or answers) over the \(Q_3\) of the Control Group A. Both groups are about equally poor in their knowledge of the study habits selected by the writer. It would seem that knowledge of these particular study habits was probably not related to mental ability as found in the present study.

In Table VIII are given the central tendency and \(Q_3\) and \(Q_1\) for the Experimental Group B and the Control Group A on the final tests in history (Unit I) and study habits. The initial and final tests in the history unit are the same test. The initial and final tests in study habits although not identical covered the same six habits of study.

It will be seen that for the groups as wholes that the group (Experimental Group B) which was given directed
Table VIII

Medians, Q3, and Q1 for Final Unit I History Test Scores and for Final Study Habits Test for Control Group A and Experimental Group B after 4 Weeks of Instruction.

<table>
<thead>
<tr>
<th></th>
<th>Control Group A</th>
<th></th>
<th>Experimental Group B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
<td>Md.</td>
<td>Q3</td>
<td>Q1</td>
</tr>
<tr>
<td>Final Unit I Hist.</td>
<td>50</td>
<td>70</td>
<td>85</td>
<td>67</td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Study Habits</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
supervised study in school together with training in how to study definitely exceeded the Control Group A or home study group in achievement both in history and in study habits. The Q1, median, and Q3 for the Experimental Group B are definitely higher on the scale than are the corresponding measures for the Control Group A. It may be well to point out also that the dispersion in the history scores (measured by Q3 - Q1) is considerably less for the Experimental Group B (23 points) than for the Control Group A (35 points). This suggests that for the groups as wholes the effect of directed supervised study and training in how to study was to bring a greater uniformity in learning. That is to say, greater homogeneity as to ability in answering the history (Unit I) test questions was secured through using the directed study method as compared with the home study method.

To this point it appears, therefore, first: that for individual pupils of above average mentality home study is probably as effective as directed supervised study in school for studying sixth grade history; second: for sixth grade classes as wholes the advantage is with that class which is provided with directed supervised study and training in how to study.

In addition to ability in immediate recall after the completion of Unit I History the writer was interested in deter-
which procedure would be more effective in producing permanent learning. Following the final examinations in history (Unit I) and study habits the writer carried on instruction with both groups during the next four weeks in a manner which discarded to a large extent both home study and directed supervised study with training in how to study. Both classes were permitted to study their lessons without the guidance of a printed assignment. No effort was made to influence their habits of study or to provide any training in how to study. The recitation period in history was devoted to a discussion of a topic (e.g. "What the Old World Gave the New World") which had been studied by the pupils during their free or study periods during the day. Thus, when one half of the room recited in arithmetic the remaining half may have studied history. Obviously, the pupils could continue their study of their history lessons at home if they wished. The recitations, however, stressed appreciation rather than facts as such during this four week period.

The purpose of this intervening period of four weeks was to eliminate in so far as possible the psychological influences of specific instruction in how to study and directed study and also the influence of a specific printed assignment. In other words the writer sought to eliminate the "atmospheres" which had been present during the first four weeks in the two
classes. The aim was to bring the two classes back to as nearly a common plane in learning as possible.

At the end of this second four week period the two groups were again tested on Unit I History and in the study habits used with the Experimental Group B. The purpose of these tests was to measure delayed recall or the extent of permanent learning which may have resulted in the first experiment. (Long Haul Memory).

Table IX presents the general results for the two groups. By comparing Table IX with Table VIII it will be observed both groups had lost ground in so far as the retention of subject matter in history was concerned. The losses were approximately the same, however, indicating that forgetting operated in about the same manner for the two groups. The medians dropped about the same amount. The dispersion (Q₃ - Q₁) for the Control Group A increased from 35 to 33, while the dispersion for the Experimental Group B increased from 23 to 35 points on the scale of 100. It would appear from this latter fact that the weaker pupils (Q₁ dropped from 67 to 50; while Q₃ dropped from 90 to 85) in the Experimental Group B tended to lose their grip on the subject matter more rapidly than did the brighter pupils. It will be noted that the dispersion in the Control Group A (38 points) remained about the same in the delayed recall or "Long Haul Memory" test as on the final tests (35
Table IX
Medians, $Q_3$ and $Q_1$ for "Long Hall Memory" Tests Given to Control Group A and Experimental Group B Four Weeks after the Completion of Unit I History Instruction

<table>
<thead>
<tr>
<th></th>
<th>Control Group A</th>
<th>Experimental Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$Q_1$</td>
<td>Md.</td>
</tr>
<tr>
<td>Unit I History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;L.H.M.&quot; Test</td>
<td>37</td>
<td>62</td>
</tr>
<tr>
<td>Study Habit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;L.H.M.&quot; Test</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>
idence on this "Long Haul Memory" or delayed recall by considering only the paired pupils from the two groups. Unfortunately, five pairs have been lost (due to transfer of pupils). The evidence based upon eight pairs of pupils can hardly be more than suggestive. As revealed in Table XI the median and average gains made by these eight pairs in the "Long Haul Memory" test as compared with the initial tests (See Supplementary Table Based on Table III) in Unit I History and study habits, seems to support the conclusion that the factor of forgetting operates reasonably uniformly on the paired pupils. The median gain in history for the Experimental Group A (paired pupils only) exceeds the median gain for the Group A Control (paired pupils only) by an amount (8 points) equal to about three and one half questions, while the average gain for the Experimental Group B (paired pupils only) exceeds the Control Group A (paired pupils only) by an amount (3 points) equal to one and one half questions on the Unit I History test. The history test (Unit I) involves 40 questions or points. Likewise a comparison of the respective median and average gains made in the "Long Haul Memory" test in study habits indicates no appreciable difference in ability to retain power in this phase of the work. It will be noted by referring to Table III that the scores of the above paired pupils (8 pairs) were reasonably alike in the initial Unit I History and Study Habit Tests. These scores, their
### Table III - S

Supplementary Table Based Upon Table III

<table>
<thead>
<tr>
<th>Pupil</th>
<th>Unit I History</th>
<th>S. Habits</th>
<th>Pupil</th>
<th>Unit I Hist.</th>
<th>S. Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>12</td>
<td>20</td>
<td>3B</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>5A</td>
<td>12</td>
<td>10</td>
<td>16B</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>6A</td>
<td>7</td>
<td>20</td>
<td>18B</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>15A</td>
<td>10</td>
<td>10</td>
<td>23B</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>29A</td>
<td>22</td>
<td>0</td>
<td>34B</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>32A</td>
<td>7</td>
<td>0</td>
<td>35B</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>35A</td>
<td>20</td>
<td>10</td>
<td>37B</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>39A</td>
<td>7</td>
<td>10</td>
<td>42B</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Med.</td>
<td>11</td>
<td>10</td>
<td>Med.</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Aver.</td>
<td>12</td>
<td>10</td>
<td>Aver.</td>
<td>13</td>
<td>20</td>
</tr>
</tbody>
</table>
Table X

Scores Made by Paired Pupils on "Long Haul Memory" Tests in Unit I History and Study Habits Four Weeks after the Completion of Unit I History Instruction (Paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Control Group A</th>
<th></th>
<th></th>
<th>Experimental Group B</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>80</td>
<td>40</td>
<td></td>
<td>3B</td>
<td>87</td>
<td>90</td>
</tr>
<tr>
<td>2A</td>
<td>60</td>
<td>30</td>
<td></td>
<td>15B</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5A</td>
<td>87</td>
<td>30</td>
<td></td>
<td>16B</td>
<td>67</td>
<td>60</td>
</tr>
<tr>
<td>6A</td>
<td>67</td>
<td>40</td>
<td></td>
<td>18B</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>11A</td>
<td>75</td>
<td>30</td>
<td></td>
<td>20B</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>15A</td>
<td>50</td>
<td>40</td>
<td></td>
<td>23B</td>
<td>58</td>
<td>50</td>
</tr>
<tr>
<td>18A</td>
<td>--</td>
<td>--</td>
<td></td>
<td>24B</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>21A</td>
<td>47</td>
<td>20</td>
<td></td>
<td>28B</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>29A</td>
<td>67</td>
<td>20</td>
<td></td>
<td>34B</td>
<td>75</td>
<td>40</td>
</tr>
<tr>
<td>32A</td>
<td>32</td>
<td>30</td>
<td></td>
<td>35B</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>33A</td>
<td>--</td>
<td>--</td>
<td></td>
<td>36B</td>
<td>52</td>
<td>40</td>
</tr>
<tr>
<td>35A</td>
<td>50</td>
<td>40</td>
<td></td>
<td>37B</td>
<td>47</td>
<td>50</td>
</tr>
<tr>
<td>39A</td>
<td>15</td>
<td>30</td>
<td></td>
<td>42B</td>
<td>32</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Pupils 18A, 33A, 15B, 20B, 24B, 28B, have transferred and did not take the "Long Haul Memory" tests.
averages and medians are reproduced here in Table III - S:

