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The Probable Efficiency of A Vocabulary Notebook In The Teaching of Latin Vocabulary.

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The Probable Efficiency of a Vocabulary Notebook
in the
Teaching of Latin Vocabulary

the thesis presented to the Graduate Faculty of
the Fort Hays Kansas State College in partial
fulfillment of the requirements for a Master of
Science degree

by

David L. McGill, A.B.

Approved by

H. B. Reed.



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David L. McGill

TABLE OF CONTENTS

I.	The Problem - - - - -	p. 1
II.	Related Studies in Vocabulary Teaching - - - - -	p. 2
	1. Schmidt - Objective Methods - - - - -	p. 2
	2. Haskell and Hamblen - The Teaching of Deriva- tion - - - - -	p. 3
	3. Schenberr - Direct and Indirect Methods in Vocabulary Learning - - - - -	p. 3
	4. Thorndike - Recall vs. Memorizing Vocabulary - - - - -	p. 3
	5. Grinstead - Learning Foreign Words - p. - - - -p.	p. 6
	6. Seibert - Learning French Vocabulary - - - - -	p. 6
	7. Schleuter - Methods of Learning Foreign Vocabulary - - - - -	p. 7
	8. Morgan and Oberdeck - Active and Passive Vocabulary - - - - -	p. 8
III.	Method of Procedure - - - - -	p. 10
	1. Selection of Control and Experimental Groups	p. 10
	2. Equating Groups - - - - -	p. 11
	3. Phases of Vocabulary Learning Measured - - -	p. 13
	4. Organization of the Course - - - - -	p. 13
	5. Tests Used in This Study - - - - -	p. 14
	6. Description of Tests Used in This Study - - -	p. 15
	a. Vocabulary Tests - - - - -	p. 15
	b. English-Latin Vocabulary Tests - - - - -	p. 15
	c. Derivative and Word-Study Tests - - - - -	p. 15

d. The New York Latin Achievement Tests - -	p. 16
e. The Stevenson-Coxe Latin Derivative Test	p. 17
f. The Scoring of the Tests - - - - -	p. 18
g. The Use of the Notebook in Class - - - - -	p. 18
IV. Presentation of Results - - - - -	p. 19
1. Measures Obtained for Determining Results	p. 19
2. Results in Tabular Form - - - - -	p. 19
a. Interpretation of the Data of Table	
Three - - - - -	p. 21
b. Interpretation of the Data of Table Four	p. 25
c. Interpretation of the Data of Table Five	p. 27
d. Interpretation of the Data of Table Six	p. 28
e. Explanation of Table Seven - - - - -	p. 30
f. Interpretation of Table Seven - - - - -	p. 32
V. General Conclusions - - - - -	p. 33
Bibliography - - - - -	p. 34
Appendix	
Test Records One to Thirty-one - - - - -	p. 1
Example Pages of the Vocabulary Notebook	p. xxxiii

SECTION ONE: THE PROBLEM

Since the findings of the Classical Investigation have been reported, makers of Elementary Latin Textbooks have, among other things, stressed basal Latin vocabulary and English words derived therefrom. As a means of achieving a mastery of a larger vocabulary, they often advise the teacher to require pupils to make and keep a vocabulary notebook. Particularly is this advised in the Ullman-Henry Elementary Latin texts, which the writer has used for the past six years.

Upon submitting to the publishers of the Ullman-Henry texts, the vocabulary notebook which he had developed in teaching these texts, the writer received the comment that no one was as yet convinced as to the form such a notebook should take, nor that it really paid in terms of learning, to use one. Since the use of a vocabulary notebook in class entails no small amount of extra labor both on the part of the teacher and the pupil, it seemed eminently worth while to attempt to discover whether or not pupils really do learn more vocabulary as a result of using a notebook. This attempt was begun in the fall of 1929 and finished in the spring of 1931.

SECTION TWO: RELATED STUDIES IN
VOCABULARY TEACHING

1. Schmidt--Objective Methods.

Augusta G. Schmidt, S. J.,¹ in January, February and March, 1923, conducted an experiment to determine the value of objective methods of teaching Latin vocabulary as compared with non-objective methods. "A total of 4,844 eighth and sixth-grade boys² and girls in public and parochial schools studied fifty Latin words by objective methods and fifty words by non-objective methods."

"The objective methods consisted in displaying the objects or performing the actions represented by the words, and studying from lessons containing illustrations of objects and actions. The non-objective methods consisted in reading over the vocabularies and in translating sentences of the 'Aeneas est acutus' type containing words to be learned."

Schmidt's conclusion, based on the results of his study is that the objective presentation is psychologically³ inferior to the non-objective in the case of nouns and adjectives. Since these parts of speech made up 60% of the words studied, it cannot, in this study, be claimed to have proved superior. His conclusion arises from the fact that tests for delayed recall showed greater retention for nouns and adjectives learned non-objectively, while the reverse was true for verbs. The word list used was composed of 30 nouns, 30 adjectives and 40 verbs.

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1. Schmidt, Augusta G., S. J. The Effect of Objective Presentation on the Learning and Retention of a Latin Vocabulary.
 2. op. cit. p. 153.
 3. op. cit. p. 158.

2. Haskell and Hamblen--The Teaching of Derivation.

Haskell¹ and Hamblen² worked together on an experiment in four Philadelphia high schools to determine the effect of teaching method on the increase in the learning of English vocabulary in Latin and English non-Latin classes. In this study Haskell worked with the English non-Latin classes and Hamblen with the Latin classes. Haskell then combined the data of his own and Hamblen's study.

The experiment began in February, 1922, and continued two semesters. About 1600 pupils just entering the ninth grade in the four-year high school system of Philadelphia were considered in beginning the study and approximately 525 pupils were retained to the end. There were two control and two experimental classes, as follows:

1. Control Latin: A class of beginning Latin pupils in which no attempt was made to teach derivation.
2. Non-Latin Control: A class of ninth grade English non-Latin pupils in which no attempt was made to teach English etymology.
3. Experimental Latin: A class of beginning Latin pupils in which definite derivative study was given regularly.
4. Non-Latin Experimental: A class of ninth grade non-Latin English pupils in which definite work in English etymology was taught. The etymology part of the course covered practically the same ground as that of the derivative study of the experimental Latin class.

1. Haskell, R. I. A Statistical Study of the Comparative Results Produced by Teaching Derivation in the Ninth Grade Latin Classes and in the Ninth Grade English Classes on non-Latin Pupils in Four Philadelphia High Schools.

2. Hamblen, A. A. An Investigation to Determine the Extent to Which the Effect of the Study of Latin upon a Knowledge of English Derivatives Can Be Increased by Conscious Adaptation of Content and Method to the Attainment of this Objective.

As nearly as could be controlled by the experimenters, the teachers of the control classes taught their respective courses in the usual fashion, with the exception that every attempt was made not to teach derivation or English etymology, while the experimental class teachers taught the same except for definite time set aside to teach derivation and the importance of the Latin element in English.

The gain in knowledge of English vocabulary was tested by the use of different forms of the Carr English Vocabulary Test and the Thorndike Test of Word Knowledge. Results of the ¹ experiment, as measured by these tests showed gains in knowledge of English vocabulary for the experimental-Latin group over the other three groups, but greater gain in words derived from Latin. The control-Latin group made slightly greater gains than the experimental non-Latin, and greater than the control non-Latin. Haskell's general conclusion is that the addition of definite work in derivation is necessary to make possible realization in any real way of the objective "contribution to range of English vocabulary" cited as one of the goals of Latin study.

Pertinent to the study discussed in the present thesis is the fact that a derivative notebook was required of all pupils of the experimental classes of Haskell's and Hamblen's experiment. Haskell states ² that the schools where the greatest gain was obtained were those schools whose teachers used all the devices suggested by the experimenter. These teachers reported that the notebook was made to function for every pupil.

1. op. cit. pp. 111-112

2. op. cit. pp. 55.

3. Schoenherr--Direct and Indirect Methods in Vocabulary Learning.

Schoenherr reports ¹ experiments in teaching French words to German pupils. In thirty-two experiments he presented six to ten French words written on slips and conveyed the meaning to direct-method pupils by an illustration and to indirect-method pupils by the German equivalent. His results show that the direct-method pupils remembered a greater number of words, but consumed more time in learning them.

4. Thorndike--Recall vs. Memorizing Vocabularies.

Thorndike ¹ reports an experiment in which twenty-eight adult students learned four sets of paired associates, twenty pairs to a set. The first and third sets were learned by reading, then covering the first member of a pair and attempting to recall the other. The learner re-read until the set was memorized. The second and fourth sets were learned by reading and re-reading, without attempt to recall. Part of the material consisted of German-English words, part nonsense syllables and part English words. Time records were taken. Eleven students of the twenty-eight found no superiority in the method involving recall.

1. Schoenherr, Dr. W. Direkte und Indirekte Methode im Neusprachlichen Unterricht. (In Buchanan and McPhee, Annotated Bibliography, pp. 131-134.)

1. Thorndike, E. L. Repetition vs. Recall in Memorizing Vocabularies. *J. Educ. Psy.* 194, p. 596. (In Buchanan and McPhee, Annotated Bibliography, p. 205.)

5. Grinstead¹—Learning Foreign Words.

Two ways of learning German words were tried by Grinstead: (1) Reading to get the meaning and looking up unknown words in a dictionary as encountered, and (2) looking up in a dictionary unknown words found in a formal list. Tests on the accuracy of knowledge of the new words were made within two hours and again after twenty-four hours. He found the context method 3% superior for immediate recall and 8.8% for delayed recall, and he concludes that the text-and-dictionary method is the better way to enlarge one's vocabulary in a foreign language.

6. Seibert²—Learning French Vocabulary.

Three methods of learning French vocabulary are reported by Seibert: (1) reading silently, (2) reading aloud, and (3) reading aloud, with attempted recall in writing after each reading. The material used consisted of paired lists of English-French words, none of the French words being known at the start of the experiment. On the basis of the meaning of English words and the syllable-length of the French words, the words of the experimental list were divided into three series of equal difficulty, all technical or obsolete words and words of Latin origin being omitted. Eighty-one college students, divided into three groups, began the experiment, each group pursuing a different one of the three methods.

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1. Grinstead, W. J. An Experiment in the Learning of Foreign Words. *J. Educ. Psy.*, 1915, VI, pp. 242-245. (In Buchanan and McPhee, *Annotated Bibliography*, p. 265.)
 2. Seibert, Louise C. An Experiment in Learning French Vocabulary. *J. Educ. Psy.*, 1927, pp. 294-309. (In Buchanan and McPhee, *Annotated Bibliography*, p. 273.)

Each list was practiced until learned and the time of learning was recorded, the measure of learning being ability to give the French equivalents for the English words twice without error. Each list was relearned after two, ten and forty-two days, time of relearning being recorded. Results showed that the second method was the most efficient.

7. Schuster, Inise--Methods of Learning

Foreign Vocabulary.

Schuster¹ attempted to discover the relative merits in vocabulary learning of associating word and word in contrast with associating word and object. In one case words of an artificial language were presented with their equivalents in the mother tongue and in the other foreign-language words were presented in association with the objects they designate.

Three major situations were evaluated for each method: (1) learning to give vernacular equivalents upon presentation of foreign word, (2) learning to give foreign word upon presentation of vernacular word, (3) learning to give foreign word upon presentation of object.

All words used in the study were nouns, and all the subjects were adults and few in number. Five seconds' intermission was allowed between each successive presentation, the subject being allowed to repeat the word or do whatever he wished during this time. Eight pairs of words or word-objects were presented at each lesson and learning continued until

1. Schuster, Inise, Experimentelle Beiträge zur Prüfung der Anschauungs und der Uebersetzungsmethode bei der Einführung in einen fremdsprachlichen Wortschatz. *Ztsch. f. Psych.*, 1914, pp. 1-114. (In Buchanan and McPhee, Annotated Bibliography, pp. 121-124.)

not more than one error was made by the subject. Retention was tested after twenty-four hours, the basis on which conclusions were made being the reaction time of responses, the number of presentations required for learning and retention after twenty-four hours.

General conclusions drawn by the experimenter are that (1) neither method is superior for all situations (2) the translation-method associating word with word gave best results for translation into the vernacular, and the object-method for translation into the foreign language from the vernacular, the object-method requiring more presentations, but giving slightly better results after twenty-four hours (two subjects were re-tested after that lapse of time). She decides that the individual who wants to learn to read should be taught by other methods than are used by the one desiring to learn to speak. She calls attention to the fact that her conclusions agree with those of Braunhausen, *Les Methodes d'enseignement des langues étrangères*, *Rev. Psychol.*, 1910, Vol. 3.

8. Morgan and Oberdeck--Active and Passive Vocabulary.

Tests were devised by Morgan and ¹ Oberdeck to measure the gain in passive (recognition) vocabulary and in active (used) vocabulary. The passive vocabulary test gave the foreign word and multiple-choice English meanings, while the active vocabulary gave the English word and foreign-language meanings. The tests were given to classes taking first, second, third, fourth and fifth semester German and to the teacher-training class, at different times during the semester.

1. Morgan, B. G. and Oberdeck, Lydia M. *Active and Passive Vocabulary. Studies in Modern Language Teaching.* (Vol. 17, Publications of the American and Canadian Committees on Foreign Languages.) pp. 213-224.

General conclusions, drawn by the experimenters after examination of test results are that:

1. There is considerable variation in the span of active and passive vocabulary among students of the same graded class.
2. From the very start, passive vocabulary exceeds active.
3. As development in language proceeds, passive vocabulary develops faster than active.
4. When the stage is reached where considerable attention is paid to active use of language, there is a compensating development of active vocabulary.
5. Despite this, mastery of active vocabulary never exceeds that of passive vocabulary.

SECTION THREE: METHOD OF PROCEDURE

1. Selection of Control and Experimental Groups.

This experiment was made in an attempt to find out as definitely as possible whether or not it was worth while to use a particular type of notebook. For that reason it was necessary for it to be conducted in one class using that notebook and in another class not using it, but taught by the same instructor. The writer being the only one using this particular notebook in High School classes, it was deemed advisable to use the Beginning Latin classes of two successive years, since he has but one such class each year and it is not possible for the class to be divided; and if so divided the groups would be too small for experimental purposes.

The Beginning Latin class of the Hays Junior-Senior High School which began the study of Latin in September, 1929 was taken as the control group and the class beginning the study of Latin in September, 1930, became the experimental group. The two classes were taught alike throughout the course, excepting that the control class was not required to keep a Latin-vocabulary notebook, while the experimental class made and kept up-to-date the vocabulary notebook as directed by the instructor. The control class numbered twenty-four, twenty-one of whom entered the class in September and continued in class for the thirty-six weeks of the course and are considered as cases in this study. The membership of the experimental class was twenty-eight; of this number one was a repeater, and two others did not enter the class until after the year's work was under way, leaving a membership of twenty-five to be considered for experimental purposes.

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2. Equating Groups.

In order to find pupils of equal or of nearly equal ability, three tests were given to each class at the beginning of each school year.

On the very first meeting of the class for recitation, the Orleans-Solomon Latin Prognosis Test was given. Then, on the next two succeeding days, the Ternan Group Test of Mental Ability, Form A and the Stanford Achievement Test, Reading Examination, Form A, were given to the control class. A day was allowed to elapse between each of the last two tests for the experimental class, due to temporary shortening of the class periods originally intended for giving them.

The Latin Prognosis Test Papers were scored by the writer, and the other two tests by student teachers in the writer's classes. The mean and the standard deviation were computed for the distribution of scores of each class on each test and but little difference was found between the M.'s and S.D.'s of each class on each test. See Tables One and Two below for actual data.

The records of each member of the control class on each of the twenty-eight tests of this study were carefully kept to be compared with those of the experimental class of the next year.

After the three equating tests had been given to the experimental class, scored, and the M. and S. D. computed for each test, a composite score was made for each individual of both class as follows: The Latin Prognosis Test score was doubled, and the score made by the pupil on each of the other two tests was added to it. In making the composite score, the Latin Prognosis Test score was doubled for the reason that it has a high proven reliability in predicting a pupil's probable success ^{in Latin} and ought,

TABLE ONE
Standing of the Entire Classes
in the
Spelling Tests

	Spelling		Reading	
	Control	Experimental	Control	Experimental
N	21	25	21	25
M	196.98	196.72	216.81	216.80
R	151	166	123	135
S.D.	36.87	35.71	34.36	35.21

	Intelligence		Composite Score	
	Control	Experimental	Control	Experimental
N	21	25	21	25
M	123.82	126.34	623.75	631.18
R	111	153	484	527
S.D.	30.24	35.28	7.25*	7.27*

TABLE TWO
Composite-Score Standing
of the
Matched Groups

	Control	Experimental
N.	17	18
M.	542 (54.10)*	542 (54.20)*
R.	389	338
S.D.	10.85*	10.12*

* Composite-score/10 was distribution used for computation of the S.D.

Therefore, to have much more weight in determining a pupil's language ability than either the intelligence test or the reading test.

To make later compilations less cumbersome, each composite score was divided by ten. After this was done, the mean and the standard deviation for the composite-score distribution of each class was made. The S. D.'s of the two distributions were practically the same, having but two tenths of a difference, but the difference of the means was over one hundred ^{point} points (Tables One and Two, ~~above~~). Because of this difference in the averages, two matched groups were made, excluding extreme scores and including only those nearly-parallel scores which resulted in almost equal averages, but with a slight difference in the S. D.'s. (See Tables One and Two). However, in collecting data for this study, records were kept for four groups, viz: (1) matched control group, (2) matched experimental group, (3) entire control class, and (4) entire experimental class.

3. Phases of Vocabulary Learning Measured.

Three phases of vocabulary learning were tested in this study: Knowledge of Latin equivalents of English word, knowledge of English equivalents of Latin words, and recognition and understanding of English words derived from the Latin.

4. Organization of the Course.

The Elementary Latin Course, as outlined in the Ullman-Henry New Elementary Latin, the text used in class during this study, easily resolves itself into nine units; for there are nine review lessons, each covering a definite part of the course. The first one covers the first

the second one, lessons thirteen to nineteen; the third, lessons twenty-two lessons; to twenty-nine, etc., so that each section between review lessons makes a unit.

At the close of each unit is given a list of Latin words which have been listed in the vocabulary sections of each lesson in the unit, and on the next page are listed the English meanings of those words.

5. Tests Used in the Study.

Tests from the Ullman-Smalley Progress Tests in Latin and forms of the New York Latin Achievement Test and the Stevenson-Coxe Latin Derivative Test were used to measure vocabulary achievement in this study.

The first nine of the Vocabulary Tests of the Ullman-Smalley tests cover in succession the words of the nine units of the Ullman-Henry text, and there are also nine Derivative and Word-Study Tests which were used successively as each unit of the course was completed. For the purposes of this study, only the scores made on the derivative sections of the last named tests were kept.

The three English-Latin Vocabulary tests of the Ullman-Smalley tests were designed to be used upon finishing units III, VI and IX, respectively, and were so used in this study.

Test 1, Form A, of the New York Latin Achievement Test was given to each class upon the completion of unit IV and Test 2 of the same test, at the close of the second semester, upon completing unit IX. Immediately following the giving of Test 1 of the achievement test, Form I of the Stevenson-Coxe Latin Derivative Test was given; and the second achievement test was followed by Form II of the Derivative test.