By comparing Table VI with Table XI it will be seen that the differences between the median gains on the final test on Unit I History and the "Long Haul Memory" test on Unit I History (13 for the Control Group A and 14 for the Experimental Group B) for the two groups are practically the same. In other words the losses due to forgetting in history (Unit I) are approximately the same for the paired pupils of reasonably like mentality. In the case of the study habits the experimental group (Table VI) had acquired knowledge through direct instruction and was, therefore, in a better position to lose some of this knowledge by the end of another four weeks. (See Table XI)
Table XI
Average and Median Gains Made by Paired Pupils in the "Long Haul Memory" Tests Given Four Weeks after the Completion of Unit I History Instruction, When Compared with the Initial Test Scores (Paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th></th>
<th>Group A - Control</th>
<th>Group B - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit I History</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>Study Habits</td>
<td>20</td>
<td>24</td>
</tr>
</tbody>
</table>


As a comparison of tables VI and XI indicates, the median gain over the initial study habit test for the final study habit test was 40 points whereas after a second four weeks this median gain had dropped to 20 points. In the case of the Control Group A (Home Study) there is no appreciable difference between the results of the "Long Haul Memory" test and the final test in study habits (see Tables VI and XI). Such study habits as these pupils had acquired were largely of the simplest type and involved primarily the use of the index or table of contents of a book. These mechanical skills were evidently retained without much if any loss over a second four week period. It is also possible, since these pupils were not consciously taught these habits of study by the writer, that they had either acquired these few habits from sheer necessity or had been aided at home in their previous study.

A comparison for the paired pupils may also be made by using Tables IV and X. We may note the losses sustained by the paired pupils by comparing their scores on the final tests after four weeks of instruction on Unit I History with the "Long Haul Memory" test given after another four weeks had passed. Table XII shows these losses. In two instances (5A and 3B) the pupils actually made very slight gains rather than losses on the "Long Haul Memory" test in history (Unit I) as compared with the final test in history (Unit I) which was given four weeks pre-
vious. In each of these cases the pupils were ranked among the three highest on the basis of mentality in their respective groups. The gains in questions answered represent one question for pupil 5A and two for pupil 3B. For the two groups, however, (8 paired pupils) the average and medium losses on the "Long Haul Memory" test in history (Unit I) are approximately equal.

It may be well also to determine for these eight pairs of pupils the percentage loss which the losses (Table XII) in the "L.H.M." test in history (UNIT I) represent when compared with the gains (Table V) made on the final history (Unit I) test over the initial test in the history (Unit I). The latter gains may be said to represent the knowledge which was acquired by these pairs of pupils during the four weeks of instruction on Unit I History. Table XIII presents these percentages of loss. In one half of the pairs (e.g. 6A and 18B; 15A and 23B; 29A and 34B; and 35A and 37B;) the losses of the two members of each pair do not vary beyond 6 per cent. There is, therefore no doubt, a definite probability that the law of forgetting is tending to operate uniformly in the case of the paired pupils as well as on the groups as wholes. This appears to the writer to be a fairly reasonable conclusion in view of the fact that the experimental procedure was not primarily an effort to improve memory. It is possible of course that certain of the study habits, e.g. - selecting main points; making outlines;
Table XII.

Losses Sustained by Paired Pupils on "Long Haul Memory" Tests when Compared with Final Tests on History Unit I and Study Habits

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Control Group A Losses on &quot;L.H.M.&quot; Test I History</th>
<th>Control Group A Losses on S. Habits</th>
<th>Experimental Group B Losses on &quot;L.H.M.&quot; Test I History</th>
<th>Experimental Group B Losses on S. Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>17</td>
<td>10</td>
<td>3B</td>
<td>+ 5</td>
</tr>
<tr>
<td>5A</td>
<td>+ 2</td>
<td>+ 10</td>
<td>16B</td>
<td>13</td>
</tr>
<tr>
<td>6A</td>
<td>10</td>
<td>0</td>
<td>18B</td>
<td>12</td>
</tr>
<tr>
<td>15A</td>
<td>15</td>
<td>0</td>
<td>23B</td>
<td>12</td>
</tr>
<tr>
<td>29A</td>
<td>8</td>
<td>30</td>
<td>34B</td>
<td>7</td>
</tr>
<tr>
<td>32A</td>
<td>18</td>
<td>+ 10</td>
<td>35B</td>
<td>15</td>
</tr>
<tr>
<td>35A</td>
<td>17</td>
<td>+ 10</td>
<td>37B</td>
<td>15</td>
</tr>
<tr>
<td>39A</td>
<td>17</td>
<td>+ 10</td>
<td>42B</td>
<td>23</td>
</tr>
<tr>
<td>Md. Loss</td>
<td>16</td>
<td>+ 5</td>
<td>Md. Loss</td>
<td>12.5</td>
</tr>
<tr>
<td>Aver. Loss</td>
<td>12.5</td>
<td>0</td>
<td>Aver. Loss</td>
<td>11.5</td>
</tr>
<tr>
<td>Loss</td>
<td>12.5</td>
<td>0</td>
<td>Loss</td>
<td>6.7</td>
</tr>
</tbody>
</table>
Table XIII

percentage Losses Sustained by Paired Pupils in "L.H.M." test in Hist. Unit I when the Total Learning is Represented by the Gains Made in Final Test Unit I History over Initial Unit I History Test.

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Control Group A</th>
<th>Experimental Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Loss on L.H.M. Gains, see Hist Table V</td>
<td>Loss on L.H.M. Gains, see Hist Table V</td>
</tr>
<tr>
<td></td>
<td>Total Hist. Learning or cent</td>
<td>Total Hist. Learning or cent</td>
</tr>
<tr>
<td></td>
<td>Percent Loss</td>
<td>Percent Loss</td>
</tr>
<tr>
<td>1A</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>5A</td>
<td>2</td>
<td>73</td>
</tr>
<tr>
<td>6A</td>
<td>10</td>
<td>70</td>
</tr>
<tr>
<td>15A</td>
<td>15</td>
<td>55</td>
</tr>
<tr>
<td>29A</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>32A</td>
<td>18</td>
<td>43</td>
</tr>
<tr>
<td>35A</td>
<td>17</td>
<td>47</td>
</tr>
<tr>
<td>39A</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Md.</td>
<td>16</td>
<td>54</td>
</tr>
<tr>
<td>Aver.</td>
<td>12.5</td>
<td>56.3</td>
</tr>
</tbody>
</table>

Note: Nearest whole percent is given.
and relating knowledge to other experiences - may involve memory training for history in this instance.

At the beginning of the ninth week of the semester a second unit, Unit II History, was begun. Initial tests in study habits and Unit II History were given to the two groups. In this second experiment the groups of the first experiment were reversed. Group A was now the experimental group and Group B was the control group. It will be recalled that the second four weeks were devoted to history teaching without printed assignments, notebooks, or study habit instruction. The aim was primarily one of appreciation. The title of the second history unit was, "The Romans".

One outstanding limitation in this second experiment is the "hang over" effect of previous training in study habits and directed study which will be present in the new Control Group B. A second difficulty lies in the reduced number of paired pupils. At this time there were only seven pairs remaining of the original thirteen pairs.

With these weighty limitations in mind the writer will present the remaining data briefly. Table XIV presents the results of the initial tests. The two groups are reasonably alike in M. A.; I. Q.; and in the initial Unit II History Test as indicated by the amount of dispersion, Q1, MD., and Q3 for each group. In the initial study habit test the superiority of the
Control Group B is clearly evident. The "hang over" effect of previous training in how to study plays its part as one would expect.

Table XV presents the general results of the final tests in Unit II History and in the accompanying study habits test. The new Experimental Group A did slightly better on the final Unit II History Test and Study Habit Test as shown by the Median, Q1, Q3, and the amounts of dispersion. It should be said that the Unit II History Test was a twenty-five point or question test, hence, a difference of four points represents a difference of but one question. The Study Habit Test consisted of ten questions.