6. Description of Tests Used in This Study

a. Vocabulary Tests.

The Vocabulary Tests of the Ullman-Smalley Progress Tests in Latin, are Latin-English tests in which a Latin word is presented, followed by five English words, only one of which is ^{the} equivalent of the Latin word, e. g., MONEO (1) remain (2) move (3) moan (4) warn (5) monitor. This is the type of vocabulary knowledge most needed by a pupil in reading Latin, and naturally, should be the type most frequently tested.

b. English-Latin Vocabulary Tests.

The English-Latin Vocabulary tests reverse the order of presentation, giving an English word, followed by five Latin words, only one of which is the Latin equivalent of the English word, thus:

MONEY (1) pecus (2) pecunia (3) moneta (4) moneo (5) mens.

c. The Derivative and Word-Study Tests.

The pupil's knowledge of English words derived from Latin is measured by these tests in three ways:

(1) An English sentence is given, using an English derivative of Latin root, printed in italics. Then there are listed five English words or expressions, one of which gives a synonymous meaning of the word in italics, e. g.,

The goat is said to be omnivorous.

(1) meat-eating (2) grass-eating (3) fruit-eating, (4) an eater of all things (5) powerful.

To be able to pick out this synonymous meaning the pupil must be able to recognize the Latin root or roots present in the italicized word, think of the meaning of that root, think next of the part of speech of the

English derivative and then look for a synonymous meaning of the Latin root-word which fits that part of speech.

(2) A list of English words derived from Latin are presented with a space opposite each word, in which the pupil is to write the first principal part of the Latin root-word. While the test instructions call for the writing down of the Latin root-word only, disregarding all prefixes, and suffixes, (such as fero for conference, infer, etc.) the writer allowed the pupils to write the first principal part of either the Latin compound or the original root (in the above case, fero, or confere, infero, etc.)

(3) There is presented a list of English words derived from Latin to be defined in terms of the meaning of the Latin root-word and the prefix, thus:

INTERVIUOUS--not allowing a way through.

To be able to do this correctly the pupils must recognize the original Latin root presented in the derivative, think of the meaning of that root and of the prefix or the suffix or both, and then fit the meanings thus found to the ~~same~~ part of speech of the derivative. In the example cited above, the root VIA is a noun, while the derivative is an adjective.

As mentioned above, scores on the Word-Study sections of the Derivative and Word-Study tests were not kept as a part of the record for this study, and need not be described here.

d. The New York Latin Achievement Test.

This test is designed to be given at the end of each semester -- Test 1 for the first semester and Test 2 for the second. Standardized vocabulary tests could have been procured for use in this study but so

many tests dealing solely with the vocabulary phase of Latin learning were being given that it seemed much more worthwhile to give a test which would cover the whole field of the course, including vocabulary. The New York Latin Achievement Test was chosen then, because of its being designed to test the whole year's work by semesters, and because of the make-up of its vocabulary sections. These are alike in form for both tests.

Scores of Parts I, II, III, and X of each test were kept for this study. Part I contains twenty Latin words for each of which the English meaning is to be written; Part II contains twenty English words for each of which the Latin meaning is to be written; Part III contains twenty Latin words for which the remaining principal parts are to be written. Part X is divided into two sections; one presents three Latin words for each of which the Latin root-word and English derivative must be written; the other presents three English words for each of which the Latin root word and the definition of the English word must be given.

e. The Stevenson-Coxe Latin Derivative Test.

This consists of three sections. In each section is a column of twenty-five Latin root-words and a column of twenty English derivatives, the Latin words being numbered, while the English words are without numbers but followed by parentheses. The pupil is to place in the parenthesis the number of the Latin word from which the English word is derived. Obviously, there are some Latin words for which there are no English derivatives given in the section.

7. The Scoring of Tests.

Mention has been made of the manner of scoring the tests used in equating the groups. All the other tests listed above save the four standardized tests, were usually scored by one or two pupils or by student teachers, according to the key furnished by the authors of the tests, and were then rechecked in class when studying the words missed. The standardized tests were scored either by the writer or by competent student teachers.

8. Use of the Notebook in Class.

As each lesson's vocabulary was reached, the teacher placed upon the blackboard each new word with all its principal parts, meaning and derivative as they were to be copied in the notebook. In the beginning this meant, of course, that the pupil copied some principal parts the use of which he did not know and which were not explained to him, beyond the statement that their use would be learned later. Long experimenting with the notebook has convinced the writer that this is the best time to write in all principal parts. For the form which this writing took, see Appendix xxxi-xxxiii.

The words were listed partially in alphabetical order: all words beginning with "a" were listed together, those beginning with "b" together, etc., as they were reached in the succeeding lessons, their order in the alphabetized list depending upon the order in which they came in the course.

After the use of all the principal parts had been learned, the teacher placed upon the board only the first principal part of the new word together with its number in the alphabetized list, the pupil supplying the rest from his text.

When compound words were met, the teacher listed them with their own derivatives and with the notation that they were related to certain previously mentioned root-words, e. g.: 7. Conficio, r.w.* facio deriv., confection.

* related word of.

SECTION FOUR: PRESENTATION OF RESULTS

1. Measures Obtained for Determining Results.

In order to discover what difference, if any, there was in the achievement of the control and experimental groups as measured by the tests above described, and to determine how significant this difference was, the following measures were calculated for the distribution of each group on each test:

A. \bar{M} .--the arithmetic mean, by the formula

$$\bar{M} = \text{Sum of scores} / \text{number of scores}$$

B. $\sigma(\text{dis.})$ by the formula

$$\sigma(\text{dis.}) = \sqrt{\text{sum of deviations squared} / \text{number of scores.}}$$

C. $\sigma(\text{ave.})$ by the formula

$$\sigma(\text{ave.}) = \sigma(\text{dis.}) / \sqrt{\text{number of scores.}}$$

In addition there were calculated the difference of the averages D of the control and experimental groups on each test and then the $\sigma(\text{diff.})$ by the formula $\sigma(\text{diff.}) = \sqrt{\sigma(\text{ave.}_1)^2 + \sigma(\text{ave.}_2)^2}$. By finding the value of $D/\sigma(\text{diff.})$ and turning to the table on page 134 of Garrett's *Statistics in Psychology and Education*, we were able to discover what the chances were in a hundred that there would always be a true difference greater than zero in similar measures obtained from similar groups.

2. Results in Tabular Form.

In this study data ^{are} assembled for four groups: the matched control and experimental groups and the entire control and experimental classes. To make the tables less cumbersome, the groups have been assigned numbers as follows:

Group I: Matched Control group.

Group II: Matched Experimental group.

Group III: Entire Control class.

Group IV: Entire Experimental class.

The reason for presenting the data for the entire control and experimental classes is that in both classes there were individual pupils who were not a part of the matched groups, but who were good students and who consistently made as good or better scores on the tests of the study than did some of the matched groups. Some of these realized that the task of learning a foreign language was for them a difficult one, and they seized upon vocabulary study as the easiest place to make a showing in the measurable achievement of the course. In addition, the pupils of low initial ability, who were not members of the matched groups and who were not good students, were not as a rule the ones making the lowest scores on the tests. For this reason, the benefits derived from using a vocabulary notebook, if any, should become more apparent when the performance of the entire classes is compared.

The data for the four groups have been collected into the following tables:

Table Three: Results of the nine Latin-English vocabulary tests.

Table Four: Results of the nine Derivative tests.

Table Five: Results of the three English-Latin vocabulary tests.

Table Six: Results of the standardized tests.

a. Interpretation of the Data of Table Three.

The significant measures of all the tables are the difference and the difference divided by the σ (diff.) In the first half of Table Three it will be noted that beginning with the first test there is a difference in favor of the experimental group--Group II. This difference, while persistently present, fluctuates and because of the variability of the groups, the most significant figure, D/σ (diff.), varies considerably, the lowest being .67 for tests II and IX.

The reason for the low significance of the difference on tests II and IX is not apparent in the study itself, but the writer feels that it perhaps due to two reasons: (1) Long observation of pupil-performance has caused him to believe that pupils almost invariably do better work for the first few weeks of school but soon after there comes a slump in performance, and he feels that this drop was much more noticeable in all lines of performance in his own and other teachers' classes for the experimental class than for the control class. (2) As the end of the course approaches, some pupils, because of their poor general performance throughout the year, are destined to fail or at least are in danger of failing. Some of these pupils do not try to master the final units of the course, thinking that it is useless to try longer. While there is no absolute way of proving it, the writer feels again that there were more pupils of the experimental class than of the control class who exhibited this trait. This is offered only as a possible explanation and is not presented as a conclusion to be drawn from the data at hand. Data collected for special groups of the two classes, from which all who noticeably exhibited this

trait were eliminated, partially bear out the writer's contention.

In the last half of Table Three where the data for the entire control and experimental classes are presented, it will be noted that the difference in performance (Groups III and IV) is greater and less irregular. It will be observed that the only insignificant difference is that in the first test; the chances nowhere else being less than 50 out of 100 that there will be a true difference greater than zero if the experiment be further repeated on other groups, while in six out of the nine tests the difference is almost completely reliable.

To the writer, the data of the last half of the table are the more significant, for the pupils who were not included in the matched groups because of their low initial ability, are not the ones usually who make the lowest scores. Therefore, the performance of the larger groups ought to be more indicative of the real difference in performance.

In view of the differences above discussed, it seems quite evident that the pupils who used the vocabulary notebook learned more Latin-English vocabulary as measured by the tests used than did the pupils who did not use the notebook.