Let us compare Tables XIV and XV. We will note the evidences of improvement for the two groups. Here again, the evidence favors the directed study group. This group made a more definite gain in the power to use study habits, whereas, the Group B Control (home study group) showed a slight loss in the final study habits test (note increased dispersion downward) as compared with the initial test accompanying Unit II History. Failure on the part of the writer to emphasize the use of the study habits as in directed study reveals a loss in the knowledge or practice of their use for this Control Group B as a whole.

When the improvement in Unit II History is studied
Table XIV
Medians, Q$_1$, and Q$_3$, for Mental Ages, I.Q.s, History Unit II Initial Test, and Initial Study Habit Test to Accompany Hist. Unit II
(The Control and Experimental Groups are now reversed)

<table>
<thead>
<tr>
<th></th>
<th>Group B - Control</th>
<th></th>
<th>Group A - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q$_1$</td>
<td>Md.</td>
<td>Q$_3$</td>
</tr>
<tr>
<td>M.A.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-4</td>
<td>12-6</td>
<td>14-7</td>
<td></td>
</tr>
<tr>
<td>I.Q.</td>
<td>98</td>
<td>108</td>
<td>131</td>
</tr>
<tr>
<td>Initial Test</td>
<td>16</td>
<td>24</td>
<td>32</td>
</tr>
<tr>
<td>Unit II Hist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial S.H. Test</td>
<td>30</td>
<td>50</td>
<td>60</td>
</tr>
</tbody>
</table>
Table XV

Medians, Q₃ and Q₁ for History Unit II Final Test, and Final Study Habits Test to Accompany History Unit II (The Control and Experimental Groups are now reversed)

<table>
<thead>
<tr>
<th></th>
<th>Group B - Control</th>
<th>Group A - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q₁</td>
<td>Md.</td>
</tr>
<tr>
<td><strong>Final Test Hist. Unit II</strong></td>
<td>40</td>
<td>72</td>
</tr>
<tr>
<td><strong>Final S.H. Test</strong></td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>
by comparing Tables XIV and XV it will be noted that the Q1, Md., and Q3 for Group A - Experimental are raised 36, 60, and 52 points respectively. In the case of the Group B - Control, the Q1, Md., and Q3 are raised 24, 48, and 52 points respectively. While the improvements in the test records of the upper fourth of each group approximate one another, the failure on the part of the Q1 and the Median for the Group B - Control to increase in amounts reasonably equal to the increases in the Q1 and Median for the Experimental Group A (the directed study group) reveals less gains in history (Unit II) knowledge on the part of the majority of the pupils in the control or home study group as compared with the directed supervised study group. On the whole the evidence, while not as conclusive as in the first experiment, favors the directed supervised study group as to the gain in both knowledge of Unit II History and study habits.

Tables XVI and XVII present the initial and final test scores in Unit II History and the accompanying study habits tests for the remaining seven pairs of pupils from the two groups. It will be remembered that those pupils of the pairs who were formerly a part of the Control (home study) Group are now a part of the Experimental (directed supervised study) Group.

Table XVIII presents the gains made by the individual pupils of the seven pairs in the final Unit II History and its
accompanying study habit test when compared with the initial
tests. Table XIX shows the averages and medians of these gains.
In the final study habits test the Experimental Group made the
greater gains. The significance of these gains is lessened
greatly, however, when we note in Table XVI that three of our
seven pupils in Group B Control (previously the experimental
group in the first experiment) made relatively high scores on
the initial test in study habits and hence had less opportunity
for improvement than did the corresponding three pupils in the
present experimental group. The latter made relatively much
lower scores on the initial study habits tests. It is interest­
ing to note that the brightest pupils of the pairs made the
higher study habits test scores on both the initial and final
tests.

In the Unit II History tests the two groups (paired
pupils only) were of approximately equal ability on the initial
test. (Table XVI). The medians and averages for each group
are reasonably similar with a small difference in favor of the
experimental or directed supervised study group. On the final
test in Unit II History the advantage is in favor of the con­
trol or home study group. See Table XVII. The median and aver­
age scores for the control group exceed those for the experi­
mental group by 4 and 7.3 points respectively. Table XIX shows
the median and averages gains made by the two groups.
Table XVI
Mental Ages, I.Q.s, Initial Unit II Hist Test Scores, and Initial Study Habits Test Scores of Pupils Paired During the Second Experiment (The former Control and Experimental Groups are now reversed. Paired pupils are on the same horizontal lines)

| Pupil Number | Group B - Control | | Group A - Experimental | |
|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|              | M.A. | I.Q. | Initial Unit II Hist. Test | Initial Study Habit Test | | M.A. | I.Q. | Initial Unit II Hist. Test | Initial Study Habit Test | |
| 3B           | 15-10 | 144  | 32 | 70 | | 1A | 15-10 | 147 | 40 | |
| 16B          | 13-9 | 122  | 32 | 50 | | 5A | 13-9 | 116 | 28 | 40 |
| 18B          | 13-5 | 119  | 40 | 60 | | 6A | 13-6 | 114 | 32 | 30 |
| 23B          | 12-3 | 108  | 20 | 50 | | 15A | 12-3 | 105 | 24 | 50 |
| 34B          | 10-10 | 94 | 20 | 40 | | 29A | 10-10 | 95 | 28 | 20 |
| 37B          | 10-6 | 92   | 16 | 40 | | 35A | 10-6 | 94 | 24 | 40 |
| 42B          | 9-6   | 77   | 12 | 30 | | 39A | 9-7   | 73 | 16 | 20 |
| Md.          | -     | -    | 20 | 50 | | Md. | -   | -   | - | 28 |
| Aver.        | -     | -    | 24.5 | 48.5 | | Aver | -   | -   | - | 27.3 |

Note: Several pairs have been lost due to transfers.
Table XVII

Final Unit II History Test Scores and Final Study Habits Test Scores for Paired Pupils in the Second Experiment
(The former Control and Experimental Groups are now reversed. Paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Final Unit II History Test</th>
<th>Final S.H. Test</th>
<th>Pupil Number</th>
<th>Final Unit II History Test</th>
<th>Final S.H. Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B</td>
<td>92</td>
<td>80</td>
<td>1A</td>
<td>88</td>
<td>80</td>
</tr>
<tr>
<td>16B</td>
<td>88</td>
<td>90</td>
<td>5A</td>
<td>92</td>
<td>80</td>
</tr>
<tr>
<td>18B</td>
<td>88</td>
<td>80</td>
<td>6A</td>
<td>84</td>
<td>50</td>
</tr>
<tr>
<td>23B</td>
<td>80</td>
<td>60</td>
<td>15A</td>
<td>72</td>
<td>80</td>
</tr>
<tr>
<td>34B</td>
<td>76</td>
<td>50</td>
<td>29A</td>
<td>72</td>
<td>70</td>
</tr>
<tr>
<td>37B</td>
<td>80</td>
<td>40</td>
<td>35A</td>
<td>76</td>
<td>60</td>
</tr>
<tr>
<td>42B</td>
<td>64</td>
<td>30</td>
<td>39A</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>Md.</td>
<td>80</td>
<td>60</td>
<td>Md.</td>
<td>76</td>
<td>70</td>
</tr>
<tr>
<td>Aver.</td>
<td>81</td>
<td>61</td>
<td>Aver.</td>
<td>73.7</td>
<td>64.2</td>
</tr>
</tbody>
</table>
Table XVIII

Gains Made by Paired Pupils on Final Unit II History Test and Final Study Habits Test Accompanying Unit II History, when Compared with Initial Test Scores in Second Experiment (Paired pupils are on the same horizontal lines. The former Control and Experimental Groups are now revised)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Group B - Control</th>
<th>Group A - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gains Made on</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final Hist. Test</td>
<td>Final S.H. Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3B</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>16B</td>
<td>56</td>
<td>40</td>
</tr>
<tr>
<td>18B</td>
<td>48</td>
<td>20</td>
</tr>
<tr>
<td>23B</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>34B</td>
<td>56</td>
<td>10</td>
</tr>
<tr>
<td>37B</td>
<td>64</td>
<td>0</td>
</tr>
<tr>
<td>42B</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>1A</td>
<td>48</td>
<td>40</td>
</tr>
<tr>
<td>5A</td>
<td>64</td>
<td>40</td>
</tr>
<tr>
<td>6A</td>
<td>52</td>
<td>20</td>
</tr>
<tr>
<td>15A</td>
<td>48</td>
<td>30</td>
</tr>
<tr>
<td>29A</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>35A</td>
<td>52</td>
<td>20</td>
</tr>
<tr>
<td>39A</td>
<td>16</td>
<td>10</td>
</tr>
</tbody>
</table>
Table XIX