TABLE FOUR

Standing of the Control and Experimental Groups
in the
Unit Derivative Tests

	Test I	Test II	Test III	Test IV	Test V	Test VI	Test VII	Test VIII	Test IX
M-Group I	23.88	17.93	18.18	13.66	28.38	18.30	14.82	14.94	11.80
M-Group II	22.17	20.28	19.61	16.08	30.94	22.72	23.67	20.33	13.61
σ (dis.) I	6.32	6.62	6.20	4.00	10.28	4.20	6.64	6.73	3.86
σ (ave.) I	1.83	1.36	1.50	.87	2.82	1.82	1.37	1.40	.89
σ (dis.) II	8.94	6.32	7.10	4.53	10.10	8.53	7.98	6.70	3.92
σ (ave.) II	1.40	1.26	1.70	1.07	2.38	2.02	1.83	1.58	.92
D- I & II (in favor of II)	1.41 [#]	2.35	1.43	8.60	2.64	4.42	8.55	5.39	1.72
D/ σ (diff.)	.70	1.27	.63	2.69	.76	1.98	3.80	2.68	1.31
σ (diff.)	2.08	1.55	2.27	1.64	3.47	2.26	2.33	2.11	1.31
Chances in 100	78	90	74	99	77	87	100	99	90
M-Group III	22.62	16.61	18.24	14.14	26.47	17.67	14.29	14.19	11.83
M-Group IV	22.60	20.20	20.94	16.62	30.20	22.60	23.28	19.08	13.46
σ (dis.) III	6.98	6.89	6.31	4.34	10.98	9.43	6.09	7.00	3.70
σ (ave.) III	1.61	1.60	1.49	.95	2.39	2.06	1.33	1.53	.83
σ (dis.) IV	6.40 [#]	6.69	6.82	4.22	9.38	8.22	7.47	6.90	3.82
σ (ave.) IV	1.08	1.14	1.36	.84	1.38	1.64	1.49	1.38	.85
D-III & IV (in favor of IV)	.02 [#]	3.89	2.00	2.38	3.73	4.93	6.99	4.89	2.15
σ (diff.)	1.56	1.89	2.01	1.27	3.04	2.67	1.99	2.06	1.19
D/ σ (diff.)	.001	1.91	1.00	1.87	1.23	1.58	4.52	2.33	1.90
Chances in 100)	80	97	84	97	88	88	100	99	96

[#] in favor of the Control rather than the Experimental Group.

b. Interpretation of the Data of Table Four.

The difference in performance of the control and experimental groups on the Derivative tests is not so significant as in the Latin-English vocabulary tests. There is a definite difference in favor of the experimental groups, except in the first test, where there is a slight difference in favor of the control groups. There is observed the same slump of the experimental groups on the last test, coming at the end of the course, which results from the same situation, so the writer believes. Again, the difference in performance is greater when that of the entire classes is compared, although the deviation of individual scores from the mean remains practically the same.

The differences shown in Table Four seem to indicate that there may be expected a better performance on the Derivative tests by pupils using the vocabulary notebook than ^{by} the pupils not using it, but that this difference is completely reliable in but one test, and fairly reliable in four others. Since the vocabulary notebook entails merely the writing down of derivatives to show their relation to their Latin roots, it is not to be expected, it appears, that the keeping of the notebook will help as much in the mastery of derivatives, as in the mastery of Latin-English and English-Latin vocabulary. The latter is more forcibly impressed upon the pupil's consciousness as it is being written because the pupil writes down the Latin root-word with all its principal parts, thus fixing it more firmly in his mind; and each succeeding word related to the root, as it is written on the page, continues to fasten that root-word in mind, while the writing of the derivative apparently fixes in mind the fact that it is derived from the Latin root without forcing the pupil to think of its meaning as used in present-day English.

TABLE FIVE
 Standing of the Control and Experimental Groups
 in the
 English-Latin Vocabulary Tests

	Test One	Test Two	Test Three
M-Group I	40.53	51.18	42.06
M-Group IX	44.53	54.57	47.23
σ (dis.) I	4.46	8.63	9.74
σ (ave.) I	1.09	2.09	2.36
σ (dis.) IX	4.43	10.97	12.61
σ (ave.) IX	1.04	2.56	2.97
D-I & IX (in favor of IX)	4.40	3.46	5.22
σ (diff.)	1.51	3.34	6.82
D/s(diff.)	2.91	1.06	1.37
Chances in 100	100	85	92
M-Group XII	39.80	51.19	44.24
M-Group XV	44.52	55.44	48.36
σ (dis.) XII	5.88	8.98	10.38
σ (ave.) XII	1.28	1.96	2.27
σ (dis.) XV	4.48	9.52	11.06
σ (ave.) XV	.90	1.90	2.21
D- XII & XV (in favor of XV)	4.62	4.26	4.12
σ (diff.)	1.56	2.91	3.17
D/s(diff.)	2.96	2.22	1.50
Chances in 100	100	99	90

c. Interpretation of the Data of Table Five.

Fairly reliable differences of performance favoring the experimental groups are seen in Table Five. There is a less noticeable slump in the last one of these tests; for the actual difference is the greatest of the three, its reliability being lowered by the greater variability of the scores on that test. As usual, the difference in performance of the entire classes is more reliable than that of the matched groups.

It appears from the data of this table that pupils using a vocabulary notebook learn more English-Latin vocabulary, as measured by the tests used, than do pupils not using it.

TABLE SIX

Standing of the Control and Experimental Groups
in the
Standardized Tests

New York Latin Achievement	Standardized Tests		Stevenson-Coxe Derivative	
	Test One	Test Two	Form One	Form Two
M-Group I	27.76	27.24	43.94	33.66
M-Group II	32.22	37.09	50.50	38.67
σ (dis.) I	9.14	9.32	6.73	4.19
σ (ave.) I	2.22	2.26	1.39	1.01
σ (dis.) II	12.31	11.09	2.83	2.62
σ (ave.) II	2.90	2.35	2.67	.62
D - I & II (in favor of II)	4.46	9.45	6.56	3.02
σ (diff.)	3.68	3.64	1.84	1.23
D/ σ (diff.)	1.22	2.60	4.23	2.36
Chances in 100	88	99	100	99
M-Group III	27.79	27.88	43.33	32.24
M-Group IV	32.20	38.40	49.60	36.28
σ (dis.) III	9.96	10.14	6.19	7.18
σ (ave.) III	2.17	2.21	1.38	1.53
σ (dis.) IV	11.16	11.61	4.33	2.59
σ (ave.) IV	2.23	2.31	.86	.66
D - III & IV (in favor of IV)	4.41	10.54	6.27	4.04
σ (diff.)	3.11	3.57	1.73	1.67
D/ σ (diff.)	1.42	2.95	3.62	2.42
Chances in 100	92	100	100	99

d. Interpretation of the Data of Table Six.

The data obtained by use of the tests of Table Six ought to have much more weight in this study than those obtained through the other tests used, since the standardized tests cover wider range of performance even though they are but slightly greater in amount of material (vocabulary and derivatives) than many of the unit tests.

It will be noted that the difference in performance on the New York Latin Achievement Tests at the end of the second semester is almost completely reliable--99 and 100 chances out of 100 of their being a true difference upon repetition of the experiment.

The Derivative Tests of Table Six test merely recognition of the presence of the Latin roots in English words. The difference in performance at the end of the first semester for the matched groups is twice as great as at the end of the second, and the lesser difference is almost completely reliable. The explanation of the greater difference at the end of the first semester is to be found in the fact that the writing of derivatives in connection with their root-words serves to impress the relationship of the derivative to its Latin root more forcibly and more rapidly than learning of derivatives without so writing them. The decrease in the difference in performance is due (1) to the high achievement of all pupils in recognition of Latin roots in English words after a year's study of Latin vocabulary and (2) to the very high achievement of the experimental group on the first test, leaving less opportunity for a higher average on the later test, than the control group had.

The difference in performance of the entire control and experimental classes is reliably in favor of the experimental class, although not as great as for the matched experimental group.

Perusal of Table Six leads one to conclude that, as measured by these tests, pupils using a vocabulary notebook learn more Latin-English and English-Latin vocabulary, learn better the principal parts of Latin words, and are better able to recognize Latin roots present in English words than are pupils not using the notebook.

e. Explanation of Table Seven.

Because of the fact that pupils who feel that they are going to fail often cease trying to master materials of the course, and that their records tend to offset the real value of any teaching procedure as measured by test-records, the writer selected from each of the classes of this study a group not containing those pupils who exhibited this typical attitude of failures in the last part of the course. To see what bearing the absence of failures might have on the data of the study, he compiled the material listed in Table Seven. In this table the group from the control class is called Group V and the one from the experimental class, Group VI.

TABLE SEVEN
Standing of Groups V and VI
in
Certain of the Unit Tests

	Unit Vocabulary Tests			
	Test One	Test Two	Test Eight	Test Nine
M-Group V	53.71	46.41	42.06	41.59
M-Group VI	55.21	49.06	52.57	44.33
D - V and VI (in favor of VI)	1.50	2.64	10.51	2.64
σ (diff.)	3.07	1.02	2.51	1.27
D/ σ (diff.)	.49	2.59	3.74	2.32
Chances in 100	69	99	100	99

	English-Latin Vocabulary Tests		
	Test One	Test Two	Test Three
M-Group V	42.20	53.94	47.71
M-Group VI	46.11	56.37	53.32
D - V and VI (in favor of VI)	3.91	4.43	4.61
σ (diff.)	1.16	2.19	2.53
D/ σ (diff.)	3.40	2.02	1.50
Chances in 100	100	98	98

	Unit Derivative Tests			
	Test One	Test Two	Test Eight	Test Nine
M-Group V	25.00	18.41	16.41	12.00
M-Group VI	23.95	22.43	21.63	14.30
D - V and VI (in favor of VI)	1.05 ^f	4.04	3.31	2.50
σ (diff.)	1.43	1.76	2.31	1.21
D/ σ (diff.)	.71	2.30	2.30	2.31
Chances in 100	68	99	99	99

^f in favor of V, rather than VI.

f. Interpretation of Table Seven.