Average and Median Gains Made by Paired Pupils in Second Experiment in Final Unit II History Test and Final Study Habits Test when compared with Initial Tests in Second Experiment (The Control and Experimental Groups are now reversed. The paired pupils are on the same horizontal lines)

<table>
<thead>
<tr>
<th></th>
<th>Group B - Control</th>
<th>Group A - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit II Hist.</td>
<td>56</td>
<td>56.5</td>
</tr>
<tr>
<td>Study Habits</td>
<td>10</td>
<td>12.9</td>
</tr>
</tbody>
</table>
On the whole, the "carry over" effect of the previous training in how to study has evidently given the present (B) Control group or home study group which in the first experiment was the experimental or directed supervised study group, a distinct advantage in this second experiment. The evidence of the Unit II History tests favors the control or home study members of the pupil-pairs in the Unit II History experiment. In the matter of study habits there is a slight advantage in favor the experimental group which had just been given the direct training in how to study in this second experiment. However, the few cases involved and the "carry over" effect from the first experiment in the case of the present control group (B) make it impossible to place confidence in any conclusions which might be proposed in connection with the paired pupils' groups in this second experiment.

Four weeks following the completion of the second experiment (with the intervening change in type of instruction similar to that of the second four weeks) a "Long Haul Memory" Test was given to the two groups. Table XX presents some general information on the results of this test for both groups in Unit II History and study habits. Again it appears that the Control Group B (home study) is superior to the Experimental or directed supervised study group in the retention of the facts of history (Unit II) four weeks after the completion of Unit II
History. In the retention of study habits the experimental group is somewhat superior to the control or home study group. Training in study habits was of course more recent for this experimental group than for the control group.

Tables XXI and XXII present the data on the "Long Haul Memory" tests in Unit II History and study habits for the paired pupils. The results in the Unit II History test favor the Control or home study group. Since both groups (paired pupils) are of approximately equal mentality it would appear that the effect of previous training in how to study (in experiment one) is one of the major reasons for this result. Of course, variations in interest and application may also have shared in producing this advantage for the control group. The use of the study habits over a longer period of time in the case of the control group (since these pupils were given this training during the first experiment) may have made their use more effective and habitual than in the case of the present experimental group.

In the matter of the study habits tests the experimental group made slightly greater gains on the "Long Haul Memory" test in these habits. The control group (of the paired pupils) actually did better on the final test, however. It will be recalled that the Control Group pupils also did considerably better on the initial study habits tests than did the Experimental group. See Table XVI. The median and average for the
Table XX

Medians, Q₃ and Q₁ for "Long Haul Memory" Tests Given to Control Group B and Experimental Group A Four Weeks after the Completion of Unit II History (The Control and Experimental groups are now reversed)

<table>
<thead>
<tr>
<th></th>
<th>Group B - Control</th>
<th></th>
<th></th>
<th>Group A - Experimental</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q₁</td>
<td>Md.</td>
<td>Q₃</td>
<td>Q₁</td>
<td>Md.</td>
<td>Q₃</td>
</tr>
<tr>
<td>Unit II Hist L.H.M. Test</td>
<td>40</td>
<td>64</td>
<td>88</td>
<td>36</td>
<td>60</td>
<td>72</td>
</tr>
<tr>
<td>Study Habit L.H.M. Test</td>
<td>20</td>
<td>40</td>
<td>50</td>
<td>30</td>
<td>50</td>
<td>70</td>
</tr>
</tbody>
</table>
Table XXI

Scores Made by Paired Pupils on "Long Haul Memory" Tests in Unit II History and Study Habits Accompanying Unit II History, Four Weeks after the Completion of Unit II History Instruction (Paired pupils are on the same horizontal lines. The Control and Experimental groups are now reversed)

<table>
<thead>
<tr>
<th>Pupil Number</th>
<th>Group B - Control</th>
<th>Group A - Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit II Hist. &quot;L.H.M.&quot; Test</td>
<td>Study Habits &quot;L.H.M.&quot; Test</td>
</tr>
<tr>
<td>3B</td>
<td>96</td>
<td>90</td>
</tr>
<tr>
<td>16B</td>
<td>84</td>
<td>80</td>
</tr>
<tr>
<td>18B</td>
<td>88</td>
<td>80</td>
</tr>
<tr>
<td>23B</td>
<td>72</td>
<td>70</td>
</tr>
<tr>
<td>34B</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td>37B</td>
<td>84</td>
<td>60</td>
</tr>
<tr>
<td>42B</td>
<td>56</td>
<td>40</td>
</tr>
<tr>
<td>Md.</td>
<td>84</td>
<td>70</td>
</tr>
<tr>
<td>Aver.</td>
<td>78.2</td>
<td>70</td>
</tr>
</tbody>
</table>
Table XXII

Average and Median Gains Made by Paired Pupils in the "Long Haul Memory" Tests Given Four Weeks after the Completion of Unit II History Instruction, when Compared with the Initial Test Scores (Paired pupils are on the same horizontal lines. The Control and Experimental Group are now reversed)

<table>
<thead>
<tr>
<th></th>
<th>Group A - Experimental</th>
<th>Group B - Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit II History</td>
<td>40</td>
<td>38.9</td>
</tr>
<tr>
<td>Study Habits</td>
<td>30</td>
<td>28.6</td>
</tr>
</tbody>
</table>
seven pupils in Group B Control were 10 and 14 points higher than the median and average respectively for Group A (Experimental) on the initial study habit test just preceding the Unit II History instruction. It would appear that the effect of a longer period of practice in the application of a definite set of study habits has the effect of producing greater retention than a shorter period of practice when the pupils involved are of reasonably like mentality.

The general conclusions based on the objective data of this experiment will be given in the next chapter.
C. THE NON-QUANTITATIVE DATA OF THE EXPERIMENT

In considering the quality and quantity of the interest manifested by the two groups of pupils it will be necessary for the writer to discuss and compare these manifestations from a non-quantitative point of view. Two significant conclusions appear as a result of the writer's evaluation of pupils' interest in their work in history:

1. The members of the paired groups whether they were of high or low mentality showed about an equal amount of interest and desire to express that interest. Those pairs with high mentality did most whether they were of the home study or of the supervised study group. The pupils of lower mentality appeared to be less stimulated regardless of which type of study they pursued. For example, a member of one of the highest pairs (on the basis of mentality) of the directed supervised study class asked permission of the art teacher to draw objects which represented some activity in the history unit. His interest in history carried over into the art class where he could best express that interest. The result was a very fine representation of a Roman aqueduct done in colored chalk. The pupil with whom he is paired who was pursuing history with the home study group spent several days at the Public Library branch looking up cuneiform writing of the Babylonians as compared
with the hieroglyphic or picture writing of the Egyptians. He also learned how papyrus was prepared for use as paper. During the socialized recitation period this pupil gave a most interesting talk illustrated by sketches at the board on a topic not included in the assignment but one which interested him enough to study in detail. These pupils of high mentality grasped the opportunity for learning something new in their fields of interest, namely bridge building and printing through the assignment in history. Several paired groups of lower mentality were content to find pictures in magazines and mount them to accompany the appropriate written work of the note books rather than to make an original drawing of their own interpretation. This was pointed out as requiring less effort.

2. The experimental group as a whole during each of the units appeared more anxious to perform whether it was in the recitation or in an outside activity than did the home study group. They were probably more stimulated during the directed supervised study period to the extent that this stimulation "carried over" after class into outside related activities. This was clearly evident when the exhibits were brought in for each group. A great deal more wall space and table space were required to display the objects for the socialized recitation of the directed supervised study group. They were
extremely anxious and eager to recite about the many things displayed. The home study group delighted in seeing all these and were proud of the few displays of the brighter pupils of their own group but the keen feeling of pleasure gained from achievement was not as marked as in the case of the first group. The home study group stressed their notebooks in both units and brought in less elaborate additional contributions or expressions of interest. This may, of course, be due to the fact that the pupils in the home study group had necessarily less time to put on extra activities because their required notebook work had to be done outside of school time. The notebooks of the home study group were well done. A great amount of pride was taken in being able to check many of the references given in the unit and add additional books read. This required considerable reading and reading consumes time. Since history is only one if the subjects of the curriculum it is not fair to expect more than a reasonable amount of home study time to be spent on this subject. That the pupils were extremely interested in making their notebooks creditable may be appreciated by knowing that it was almost impossible for the writer to keep any of them. Each pupil was anxious to have his returned and was reluctant to part with it. Unfortunately the reader cannot be carried in retrospect into the classroom experiences of the writer. It is in the classroom that eager faces and bright eyes display more
interest than can be measured in experiments. Questions that are not recorded but which indicate an interested mind which prompted them are further evidences which are not subject to definite measurement. Considering all the student activities of both groups the writer is of the opinion that the directed supervised study group expressed greater interest and must therefore have possessed it in order for such expression to be possible.
CHAPTER VII

SUMMARY OF CONCLUSIONS

In this final chapter it will be the aim of the writer to outline briefly the conclusions which the present study seems to warrant:

1. Sixth-grade children have many interests outside of school. Many of these are quite desirable and worth while, contributing as they do to the social, spiritual, and physical growth of the children. In the writer's school these activities are recognized by the parents to such an extent that some changes in teaching procedure which will relieve the child of much of the so-called homework appear necessary.

2. Training in how to study appears to be considered a desirable asset both from the point of view of the learner and the teacher. Supervised study is generally recognized as the procedure for providing this form of training. This is the general consensus of opinion on the part of the educators referred to in this study.

3. Reading is the fundamental tool of study. A knowledge of the psychology underlying the use of reading for study is therefore, essential to the proper training of pupils in how to study. Rate of reading, the technic of reading for acquiring facts for the solution of a problem, the power of
discrimination and the development of reading interests are some of the factors which must be given consideration when reading as a tool for study is involved.

4. Study habits which are particularly valuable for studying history in the sixth grade include the following:

   (a) Regular time and place for study.
   (b) Use of tables of contents in books.
   (c) Use of indices in books.
   (d) Ability to skim or to read rapidly the whole assignment for the purpose of securing a general overview of the lesson as a whole.
   (e) Ability to make a simple outline.
   (f) Ability to find the important points or facts in a lesson.
   (g) Ability to make applications of what is learned to other experiences and facts.

5. In the experiments carried on by Breslich, Minnich, Proctor, and Gatchel the evidence favors supervised study procedures in varying degrees. Breslich and Minnich cite advantages for supervised study in algebra and plane geometry respectively. Proctor finds that training in how to study tends to reduce failures in all subjects. Gatchel reports that not only are greater gains made in a variety of subjects but there is a noticeable increase in enthusiasm and alertness on the
part of the pupils who are provided with study methods.

6. In the field of history instruction in the grades and in the high school Ayer reports that children need training in how to study history; the pupils lack ability to comprehend the paragraphs in history. Judd and Buswell report a similar deficiency on the part of pupils. Giles found that training in how to study helped the pupils in mathematics, science, and history. Rickard reports that knowledge of study methods increased the pupils' abilities in history.

7. The results of the writer's experiment may be briefly summarized:

(a) In the case of the selected paired pupils (first experiment) those pupils of the pairs who were provided with training in how to study were very definitely superior to the home study group in their knowledge of certain study habits at the close of four weeks' instruction. This is, of course, what might readily be expected, the advantage of direct instruction.

(b) In the matter of gains in knowledge in history (Unit I History) the group (from paired pupils) which had been provided with training in how to study secured the better results on the whole.

(c) However, the pupils of above average mentality, who had not received specific training in how to study did as
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well in their history work as did the pupils with whom they were paired on the basis of mentality. Bright pupils (I.Q. of 110 and higher) appear to have methods of work which for them are evidently effective in securing results. These methods of work probably are not consciously recognized by them; at least, these pupils (of the home study group) evidently either did not realize that the writer was dealing with study habits (which they may already have possessed) in the study habits test or else their own practiced habits of study differed sufficiently from the writer's list to preclude the pupils' understanding of the use of the writer's list of habits.

(d) For the classes as wholes, that class which was provided with training in how to study, made the greater gain in the acquisition of knowledge in history in the first experiment as compared with the home study group. It was also noted that training in how to study together with supervised study brought about more uniformity in learning in this group - that is a greater homogeneity in history ability. The supervised study group likewise excelled the home study group in the ability to use the particular study habits which the writer taught to the supervised study group only. As before, this was to be expected.

(e) The factor of forgetting appears to effect the
work of the supervised study and home study groups in history in about the same way as indicated by the "Long Haul Memory" test which was given four weeks after the completion of the first unit in history. The less capable pupils seemed to forget more subject matter proportionately than did the bright pupils after this four week interval following the completion of Unit I History. This latter conclusion, however, is not more than a suggestion.

(f) The supervised study group showed, compared with the home study group, a greater loss in knowledge of study habits on the "Long Haul Memory" test. This is to be expected since the supervised study group had had instruction in the study habits and hence, had acquired knowledge which could be subject to some loss over a period of time. On the other hand, the home study group possessed only some of the more mechanical habits (use of tables and index) which required relatively little training to acquire and which were not particularly subject to loss. Since this latter group was not given specific training in study habits it neither gained nor lost appreciably in the field of those few habits it possessed previous to this experiment or acquired without direct instruction during the experiment.

(g) The "carry over" effect of training in how to
study is evident in the second experiment which began four weeks after the close of the first experiment. The initial study habit test showed, as one would expect, that the new control or home study group (which was the experimental or supervised study group in the first experiment) was distinctly superior to the experimental or supervised study group in the matter of knowledge of the particular study habits to be taught in the second experiment. The same study habits were taught in each experiment.

(h) In the second experiment the results of the final tests indicate a slight advantage for the experimental or directed supervised study group over the control group in both study habits and history knowledge (Unit II History). The control or home study group showed a loss in the value of the "carry over" effect of the previous training in study habits received in experiment one. The lack of continued emphasis on how to study by the writer during the second experiment for the home study group (formerly the supervised study or experimental group) evidently resulted in a failure on the part of these pupils to use the habits of study in which they had previously been instructed in experiment one. On the other hand the experimental group made a distinct gain in knowledge of study habits as a result of the direct instruction in these habits.
during the second experiment.

(i) It should be noted that the pupils in the highest quarter on the basis of mentality of the control group (home study group) did about as well in history (Unit II) as did the corresponding section (on the basis of mentality) in the experimental or directed study group. The brightest pupils of the experimental or supervised study group of experiment one had evidently continued to benefit from their previous training in study habits.

(j) When the results of the tests of the paired pupils in study habits and Unit II History are analyzed there appears to be a slight advantage in favor of the supervised study group members of the pairs in study habits. In the history tests the results favor the control or home study group. The small number of pairs of pupils involved (seven pairs) permits of no more than mere suggestions on the part of the writer. Conclusions would be out of order in this instance.

(k) In the "Long Haul Memory" tests in study habits and history (Unit II) given four weeks after the completion of Unit II History, the control or home study group as a whole appears to be superior to the experimental or supervised study group as a whole in the retention of the history facts. The "carry over" effect of previous training in how to study in the
first experiment may have influenced the permanency of learning for this group in the second experiment. We are aware of the psychological principle that attributes considerable value to the intensity of the stimuli received by the learner when the permanency of learning is involved.

In the matter of study habits the experimental or supervised study group apparently retained more of the study habits than did the control or home study group. Here the psychological factor of recency in learning is apparently influential. This does not necessarily mean that the experimental group was actually more capable in using the study habits than was the control group but rather that they probably recognized their new friends (the study habits) in the study habit tests more readily after a four week interval than did the control group after a twelve week interval.

(1) In the case of the "Long Haul Memory" tests for the groups of paired pupils the control group (home study) retained more in history than did the pupils in the experimental or supervised study group. Again, this may be attributed no doubt partly to the "carry over" effect of training in study habits from the first experiment. In the case of the study habits the experimental or supervised study group retained more when the scores on the initial tests in study habits in the
second experiment are taken into consideration, again the effect of greater recency in learning. In view of the few pairs of pupils involved, however, conclusions of a definite type are out of order.

8. When the subjective data of the experiments are scrutinized the following seem to be reasonable conclusions:

(a) Pupils of high mentality (I.Q. above 105) gave greater evidence of interest in learning history than did the pupils of mediocre or low mentality. This was true regardless of to which group (supervised study or home study) the pupils belonged.