While data are presented only for four of the Latin-English vocabulary tests, if the presented data can be taken as an indication of what would be the case for Groups V and VI on all the tests, it is evident that the elimination of potential or actual failures from the study makes the difference greater and more reliable as the study proceeds.

When the data are collected for Groups V and VI on the English-Latin tests, it is noticed that while the difference in performance in some cases is not quite so great, it is more reliable, as is evidenced by the value of D/σ (diff.).

Similarly, the data presented for the performance of these two groups on the first two and last two Derivative tests indicates a more reliable difference in favor of the experimental group.

This would lead one to believe that the use of the vocabulary notebook brings about greater learning on all three phases of vocabulary knowledge measured, than does studying this same vocabulary without being required to keep the notebook.

SECTION FIVE : GENERAL CONCLUSIONS

In the light of all the data presented in this study, the writer draws the general conclusion that three phases of vocabulary learning can be increased by the use of a vocabulary notebook such as used in this study. These three phases of vocabulary learning are

1. Knowledge of Latin-English vocabulary.
2. Knowledge of English-Latin vocabulary.
3. Recognition and understanding of English words derived from Latin root words.

He further believes that use of such a notebook helps pupils to recognize the presence of Latin roots in English words derived from Latin to a greater degree than it helps them understand and correctly use such words as a part of their own English vocabulary.

Notwithstanding the fact that pupils are helped least in knowledge of English derivatives of Latin, by the use of such a notebook, because of the increased learning of Latin-English and English-Latin vocabulary, it is well worth the time and effort of both pupil and teacher to use the notebook; the increased ability to read Latin must always be one of the objectives of an elementary Latin course, and such ability to read can never be achieved without a knowledge of both kinds of vocabulary.

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TEST RECORD ONE

Prognosis				Reading			
Group III*		Group IV		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18†	168	4	179	18	268	16	268
7	158	1	169	20	260	17	269
1	149	10	154	14	258	10	258
17	143	18	143	3	253	19	243
14	128	6	128	7	252	28	240
3	125	17	125	8	250	9	234
11	107	24	125	13	243	14	233
6	103	19	120	5	231	23	231
2	103	9	115	4	228	12	230
9	97	8	108	17	224	24	228
4	92	5	104	19	218	8	228
5	89	16	99	18	217	2	224
13	83	28	98	1	212	16	214
19	80	3	96	2	208	20	212
20	79	24	98	10	208	11	211
16	73	2	91	9	192	26	209
12	61	12	80	11	191	24	209
10	58	15	72	12	178	6	208
18	49	7	71	16	192	13	201
6	43	20	66	21	189	18	188
21	<u>34</u>	23	58	6	<u>148</u>	1	183
		11	52			6	168
		14	48			21	141
		13	24			13	138
		21	<u>13</u>			8	<u>110</u>
Sum	2016		2499		4883		5420
N	21		28		21		28
M	96.95		89.62		232.91		216.80
R	131		166		123		138
S.D.	36.87		38.71		34.36		36.21

* Groups as per notation on page 20.

† Pupils in each class were assigned numbers according to their position in an alphabetized list: 1 to 21 for Group III and 1 to 28 for Group IV.

TEST RECORD TWOIntelligence

<u>Group III</u>		<u>Group IV</u>	
<u>Pupil</u>	<u>Score</u>	<u>Pupil</u>	<u>Score</u>
15	185	18	194
3	161	10	188
1	184	1	179
7	145	19	178
20	144	23	163
8	142	22	162
18	133	25	139
4	131	4	134
17	129	12	134
13	128	17	124
6	116	11	126
11	116	6	120
9	116	8	119
2	101	8	118
19	100	16	118
12	98	15	117
6	90	3	112
10	88	9	111
16	78	14	107
21	74	7	104
		24	103
		20	98
		2	98
		21	84
		13	41
Sum of Scores	2894		3133
N	21		28
M	123.52		125.34
R	111		163
S.D.	30.24		35.28

TEST RECORD THREE
Composite-Score Standing

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	78.3	10	74.8	15	78.3	10	74.8
7	70.7	4	70.1	7	70.7	18	74.6
3	67.6	1	68.0	3	67.6	4	70.1
14	66.8	19	68.8	14	66.8	1	68.0
17	64.5	17	64.3	1	66.2	19	68.8
8	59.8	6	58.4	17	64.3	17	64.3
20	56.2	24	56.2	8	59.8	6	58.4
13	53.4	16	53.0	20	56.2	25	57.5
5	52.5	12	52.4	13	53.4	9	57.5
11	52.1	23	50.6	5	52.5	22	57.0
2	51.3	3	50.5	11	52.1	24	56.2
9	50.2	2	50.2	2	51.3	8	55.6
19	47.8	8	44.7	9	50.2	16	53.0
18	44.8	20	44.2	19	47.8	12	52.4
4	44.1	11	44.1	18	44.8	23	50.9
10	40.6	14	43.6	4	44.1	3	50.5
16	39.4	8	43.6	10	40.6	2	50.2
		7	41.2	16	39.4	18	44.7
				12	39.3	20	44.2
				6	32.1	11	44.1
				21	29.9	14	43.6
						5	43.6
						7	41.2
						13	22.4
						21	22.1
Sum	919.70	976.70		1107.60		1322.30	
of scores							
N	17	18		21		25	
M	54.10	54.20		55.375		66.116	
R	38.90	33.60		48.40		52.70	
S.D.	10.80	10.12		7.25		7.27	

TEST RECORD FOUR
Unit Latin-English Vocabulary Test One

Group X		Group XI		Group XII		Group XIV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	88	10	87	1	88	1	84
7	83	4	88	2	80	2	89
3	84	1	84	3	84	3	87
14	88	19	88	4	88	4	88
17	88	17	87	8	84	8	88
8	84	6	88	6	48	6	88
20	87	24	88	7	83	7	82
13	86	16	88	8	84	8	88
6	84	12	88	9	87	9	84
11	83	23	88	10	88	10	87
2	80	3	87	11	88	11	88
9	87	2	89	12	48	12	88
19	80	18	83	13	86	13	88
16	10	20	83	14	88	14	88
4	88	11	88	15	88	15	88
10	88	14	82	16	84	16	86
18	84	6	88	17	88	17	87
		8	82	18	10	18	88
				19	80	19	88
				20	87	20	83
				21	48	21	48
						22	88
						23	88
						24	88
						25	88

Sum of scores	868	979	1063	1338
T.P.S.*	88	88	88	88
N	17	18	21	28
M	80.84	84.39	82.62	83.62
R	38	29	38	30
$\sigma(\text{dis.})$	11.44	4.68	11.24	7.81
$\sigma(\text{ave.})$	2.78	1.10	2.46	1.68
$S\ddagger$	3.45		.80	
$\sigma(\text{diff.})$	1.87		2.80	
$S/\sigma(\text{diff.})$	1.78		.81	
Chances in 100	88		82	

* Total possible score.

‡ Unless otherwise stated, always in favor of the Experimental groups.

TEST RECORD FIVE
Unit Latin-English Vocabulary Test Two

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	62	10	48	1	61	1	47
7	48	4	51	2	48	2	80
3	41	1	47	3	41	3	49
14	42	19	61	0	48	4	51
17	50	17	60	8	49	8	49
8	49	6	52	6	30	6	52
20	48	24	50	7	45	7	44
13	47	16	50	8	49	8	48
5	49	12	47	9	43	9	42
11	49	23	49	10	40	10	46
2	46	3	49	11	49	11	39
9	43	2	30	12	42	12	47
19	33	15	43	13	47	13	43
12	45	20	46	14	42	14	45
4	38	11	39	15	52	15	43
10	40	14	45	16	45	16	50
16	42	5	49	17	50	17	50
		7	44	18	48	18	44
				19	33	19	53
				20	45	20	46
				21	32	21	39
						22	49
						23	49
						24	50
						25	48

Sum	770	838	951	1156
of scores				
S.P.S.	62	62	62	62
N	17	18	21	25
M	45.29	46.56	44.24	46.25
N.	19	22	22	22
σ (dis.)	3.74	5.14	6.03	5.97
σ (ave.)	.91	1.21	1.32	1.19
S	1.27		2.09	
σ (diff.)	1.46		1.79	
S/ σ (diff.)	.87		2.12	
Chances	80		86	
in 100				

TEST RECORD SIX
Unit Latin-English Vocabulary Test Three

Group I		Group II		Group III		Group IV	
Pupil	score	Pupil	score	Pupil	score	Pupil	score
15	87	10	84	1	84	0	47
7	81	4	88	2	41	2	34
3	44	1	47	3	44	3	83
14	81	19	86	4	40	4	86
17	81	17	87	5	81	5	83
8	34	6	88	6	39	6	88
20	81	24	81	7	81	7	29
13	38	16	86	8	34	8	55
6	81	12	48	9	81	9	82
11	81	23	87	10	46	10	84
2	41	3	83	11	81	11	48
9	81	2	34	12	83	12	46
19	31	15	44	13	88	13	83
18	41	20	81	14	81	14	80
4	40	11	42	15	87	15	44
10	46	14	80	16	83	16	86
16	82	5	83	17	81	17	87
		7	28	18	41	18	87
				19	31	19	86
				20	81	20	81
				21	18	21	43
						22	54
						23	87
						24	81
						25	49
Sum	781		892		948		1256
of scores							
T.P.S.	59		59		58		58
N	17		18		21		28
M	45.94		49.56		45.00		50.20
R	28		30		39		30
$\sigma(\text{dis.})$	7.08		8.08		9.21		7.19
$\sigma(\text{ave.})$	1.94		1.93		2.01		1.44
D	3.62				6.20		
$\sigma(\text{diff.})$	2.74				1.76		
$D/\sigma(\text{diff.})$	1.32				2.98		
Chances					100		
in 100							