(b) The pupils of the experimental or supervised study group as a whole in each experiment appeared more stimulated, more eager to carry on extra projects in connection with their study of history. The evidences of pupils' interest for these two conclusions include the notebooks, drawings, projects in clay, soap, etc., plays, and the like.

9. In general the more reliable evidence of the writer's study seems to favor the use of supervised study and training in how to study for sixth grade pupils in history instruction.
BIBLIOGRAPHY


References Consulted but not referred to directly in this study


26. Miller, H.L., Directing Study, Chas. Scribner's Sons, 1922


APPENDIX

Contents

1. Otis Classification Test, Examination: Form A.
2. Study Habits of Value in Fifth and Sixth Grade History Cited in Order of Use.
3. Test I - Study Habits
   (Note: The six Study Habit tests are similar in construction, differing only in the subject-matter used).
4. Ancient Civilization - Test used in Unit I History in Experiment I
5. The Romans - Test used in Unit II History in Experiment II
The thesis, "Directed Supervised Study versus Home Study in Sixth Grade History," written by Lilian Mattocks Johnson, has been accepted by the Graduate School of Loyola University with reference to form, and by the readers whose names appear below with reference to content. It is, therefore, accepted as a partial fulfillment of the requirements of the degree conferred.

Austin G. Schmidt, S. J.  
July, 1931

Joseph C. Thompson  
July, 1931

Dr. William H. Johnson  
July, 1931
STUDY HABITS OF VALUE IN FIFTH AND SIXTH GRADE HISTORY STUDY
CITED IN THE ORDER OF USE

Habit:

I Using Table of Contents in a book
II Using index of a book
III Skimming (1) -- for getting an "overview" of the lesson as a whole; a general feeling of acquaintanceship with the assignment or topic.
IV Finding the main points in the lesson (2)
V Making a simple outline
VI Applying the new knowledge or attitude to other situations, facts, etc.

Note:

(1) This is a timed test. The whole class takes this at one time. The answer is written on a separate sheet of paper. These are collected immediately after time is called by the teacher. Score is 10 if 50 percent of the general ideas in the pages to be read are noted by the pupil. Otherwise the score is 0.

(2) Full credit (10) is given if at least one half of the main points are given. otherwise the score is 0.
In this test you will use the book called "Introduction to American History", by Woodburn and Moran.

I-1. In what chapter in this book can you learn about the beginnings in history? Answer here: ____________________________
On what page does this chapter begin? __________ How did you find this page number? ____________________________

II-2. Find all the pages that tell about the Egyptians.
Write the page numbers here: ______________________
Tell how you found these pages in your book? ____________________________

III-3. Turn to page 4. Begin to read with the paragraph that is called The Egyptians. Keep on reading until you come to the story about The Chaldeans on page 8. Read as quickly as you can.

When you have finished, close your book and make a list of as many things about the Egyptians as you can remember. Write your answer on another sheet of paper.

IV-4. Begin to read about the Chaldeans on page 8. Read to the bottom of page IV. Name the four neighbors of the Egyptians.

V-5. The people who started our civilization did some things in those days which we still do. Make an effort to find out what these things are.
VI - 6. The Greeks did many things which no-one had ever done before. Open your books to page 16. Read as quickly as you can. When I say "Stop", you will write on another sheet of paper as many of these things the Greeks did, as you can remember.

VI - 7. You have now read about different peoples of the ancient world. Which people would you like most to know more about? 

Why?

VI - 8. What have we today that you think we ought to be grateful for to these early peoples?

IV - 9. Read about the Phoenicians on pages 11 and 12. Name the things for which the Phoenicians are best remembered.
ANCIENT CIVILIZATION

NAME __________________________________________ GRADE ________ DATE __________

Number of Points: 40

1. The Egyptians preserved the _____ of their dead by embalming them. These _____ are called _______

2. Many Egyptians farmers lived along the ______ River.

3. Peace and some leisure gave the Egyptians a chance to think and to ______ their conditions of living.

4. The Egyptians built large ______ buildings. These were built by ambitious kings to contain their bodies after death. The buildings were called _______

5. The old Egyptians kept records of the history of their country. These records are in a kind of ______ writing called "hieroglyphics".

6. The Rosetta stone (which was found in 1799) bears the same inscription in Greek and in the ______ language.

7. The ______ on the walls of ______ give us an excellent idea of many sides of Egyptian ______.

8. The Tigris-Euphrates Valley was ______ place to live. Therefore the various peoples living there ______ in learning and in arts.

9. As early as 3000 B.C. the people of this Valley used for building. Later the people of this same region gave the world another good idea. They divided time into years, ______ and ______

10. The Ten ______ were given to the _______ people through Moses, while these people were on their way to Palestine.

11. The Phoenicians carried on _______ with the people of many nations, especially the nations along the ______ Sea.

12. By means of trading and establishing colonies the Phoenicians helped to _______ the culture of the early empires.

13. Ancient Greece had _______ harbors. The mainland of Greece was separated into many small regions by _______.

14. Sparta and Athens were important city-states in Greece. The Spartan boys were trained only for ______, but boys of Athens also learned _______.

15. Girls of Greece were trained at _______ for duties about the _______.

16. By 500 B.C. most Greek cities had become little democracies. The people of each city ruled _______.

17. Democracy means "the rule of the _______."

18. The Parthenon was a _______ built on a hill in _______. The Parthenon, like most Greek buildings had many _______.

19. When the mother country became crowded Greece established along the shores of the Mediterranean and the Black Seas. This helped to _______ Greek ideas.

20. Lack of _______ between the Greek city-states made Greece weak. _______ of Macedonia conquered the Greeks in about 350 B.C. He wanted to conquer the Persian Empire too. His sudden death left his son to carry on this work.

21. _______ conquered many nations. He mixed the best parts of Greek and Persian life into a new civilization.

22. Of all that the Greeks taught the world, the best was this: to _______.

23. Think about the many ideas which improved ways of living that were handed down to us by people of long ago. Which of these contributions to civilization do you consider of most value to people today? Give your reasons. Write your story on the back of this paper.

__________
Form 1

History - Grade 6B - Unit 11 -

THE ROMANS

Test

Name ________________________________ Date ________________

1. In what continent is Italy? ________________

2. Rome is on the _____ River.

3. Italy is a peninsula which stretches down into the center of the
   Sea.

4. How much land did Rome rule by the year 275 B.C.?

5. Carthage was a great _______ center in Northern Africa.

6. Rome and Carthage did not like each other because they were _______.

7. Hannibal could not conquer Rome because the Romans at home and in
   the colonies were firm in their patriotism and love for their country.
   The Roman people were so loyal to their country because they _______.

8. In the year 202 B.C., Scipio, a Roman general defeated a general
   named _______ in the battle of Zama. This battle ended forever the power of
   _______.

9. Hannibal fled to Asia Minor. For help, the Romans followed him and
   took Macedonia and Asia Minor.

10. Then Rome _______ Spain, northern Africa and Greece.

   Thus Rome became _______.

11. Rome absorbed much of the _______ found in the
    lands which she

12. Rome, under certain conditions, allowed _______ to become
    Roman citizens instead of slaves. This made these people
    interested in and loyal to Rome. This system made Rome strong.

13. Tell something you know about patricians of Rome. _______.

14. Underline the phrases that tell something about plebeians.
   Had the right to vote. Could hold office.
   Fought for right to elect two tribunes who could veto any unfair
   law. A very small group

15. Rome won many battles. Many of the conquered people
    went to Rome. Many of these were sold as
    slaves, but most of the work. Food was very plentiful. Many Romans were
    unemployed.

16. Many Roman citizens became very poor. Some became very lazy.
    Many Romans no longer took an interest in the _______.

17. The Roman Republic came to be very
    managed. _______ was the greatest of all the Roman
    generals. He fought in what is now
    _______ and also in

    Roman civilization.

18. Here is a story with five endings. Only one of the endings is
    entirely correct. Two of the endings are entirely wrong. Put a "C"
    in front of the entirely correct ending. Put an "X" in front of each of
    the two endings that are entirely wrong.

    The Romans were the first people to have the following ideas:
    _______ the alphabet
    _______ the idea of self government
    _______ many ideas about government and law which we use
    today
    _______ how to make steam-boats
    _______ how to build big buildings.
Write a paragraph telling about the people who were constantly attacking the Roman Empire. Tell how they finally overcame the Roman Empire. Only stories written very well will be read. So write well.
Read this page. Do what it tells you to do.