TEST RECORD EIGHT
Unit: Latin-English Vocabulary Test Five

Group I		Group II		Group IX		Group XV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	68	10	58	1	61	1	48
7	48	4	57	2	59	2	42
3	44	1	42	3	44	3	54
14	48	19	59	4	44	4	57
17	53	17	56	5	50	5	52
8	48	6	57	6	37	6	57
20	49	24	58	7	48	7	32
13	17	16	59	8	48	8	58
6	50	12	48	9	48	9	53
11	38	23	59	10	40	10	56
5	39	3	54	11	36	11	47
9	46	2	42	12	50	12	46
19	37	15	39	13	17	13	48
16	33	20	56	14	45	14	41
4	44	11	47	15	62	15	39
10	40	14	41	16	56	16	59
15	56	8	52	17	53	17	56
		7	32	18	33	18	58
				19	37	19	59
				20	49	20	56
				21	47	21	55
						22	60
						23	59
						24	56
						25	53
Sum	721		918		948		1297
of scores							
F.P.S.	55		68		68		68
N	17		18		21		26
M	44.29		50.93		45.08		56.58
R	48		39		48		33
σ (dis.)	9.50		8.30		9.75		6.32
σ (ave.)	2.38		1.96		2.13		1.66
D	6.55				10.53		
σ (diff.)	3.08				2.70		
D/ σ (diff.)	2.13				4.01		
Chances	98				100		
in 100							

TEST RECORD NINE
Unit Latin-English Vocabulary Test Six

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	58	10	54	1	56	1	54
7	58	4	59	2	55	2	49
3	54	1	54	3	54	3	55
14	54	19	55	4	47	4	59
17	55	17	55	5	55	5	55
8	55	6	50	6	22	6	50
20	54	24	55	7	55	7	43
13	43	15	55	8	55	8	50
5	55	12	49	9	43	9	53
11	44	23	59	10	43	10	54
2	35	3	55	11	44	11	51
9	43	2	40	12	57	12	49
19	33	15	38	13	42	13	54
15	22	20	53	14	54	14	53
4	47	11	51	15	55	15	38
10	45	14	53	16	54	16	59
15	54	5	55 ?	17	55	17	59
		7	43	18	22	18	55
				19	33	19	55
				20	54	20	53
				22	29	21	50
						22	55
						23	59
						24	55
						25	55
Sum	806		987		970		1344
of scores							
T.P.S.	60		60		60		60
N	17		18		21		25
M	47.41		53.17		46.19		53.76
R	38		20		38		20
σ (dis.)	9.55		7.52		11.51		5.53
σ (ave.)	2.59		1.53		2.51		1.17
D	5.75				7.57		
σ (diff.)	3.01				2.77		
D/ σ (diff.)	1.92				2.74		
Chances	57				100		
in 100							

TEST SCORES TEST
Unit Latin-English Vocabulary Test Seven

Group I		Group II		Group III		Group IV	
Pupil	score	Pupil	score	Pupil	score	Pupil	score
16	70	10	60	1	64	1	66
7	66	4	66	2	38	2	39
3	48	1	58	3	48	3	66
14	52	19	67	4	47	4	66
17	55	17	64	5	58	5	51
8	59	6	67	6	50	6	67
20	52	24	64	7	55	7	27
13	46	16	67	8	59	8	58
6	58	12	53	9	47	9	67
11	56	23	61	10	53	10	60
2	38	3	56	11	56	11	53
9	47	2	39	12	63	12	53
19	31	15	51	13	46	13	58
18	58	20	58	14	52	14	50
4	47	11	53	15	70	15	51
10	53	14	50	16	64	16	67
16	64	8	51	17	55	17	64
		7	27	18	56	18	61
				19	51	19	67
				20	52	20	55
				21	23	21	41
						22	60
						23	61
						24	64
						25	63

Sum	899	1009	1096	1407
of scores				
T.P.S.	70	70	60	70
S	17	18	21	23
M	52.58	55.06	52.23	56.26
R	39	45	47	46
σ (dis.)	9.42	10.20	10.67	9.34
σ (ave.)	2.28	2.40	2.40	1.87
D	3.18		3.85	
σ (diff.)	3.31		3.04	
D/R(diff.)	.88		1.30	
Chances	83		60	
in 100				

TEST RECORD ELEVEN
Unit Latin-English Vocabulary Test Eight

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	58	10	85	1	45	1	82
7	39	4	62	2	38	2	40
3	34	1	82	3	34	3	88
14	38	19	57	4	36	4	62
17	47	17	81	6	48	6	48
8	42	6	56	6	24	6	56
20	82	24	87	7	39	7	24
13	38	16	83	8	42	8	45
6	48	12	48	9	30	9	81
11	82	23	53	10	27	10	58
2	38	3	88	11	82	11	41
9	30	2	40	12	49	12	68
19	30	18	40	13	38	13	47
19	38	20	48	14	38	14	61
4	35	11	41	15	86	15	40
10	27	14	61	16	50	16	63
16	50	5	48	17	47	17	81
		7	24	18	38	18	82
				19	30	19	87
				20	82	20	48
				21	18	21	49
						22	58
						23	82
						24	87
						25	54

Sum	686	681	622	1234
of scores				
T.P.S.	68	68	66	66
N	17	18	21	25
M	40.35	43.84	39.14	49.36
R	38	41	47	41
$\sigma(\text{dis.})$	8.50	8.69	9.94	7.61
$\sigma(\text{ave.})$	2.03	2.05	2.17	1.82
D	8.59		10.22	
$\sigma(\text{diff.})$	2.91		2.65	
D/ $\sigma(\text{diff.})$	2.89		3.86	
Chances	100		100	
in 100				

TEST RECORD TWELVE
Unit Latin-English Vocabulary Test Nine

Group I		Group II		Group III		Group IV	
Pupil	score	Pupil	Score	Pupil	Score	Pupil	score
18	80	10	42	1	48	1	43
7	47	4	47	2	36	2	31
3	39	1	43	3	39	3	41
14	46	19	47	4	43	4	47
17	42	17	49	5	41	5	45
8	40	6	49	6	24	6	49
20	40	24	42	7	47	7	25
13	36	16	44	8	40	8	45
5	41	12	46	9	34	9	43
11	36	23	46	10	39	10	42
2	36	3	41	11	36	11	42
9	34	9	31	12	46	12	46
19	36	15	37	13	36	13	41
18	37	20	39	14	46	14	41
4	43	11	42	15	50	15	37
10	39	14	41	16	46	16	44
16	46	5	45	17	49	17	49
		7	25	18	37	18	46
				19	36	19	47
				20	40	20	39
				21	23	21	33
						22	46
						23	46
						24	42
						25	46
Sum	688		786		626		1056
of scores							
D.P.S.	60		50		50		50
N	10		16		21		26
M	40.47		42.00		39.24		42.20
S	16		26		27		28
σ (dis.)	4.50		3.96		6.72		5.56
σ (ave.)	1.09		1.41		1.47		1.11
D	1.53				2.66		
σ (diff.)	1.78				1.64		
D/ σ (diff.)	.67				1.61		
Chances in 100	60				94		

FIRST NEGROED THIRTEEN
Unit Derivative Test One

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	35	10	29	1	27	1	26
7	29	4	29	2	16	2	13
3	19	1	28	3	19	3	13
14	31	19	29	4	29	4	29
17	27	17	27	5	29	5	29
8	27	6	31	6	10	6	31
20	17	24	26	7	29	7	16
13	22	16	22	8	27	8	23
6	29	12	26	9	14	9	26
11	28	23	28	10	18	10	29
2	16	3	13	11	25	11	16
9	14	2	13	12	27	12	26
19	14	18	23	13	22	13	14
18	20	20	14	14	31	14	23
4	29	11	15	15	35	15	23
10	18	14	23	16	19	16	22
16	19	5	20	17	27	17	27
		7	16	18	29	18	24
				19	14	19	28
				20	27	20	14
				21	10	21	20
						22	23
						24	26
						25	26
Sum	401		409		472		558
of scores							
F.P.S.	35		35		35		35
N	17		18		21		22
M	23.58		22.17		22.52		22.60
R	21		22		22		22
σ (dis.)	6.32		5.94		6.35		5.40
σ (ave.)	1.53		1.40		1.51		1.08
D ²	1.41				.02		
σ (diff.)	2.06				1.56		
D/ σ (diff.)	.70				.001		
Chances	76				80		
in 100							

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BEST RECORD FOURTEEN
Unit Derivative Test Two

Group IX		Group IX		Group IX		Group IX	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
16	27	10	23	1	25	1	23
7	24	4	25	2	14	2	11
3	18	1	23	3	18	3	21
14	22	19	26	4	14	4	26
17	18	17	27	5	24	5	19
8	26	6	27	6	6	6	27
20	22	24	25	7	24	7	12
13	10	16	25	8	26	8	26
5	24	12	15	9	24	9	26
11	14	23	22	10	13	10	22
2	14	3	21	11	14	11	10
9	24	2	11	12	6	12	15
19	9	18	17	13	10	13	10
18	18	20	18	14	22	14	20
4	14	11	10	15	27	15	17
10	13	14	20	16	14	16	28
15	14	5	19	17	16	17	27
		7	12	18	15	18	21
				19	9	19	26
				20	22	20	18
				21	7	21	9
						22	25
						23	22
						24	25
						25	24
Sum	306		355		349		505
of scores							
T.P.S.	30		30		30		30
N	17		18		21		26
M	17.93		20.28		16.61		20.20
R	21		20		24		21
$\sigma(\text{dis.})$	5.62		5.32		6.69		6.69
$\sigma(\text{ave.})$	1.36		1.26		1.50		1.14
S	2.33				3.59		
$\sigma(\text{diff.})$	1.85				1.83		
$D/\sigma(\text{diff.})$	1.27				1.91		
Chances	89				97		
in 100							