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly:

Name ........................................................ Age last birthday ........ years
First name, initial, and last name
Birthday .................... Teacher ............................ Date .................... 192 ...
Month ............ Day ............
Grade .............. School ...................... City ...................

This is a test to see how much you have learned and how well you can think. It contains questions of different kinds. Here is a sample question already answered correctly. Notice how the question is answered:

Sample: Which one of the five words below is wrongly spelled?

1 the, 2 when, 3 wil, 4 same, 5 and . . . . . . . . . . . . . (3)

The word that is wrongly spelled is "wil"; so the word "wil" is underlined. And the word "wil" is No. 3; so a figure 3 is placed in the parentheses at the end of the dotted line. This is the way you are to answer the questions.

Try this sample question yourself. Do not write the answer; just draw a line under it and then put its number in the parentheses:

Sample: Which one of the five words below tells what an apple is?

1 flower, 2 tree, 3 vegetable, 4 fruit, 5 animal . . . . . . . . . ( )

The right answer, of course, is "fruit"; so you should have drawn a line under the word "fruit" and put a figure 4 in the parentheses. Now try this one:

Sample: Which one of the five things below is round?

1 a book, 2 a brick, 3 a ball, 4 a house, 5 a box . . . . . . . . . ( )

The answer, of course, is "a ball"; so you should have drawn a line under the words "a ball" and put a figure 3 in the parentheses. Try this one:

Sample: At four cents each, how many cents will 6 pencils cost? . . . . . . . . . ( )

The answer, of course, is 24, and there is nothing to underline; so just put the 24 in the parentheses.

If the answer to any question is a number, put the number in the parentheses without underlining anything.

This examination is in two parts. You will take only Part I just now. Part I contains 115 questions and covers four pages. You will be allowed thirty minutes for this part, after the examiner tells you to begin. You are not expected to be able to answer all the questions, but do the best you can. Try to get as many right as possible. Be careful not to go so fast that you make mistakes. Do not spend too much time on any one question. No questions about the test will be answered by the examiner after the test begins. Lay your pencil down. Do not turn this page until you are told to begin.

DIRECTIONS FOR PART II

You will be allowed half an hour for Part II. It contains 75 questions and covers three pages. You are not expected to be able to answer all the questions, but do the best you can. Try to get as many right as possible. If the answer to any question is a letter, put the letter in the parentheses without underlining anything. Make all letters like printed capitals. Wait for the signal to begin.

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PRINTED IN U.S.A.

To the Examiner: Do not administer this test without first reading carefully the Manual of Directions. The Manual must be ordered extra.
PART I

1. Which is wrongly spelled?
   I evening, 2 histry, 3 speak, 4 fair, 5 subject. (Do not write on these dotted lines.)
   ( )

2. Which word is wrongly spelled?
   I eight, 2 restrain, 3 afraid, 4 uncle, 5 fourth. ( )

3. Which word is wrongly spelled?
   I accept, 2 capture, 3 inspect, 4 bridge, 5 dollar. ( )

4. Which word is wrongly spelled?
   I gentleman, 2 primary, 3 property, 4 terrible, 5 final. ( )

5. Which word is wrongly spelled?
   I beautiful, 2 repaire, 3 trouble, 4 flight, 5 importance. ( )

6. Which is wrong?
   I She lost the book. 2 He wrote a letter. 3 You hadn’t ought to do it. ( )

7. How many complete sentences are there in the following?
   Let Harry carry the apples I will carry the milk you may carry the bread. ( )

8. Which is wrong?
   I He couldn’t hardly do it. 2 No one is here but me. 3 Many people like meat. ( )

9. Which is wrong?
   I I wish I were there. 2 I don’t want no more to eat. 3 Both of us are going. ( )

10. Which is wrong?
    I Whom did you see? 2 That is all the tighter I can get it. 3 He can sing better than she. ( )

11. A man borrowed $450 and later paid back $200. How many dollars did he still owe? ( )

12. How many miles can a train go in 5 hours at the rate of 40 miles an hour? ( )

13. A rectangular room is 12 feet long and 10 feet wide. How many square feet of floor space does it contain? ( )

14. If 2 pencils cost 5 cents, how many pencils can be bought for 50 cents? ( )

15. If you knew the number of trees in an orchard and the number of rows of trees, to find the number of trees in each row you should (?)
   I add, 2 subtract, 3 multiply, 4 divide. ( )

16. Which of these states produces the most coal?
    I Maine, 2 Pennsylvania, 3 Kentucky, 4 Utah, 5 West Virginia. ( )

17. The Pyramids are in (?)
    I Egypt, 2 Italy, 3 Greece, 4 Turkey, 5 Switzerland. ( )

18. The days are longest in the (?)
    I spring, 2 summer, 3 autumn, 4 winter. ( )

19. If I stand facing north and turn “right face,” I shall then face (?)
    I south, 2 east, 3 west, 4 north. ( )

20. The largest continent is (?)
    I North America, 2 South America, 3 Europe, 4 Asia, 5 Africa. ( )

21. Gibraltar is on the coast of (?)
    I Spain, 2 Portugal, 3 France, 4 Italy, 5 Greece. ( )

22. February 22 is (?)
    I Thanksgiving, 2 Christmas, 3 Flag Day, 4 Memorial Day, 5 Washington’s Birthday. ( )

23. The cotton gin was invented by (?)
    I Thomas Edison, 2 Benjamin Franklin, 3 Eli Whitney, 4 Robert Fulton, 5 Samuel Morse. ( )

24. The Declaration of Independence was signed in (?) (Tell by letter.)
    A 1820, B 1765, C 1812, D 1850, E 1776. ( )

25. The members of the Cabinet are chosen by (?)
    I the people, 2 Congress, 3 the President, 4 the state legislatures. ( )

26. What official of a city corresponds to the governor of a state?
    I the mayor, 2 the judge, 3 the city attorney, 4 the city clerk, 5 the chief of police. ( )

27. Which one of the following men was prominent in the Colonial period?
    I Nathan Hale, 2 William Penn, 3 John Cabot, 4 Paul Revere, 5 Daniel Webster. ( )

Do not stop. Go right on to the next page.
28. When we breathe, air is taken into the (?)
   1 stomach, 2 heart, 3 lungs, 4 liver, 5 brain.

29. A knuckle is a part of the (?)
   1 leg, 2 hand, 3 thigh, 4 hip, 5 neck

30. All the following are necessary to the body except (?)
   1 proteins, 2 carbohydrates, 3 fats, 4 minerals, 5 toxins

31. The thyroid gland is in the (?)
   1 chest, 2 abdomen, 3 neck, 4 head, 5 leg

32. The story of "Rip Van Winkle" tells about (?)
   1 Bois-Guilbert, 2 Tom Canty, 3 Marley's Ghost, 4 Old Stony Phiz, 5 Kaatskill Mountains

33. "The Legend of Sleepy Hollow" tells about (?)
   1 Captain Smollet, 2 Ichabod Crane, 3 Miles Henderson, 4 Scrooge, 5 Queen Dolores

34. "Antique" means about the same as (?)
   1 shabby, 2 inferior, 3 ancient, 4 original, 5 peculiar

35. "To congregate" means about the same as (?)
   1 to assemble, 2 to dismiss, 3 to applaud, 4 to confirm, 5 to contradict

36. "To repress" means about the same as (?)
   1 to press hard, 2 to hurried, 3 to require, 4 to restrain, 5 to press forward

37. Ivory is obtained from (?)
   1 trees, 2 mines, 3 tusks, 4 hoofs, 5 bones

38. The letters "C. O. D." refer to (?)
   1 fish, 2 paying for goods, 3 a state, 4 a secret society, 5 an officer

39. The United States Military Academy is at (?)
   1 Poughkeepsie, 2 West Point, 3 Annapolis, 4 Boston, 5 New York

40. Mica is a (?)
   1 mineral, 2 gas, 3 liquid, 4 vegetable, 5 animal product

41. The term "soviet" refers to (?)
   1 government, 2 finance, 3 war, 4 business, 5 transportation

42. The armadillo is a kind of (?)
   1 plant, 2 animal, 3 bird, 4 fish, 5 insect

43. Red and yellow paints mixed make (? paint.
   1 green, 2 blue, 3 purple, 4 pink, 5 orange

44. The clarinet is used in (?)
   1 farming, 2 tennis, 3 music, 4 hunting, 5 fishing

45. Beethoven is best known as (?)
   1 a composer, 2 a poet, 3 a dramatist, 4 an actor, 5 a statesman

46. The key of E flat has how many flats?

47. Write in figures the sum of six, our, and three

48. 25 - 9 = (?)

49. 6 x 9 = (?)

50. 56 + 8 = (?)

51. One figure is wrong in the answer to the addition problem at A. What should that one figure be?

52. One figure is wrong in the answer to the subtraction problem at B. What should that figure be?

53. One figure is wrong in the answer to the multiplication problem at C. What should that figure be?

54. One figure is wrong in the answer to the division problem at D. What should that figure be?

55. 25 lb., 4 oz. + 4 lb., 12 oz. = (?) lb.

56. Which word is wrongly spelled?
   1 estimate, 2 accident, 3 volume, 4 impossible, 5 deside.

Do not stop. Go right on to the next page.
52. If a man has walked west from his home 9 blocks and then walked east 4 blocks, how many blocks is he from his home? 

53. A pitcher is to milk as (?) is to flowers.
   1 stem, 2 leaves, 3 water, 4 vase, 5 roots.

54. Do what this mixed-up sentence tells you to do.
   sum three write two the four and of.

55. There is a saying, “Don’t count your chickens before they are hatched.” This means (?)
   1 Don’t hurry. 2 Don’t be too sure of the future. 3 Haste makes waste. 4 Don’t gamble.

56. Which statement tells best just what a fork is?
   1 a thing to carry food to the mouth, 2 It goes with a knife, 3 an instrument with prongs
      at the end, 4 It goes on the table, 5 It is made of silver.

57. Wood is to a table as (?) is to a knife.
   1 cutting, 2 chair, 3 fork, 4 steel, 5 handle.

58. Do what this mixed-up sentence tells you to do.
   sentence the letter write last this in.

59. Which one of the words below would come last in the dictionary?
   1 alike, 2 admit, 3 amount, 4 across, 5 after, 6 amuse, 7 adult, 8 affect

60. There is a saying, “He that scatters thorns, let him go barefoot.” This means (?)
   1 Let him who causes others discomforts bear them himself also. 2 Going barefoot
      toughens the feet. 3 People should pick up what they scatter. 4 Don’t scatter things
      around.

61. If the following words were arranged in order, with what letter would the middle word begin?
   Plaster Frame Wallpaper Lath Foundation

62. In a foreign language, many boys = Boka Hepo
   many girls = Marti Hepo
   many boys and girls = Boka Ello Marti Hepo
   The word that means and begins with what letter?

63. A statement which expresses just the opposite of that which another statement expresses is 
    said to be a (?)
    1 lie, 2 contradiction, 3 falsehood, 4 correction, 5 explanation.

64. There is a saying, “Don’t look a gift horse in the mouth.” This means (?)
    1 It is not safe to look into the mouth of a horse. 2 Although you question the value of
       a gift, accept it graciously. 3 Don’t accept a horse as a gift. 4 You cannot judge the
       age of a gift horse by his teeth.

65. Which one of the words below would come last in the dictionary?
    1 hedge, 2 glory, 3 label, 4 green, 5 linen, 6 knife, 7 honor

66. Which statement tells best just what a watch is?
    1 It ticks, 2 something to tell time, 3 a small, round object with a chain, 4 a vest-
      pocket-sized time-keeping instrument, 5 something with a face and hands.

67. Ice is to water as water is to what?
    1 land, 2 steam, 3 cold, 4 river, 5 thirst.

68. Which statement tells best just what a window is?
    1 something to see through, 2 a glass door, 3 a frame with a glass in it, 4 a glass
      opening in the wall of a house, 5 a piece of glass surrounded by wood.

69. Which of the five words below is most like these three: large, red, good?
    1 heavy, 2 size, 3 color, 4 apple, 5 very

70. Write the letter that follows the letter that comes next after M in the alphabet.

71. One number is wrong in the following series. What should that number be?
    1 2 4 8 16 24 64.

72. An uncle is to an aunt as a son is to a (?)
    1 brother, 2 daughter, 3 sister, 4 father, 5 girl.

73. If I have a large box with 3 small boxes in it and 4 very small boxes in each of the small boxes, 
    how many boxes are there in all?

74. One number is wrong in the following series. What should that number be?
    1 2 4 5 7 8 10 11 12 14.

75. There is a saying, “Don’t ride a free horse to death.” This means (?)
    1 Don’t be cruel. 2 Don’t abuse a privilege. 3 Don’t accept gifts. 4 Don’t be reckless.

If you finish before the time is up, go back and make sure that every answer is right.
86. \( \frac{1}{2} + \frac{1}{2} = (?) \) .................................................. ( )
87. .24 + .6 = (?) (Tell by letter.)
   A 4, B .4, C .04, D .004, E .0004. ........................................... ( )
88. 25% of 8 = (?) .................................................. ( )
89. 27 sq. ft. = (?) sq. yd. .................................................. ( )
90. The prime factors of 30 are 2, 3, and (?) .................................. ( )
91. The square root of 64 = (?) .................................................. ( )
92. Which word is wrongly spelled?
   1 necessary, 2 agreement, 3 distinguish, 4 assure, 5 foreign. .................. ( )
93. Which word is wrongly spelled?
   1 separate, 2 extreme, 3 organization, 4 appreciate, 5 practical. .................. ( )
94. Which is wrong?
   1 He did it as quick as he could. 2 George and I were there. 3 Who would have thought so? .............................. ( )
95. Which is wrong?
   1 He could hardly wait. 2 If she was here, we could ask her. 3 They don’t like to work. .................. ( )
96. Which is wrong?
   1 He studied his lesson. 2 I wish I was in Dixie. 3 The clock had run down. .................. ( )
97. At 6% per annum, what will be the interest on $200 for 3 years? .................. ( )
98. A dealer sells trombones at $50 each, having bought them of the manufacturer at a discount of 60% of this selling price. How many dollars does each trombone cost the dealer? .................. ( )
99. Which of these states is the most mountainous?
   1 Arizona, 2 Colorado, 3 Nebraska, 4 Illinois, 5 Indiana. .................. ( )
100. In how many days does the earth make one complete revolution about the sun? .................. ( )
101. When it is 12 o’clock in New York, what time is it in Chicago? .................. ( )
102. The Monroe Doctrine was (?)
   1 an expression of resentment against taxation without representation, 2 a declaration of war, 3 a warning to the European nations to refrain from colonizing in the Western Hemisphere, 4 a warning against entangling alliances, 5 a treaty with Great Britain. .................. ( )
103. The initiative and referendum have to do with (?)
   1 legislation, 2 bargaining, 3 commerce, 4 banking, 5 war. .................. ( )
104. The President of the United States is technically chosen by the (?)
   1 state legislatures, 2 people, 3 electoral college, 4 Senate, 5 Cabinet. .................. ( )
105. The medulla oblongata is part of the (?) system.
   1 digestive, 2 circulatory, 3 nervous, 4 respiratory, 5 glandular. .................. ( )
106. The story of “Rebecca of Sunnybrook Farm” tells about (?)
   1 Mr. Aladdin, 2 Lobo, 3 Carol Bird, 4 Miss Ophelia, 5 Queen Dolores. .................. ( )
107. “To deplete” means about the same as (?)
   1 to depreciate, 2 to exhaust, 3 to deplete, 4 to complete, 5 to deny. .................. ( )
108. Rosa Bonheur was famous as a (?)
   1 sculptor, 2 actress, 3 poet, 4 painter, 5 singer. .................. ( )
109. Samuel Gompers was best known as a (?)
   1 mine owner, 2 labor leader, 3 senator, 4 governor, 5 journalist. .................. ( )
110. A circle viewed obliquely appears as (?)
   1 a smaller circle, 2 a straight line, 3 an ellipse, 4 a cylinder, 5 egg-shaped. .................. ( )
111. It rains whenever (?)
   1 saturated air is warmed, 2 saturated air is cooled, 3 there is a strong wind, 4 the ocean evaporates. .................. ( )
112. The lowest line in the treble clef is do in the key of (?) .................. ( )
113. 12:4:4:6:6 = (?) .................. ( )
114. Express CXVI in Arabic figures. .................. ( )
115. The circumference of a circle = (?) (Tell by letter.)
   A \( \pi \), B \( \pi^2 \), C \( 2\pi r \), D \( \pi r^2 \), E \( 2\pi r \). .................. ( )

End of Part I. Stop here. Go back and see that all your answers are right.