TEST SCORES FIFTEEN
Unit Derivative Test Three

Group X		Group XI		Group XII		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
16	28	10	22	1	26	1	17
7	24	4	28	2	12	2	9
3	18	1	17	3	18	3	24
14	27	19	28	4	26	4	28
17	22	17	29	6	21	5	22
6	21	6	30	6	5	6	30
20	27	24	29	7	24	7	7
13	6	16	24	8	21	8	24
8	21	12	13	9	18	9	28
11	15	23	22	10	12	10	22
2	12	3	24	11	18	11	16
9	18	2	9	12	16	12	13
19	13	15	13	13	6	13	11
18	16	20	16	14	27	14	23
4	26	11	16	15	28	15	13
10	13	14	23	16	16	16	24
16	16	8	22	17	22	17	29
		7	7	18	16	18	29
				19	13	19	28
				20	27	20	16
				21	11	21	16
						22	26
						23	26
						24	29
						25	21
Sum	321		353		383		506
of scores							
T.P.S.	36		36		35		36
N	17		18		21		26
M	18.18		19.61		18.24		20.24
R	22		22		22		22
σ (dis.)	6.20		7.10		6.61		6.82
σ (ave.)	1.50		1.70		1.49		1.36
D	1.43				2.00		
σ (diff.)	2.37				2.01		
D/ σ (diff.)	.63				1.00		
Chances	74				84		
in 100							

TEST SERIES SIXTEEN
Unit Derivative Test Four

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
16	22	10	16	1	19	1	16
7	15	4	22	2	7	2	6
3	19	1	16	3	19	3	17
14	17	19	23	4	10	4	22
17	19	17	22	5	21	5	16
6	12	6	21	6	16	6	21
20	18	24	17	7	16	7	6
13	7	16	13	8	12	8	21
6	21	12	16	9	12	9	16
11	12	23	19	10	9	10	16
2	7	3	17	11	12	11	9
9	12	2	6	12	19	12	16
19	6	15	15	13	7	13	16
18	10	20	13	14	17	14	16
4	10	11	6	15	22	15	16
10	9	14	16	16	14	16	13
16	14	5	16	17	19	17	22
		7	6	18	10	18	21
				19	6	19	23
				20	16	20	13
				21	12	21	13
						22	20
						23	19
						24	17
						25	17

Sum	282	297	413
of scores			
T.P.S.	26	26	26
S	17	15	25
M	13.66	16.06	16.52
R	15	15	16
σ (dis.)	4.00	4.55	4.22
σ (ave.)	.87	1.07	.84
D	3.60		2.56
σ (diff.)	1.34		1.27
D/ σ (diff.)	2.50		1.87
Chances in 100	59		57

TEST RECORD SEVENTEEN
Unit Derivative Test Five

Group		Group IX		Group XIX		Group XV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
10	46	10	38	1	31	1	41
7	53	4	47	2	30	2	12
3	26	1	41	3	26	3	34
14	19	19	48	4	23	4	47
17	33	17	33	5	32	5	33
9	28	6	43	6	11	6	43
20	27	24	32	7	53	7	20
13	13	16	31	8	29	8	32
6	32	12	20	9	34	9	38
11	24	23	28	10	13	10	36
2	30	3	34	11	24	11	18
9	34	2	12	12	26	12	23
19	27	16	29	13	13	13	17
18	23	20	19	14	19	14	29
4	23	11	18	15	49	15	29
10	13	14	29	16	37	16	31
16	37	5	33	16	36	17	36
		7	20	18	23	16	33
				19	27	19	48
				20	27	20	19
				21	8	21	20
						22	28
						23	26
						24	32
						25	31
Sum	681		586		586		776
of scores							
T.P.S.	60		60		60		60
N	17		18		21		28
M	28.30		30.94		26.47		30.20
R	40		36		48		36
σ (dis.)	10.33		10.10		10.66		9.93
σ (ave.)	2.82		2.36		2.39		1.88
D	2.64				3.73		
σ (diff.)	3.47				3.04		
D/σ (diff.)	.76				1.23		
Chances					29		
in 100							

TEST RECORD EIGHTEEN
Unit Derivative Test Six

Group I		Group X		Group IX		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
16	36	10	31	1	32	1	29
7	24	4	20	2	12 ?	2	8
3	16	1	29	3	16	3	23
14	28	19	33	4	16	4	20
17	28	17	34	5	25	5	25
6	23	6	28	6	8	6	36
20	24	24	28	7	24	7	10
13	8	16	20	8	23	8	28
8	28	12	20	9	14	9	29
11	8	23	28	10	12	10	31
2	12	3	23	11	8	11	17
9	14	2	8	12	20	12	20
19	8	15	8	13	8	13	12
18	8	20	13	14	28	14	21
4	16	11	17	15	36	15	8
10	12	14	21	16	16	16	27
16	16	5	26	17	20	17	34
		7	10	18	6	18	28
				19	8	19	33
				20	24	20	13
				21	3	21	18
						22	24
						23	28
						24	26
						25	20
Sum	311		409		371		566
of scores							
T.P.S.	40		40		40		40
N	17		16		21		25
M	18.30		25.72		17.67		22.60
R	31		28		33		28
σ (dis.)	4.20		9.85		9.43		8.22
σ (ave.)	1.02		2.02		2.06		1.64
D	4.42				4.93		
σ (diff.)	2.28				2.97		
D/ σ (diff.)	1.95				1.65		
Chances in 100	97				66		

TEST RECORD NINETEEN
Unit Derivative Test Seven

Group I		Group IX		Group XX		Group XV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	28	10	30	1	22	1	30
7	24	4	33	2	6	2	10
3	14	1	30	3	14	3	24
14	18	19	33	4	16	4	33
17	18	17	34	5	14	5	20
5	20	6	36	6	8	6	36
20	17	24	25	7	24	7	14
13	8	16	27	8	20	8	28
5	? 14	12	20	9	12	9	28
11	20	23	27	10	9	10	30
2	6	3	24	11	20	11	16
9	12	2	10	12	16	12	20
19	8	15	13	13	8	13	12
15	12	20	13	14	16	14	21
4	14	11	16	15	28	15	13
10	9	14	21	16	16	16	27
16	16	5	30	17	15	17	24
		7	14	18	12	18	27
				19	8	19	33
				20	17	20	13
				21	8	21	16
						22	24
						23	27
						24	26
						25	22
Sum	252		426		300		582
of scores							
T.P.S.	40		40		40		40
N	17		18		21		25
M	14.82		23.67		14.29		23.28
M	22		26		22		26
σ (dis.)	6.64		7.95		6.09		7.47
σ (ave.)	1.37		1.66		1.33		1.49
D	6.65				6.99		
σ (diff.)	2.33				1.99		
D/ σ (diff.)	3.60				4.52		
Chances	100				100		
in 100							

BEST RECORD TWENTY
Unit Derivative Test Right

Group I		Group XX		Group XX		Group XV	
Pupil	score	Pupil	score	Pupil	score	Pupil	score
18	24	10	27	1	28	1	31
7	24	4	33	2	7	2	10
3	15	1	31	3	18	3	24
14	19	19	23	4	18	4	38
17	20	17	27	5	18	5	7
8	20	6	27	6	3	6	27
20	18	24	23	7	24	7	14
13	6	16	20	8	20	8	21
8	18	12	20	9	12	9	28
11	16	23	19	10	8	10	27
2	7	3	24	11	16	11	14
9	13	2	10	12	10	12	20
19	6	18	14	13	6	13	7
16	10	20	13	14	18	14	20
4	18	11	14	15	14	15	14
10	8	18	20	16	14	16	20
16	14	8	7	17	20	17	27
		7	14	18	10	18	20
				19	6	19	23
				20	19	20	13
				21	3	21	12
						22	23
						23	19
						24	23
						25	23
Sum	364		368		298		497
of scores							
F.P.S.	40		40		40		40
N	17		18		21		25
M	14.94		20.63		14.19		19.08
R	18		26		26		26
σ (dis.)	6.73		6.70		7.00		6.90
σ (ave.)	1.40		1.58		1.53		1.38
D	5.39				4.89		
σ (diff.)	2.12				2.05		
D/ σ (diff.)	2.55				2.33		
Chances	98				99		
in 100							

TEST RECORD TWENTY-ONE
Unit Derivative Test Nine

Group I		Group II		Group III		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	20	10	18	1	8	1	17
7	10	4	18	2	6	2	12
3	16	1	17	3	16	3	14
14	18	19	16	4	12	4	18
17	12	17	14	5	8	5	17
8	16	6	21	6	13	6	21
20	14	24	14	7	10	7	8
13	13	16	17	8	15	8	10
6	8	12	11	9	10	9	13
11	10	23	16	10	6	10	16
2	6	3	14	11	10	11	9
9	10	2	12	12	10	12	11
19	10	16	11	13	13	13	7
18	11	20	7	14	16	14	12
4	12	11	9	15	20	15	11
10	6	14	12	16	11	16	17
16	11	5	17	17	12	17	14
		7	8	18	11	18	17
				19	10	19	15
				20	14	20	7
				21	6	21	7
						22	17
						23	16
						24	14
						25	21
						26	21
Sum	202		245		236		337
of scores							
T.P.S.	26		28		25		28
N	17		18		21		26
M	11.89		13.61		11.53		13.48
R	14		16		18		16
σ (dis.)	3.86		3.92		3.79		4.26
σ (ave.)	.63		.92		.63		.86
D	1.72				2.15		
σ (diff.)	1.31				1.19		
D/σ (diff.)	1.31				1.50		
Chances	90				96		
in 100							

TEST RECORD TWENTY-TWO
English-Latin Vocabulary Test One

Group X		Group XI		Group XII		Group XV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
18	49	10	49	1	48	1	48
7	42	4	50	2	32	2	35
3	41	1	46	3	41	3	47
14	48	19	50	4	48	4	50
16	48	17	48	5	39	5	43
8	39	6	50	6	28	6	50
20	42	24	47	7	42	7	37
13	38	15	48	8	39	8	49
5	39	12	46	9	39	9	43
11	40	23	47	10	40	10	49
2	39	3	47	11	40	11	44
9	39	2	38	12	45	12	46
19	33	18	41	13	38	13	41
12	38	20	38	14	45	14	44
4	48	11	44	15	49	15	41
10	40	14	44	16	43	16	45
15	43	8	43	17	46	17	49
		7	37	18	38	18	46
				19	33	19	50
				20	42	20	39
				21	30	21	36
						22	47
						23	47
						24	47
						25	43
Sum	559	508	538	538	1113		
of scores							
T.P.S.	50	50	50	50	50		
S	17	18	21	21	25		
M	40.83	44.83	39.90	39.90	44.83		
R	17	18	23	23	18		
$\sigma(\text{dis.})$	4.45	4.43	5.88	5.88	4.43		
$\sigma(\text{ave.})$	1.69	1.69	1.28	1.28	.90		
D	4.40		4.62	4.62			
$\sigma(\text{diff.})$	1.81		1.58	1.58			
D/ $\sigma(\text{diff.})$	2.91		2.96	2.96			
Chances	100		100	100			
in 100							

TEST RECORD TWENTY THREE							
English-Latin Vocabulary Test Two							
Group M		Group IX		Group XII		Group XV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	89	10	82	1	84	1	84
7	80	4	83	2	84	2	88
3	48	1	84	3	48	3	88
14	80	19	87	4	88	4	83
17	84	17	81	5	88	5	88
8	80	6	87	6	42	6	87
20	86	24	86	7	80	7	88
13	41	16	82	8	80	8	88
8	86	12	47	9	81	9	85
11	42	23	60	10	48	10	82
2	34	3	88	11	42	11	88
9	81	2	28	12	82	12	47
19	48	18	49	13	41	13	82
18	80	29	80	14	80	14	89
4	88	11	88	15	89	18	49
10	48	14	89	16	83	16	82
16	63	5	88	17	84	17	81
		7	28	18	80	18	89
				19	49	19	87
				20	56	20	88
				21	37	21	88
						22	83
						24	88
						25	83
Sum	670		984		1078		1388
of scores							
T.P.S.	70		70		70		70
N	17		18		21		25
M	81.18		84.67		81.19		88.44
S	36		39		36		39
σ (dis.)	8.63		10.87		8.98		9.82
σ (ave.)	2.09		2.88		2.98		1.90
D	3.48				4.28		
σ (diff.)	3.34				2.81		
D/ σ (diff.)	1.08				1.48		
Chances	88				83		
in 100							

BEST RECORD TWENTY-FOUR
English-Latin Vocabulary Test Three

Group I		Group II		Group III		Group IV	
Pupil	score	Pupil	score	Pupil	score	Pupil	score
15	68	10	59	1	54	1	54
7	51	4	44	2	33	2	38
3	41	1	54	3	41	3	41
14	53	19	61	4	45	4	44
17	54	17	63	5	42	5	47
8	45	6	65	6	21	6	65
20	43	24	54	7	51	7	9
13	36	16	52	8	45	8	54
5	42	12	46	9	35	9	50
11	44	23	54	10	43	10	56
2	33	3	41	11	44	11	47
9	35	2	38	12	50	12	66
19	33	18	33	13	56	13	42
18	53	20	39	14	53	14	48
4	45	11	47	15	68	15	33
10	43	16	45	16	57	16	52
16	57	8	47	17	54	17	63
		7	9	18	52	18	55
				19	33	19	61
				20	63	20	39
				21	33	21	40
						22	56
						23	54
						24	54
						25	61

Sum	775	851	631	1209
of scores				
F.P.S	70	70	70	70
N	17	18	21	25
M	45.58	47.28	44.24	48.36
R	37	61	46	61
σ (dis.)	9.74	12.61	10.38	11.08
σ (ave.)	2.33	2.97	2.27	2.21
D	5.22		4.12	
σ (diff.)	3.52		3.17	
D/ σ (diff.)	1.37		1.30	
Chances	91		80	
in 100				

TEST RECORD TWENTY-EIGHT
Stevenson-Coxe Latin Derivative Test
Form IX

Group IX		Group XI		Group XII		Group IV	
Pupil	Score	Pupil	Score	Pupil	Score	Pupil	Score
15	88	10	89	1	87	1	86
7	88	4	80	2	43	2	88
3	83	1	86	3	83	3	89
14	89	19	86	4	88	4	80
17	88	17	88	6	88	5	87
8	88	6	87	6	88	6	87
20	84	24	87	7	88	7	83
13	82	16	88	8	89	8	86
8	88	12	87	9	88	9	88
11	82	23	80	10	49	10	89
2	48	3	89	11	82	11	82
9	89	2	88	12	82	12	87
19	81	18	80	13	82	13	48
18	81	20	88	14	89	14	88
4	88	11	82	15	88	15	80
10	48	14	88	16	88	16	88
16	88	8	87	17	88	17	88
		7	83	18	81	18	88
				19	81	19	88
				20	84	20	88
				21	32	21	88
						22	88
						23	80
						24	87
						25	88
Sum	912	1020		1098		1407	
of scores							
T.P.S.	60	60		60		60	
N	17	18		21		25	
M	83.68	84.67		80.84		80.28	
R	18	10		20		12	
σ (dis.)	4.19	2.62		7.18		2.89	
σ (ave.)	1.01	.62		1.87		.88	
D	3.02			4.04			
σ (diff.)	1.28			1.87			
D/ σ (diff.)	2.36			2.42			
Chances	99			99			
in 100							

TEST RECORD TWENTY-NINE									
Groups V* and VI on the Latin-English Vocabulary Tests									
Pupil	Score	Score	Score	Score	Pupil	Score	Score	Score	Score
Group	Test	Test	Test	Test	Group	Test	Test	Test	Test
V	X	XI	VIII	IX	VI	X	XI	VIII	IX
1	58	51	45	45	1	54	47	52	43
3	54	41	24	39	2	57	46	55	41
4	58	46	35	43	4	59	51	62	47
5	54	49	45	41	5	55	49	45	45
7	53	45	39	47	6	58	52	55	49
8	54	49	42	40	8	58	48	45	45
9	57	43	30	34	9	54	42	51	43
10	55	40	27	39	10	57	45	55	42
11	53	49	52	38	12	53	47	45	45
12	48	48	49	45	13	28	45	47	41
13	55	47	38	35	16	53	50	53	44
14	58	42	38	45	17	57	50	51	49
15	58	52	55	50	18	55	44	52	45
16	54	45	50	45	19	53	51	57	47
17	58	50	47	42	20	53	45	45	39
18	10	45	35	37	22	53	49	55	45
20	57	48	52	40	23	55	42	52	45
					24	53	50	57	42
					25	53	43	54	45
Sum	893	790	717	707	1049	932	1234	946	
of scores									
T.P.S.	58	52	65	50	53	52	65	50	
N	17	17	17	17	19	19	19	19	
M	53.71	46.41	42.06	41.59	55.21	49.05	52.87	44.83	
E	48	12	29	15	30	10	17	10	
$\sigma(\text{dis.})$	10.98	3.42	8.12	4.53	6.51	2.53	3.74	2.70	
$\sigma(\text{ave.})$	2.67	1.02	1.98	1.10	1.52	0.59	2.00	.62	
Σf					1.50	2.64	10.51	2.94	
$\sigma(\text{diff.})$					3.07	1.02	2.51	1.27	
$\Sigma/\sigma(\text{diff.})$.49	2.59	3.74	2.32	
chances in 100					69	99	100	59	

* See description of groups V and VI on page 30.
 † Unless otherwise stated, in favor of group VI.

TEST RECORD THIRTY
Groups V and VX on the Derivative Tests

Pupil Group	Score Test V	Score Test VI	Score Test VII	Score Test VIII	Pupil Group	Score Test IX	Score Test X	Score Test XI	Score Test XII
1	27	28	28	8	1	28	28	31	17
3	18	18	18	18	3	18	21	24	14
4	29	14	18	12	4	29	25	33	18
5	29	24	18	8	5	20	19	7	17
7	29	24	24	10	6	31	27	27	21
8	27	26	20	18	8	23	25	21	10
9	14	24	12	10	9	26	26	25	13
10	18	13	8	6	10	29	22	27	18
11	25	14	16	10	12	26	18	20	11
12	27	6	10	10	13	14	10	7	7
13	23	10	6	13	16	22	25	20	17
14	31	22	18	18	17	27	27	27	14
15	35	27	24	20	18	24	21	20	17
16	19	14	14	11	19	28	26	23	15
17	27	18	20	12	20	14	18	13	7
18	20	18	10	11	22	23	25	23	17
20	27	22	18	14	23	23	22	19	16
					24	26	25	23	14
					25	26	24	23	21
Sum	428	313	279	204	455	426	413	281	
of scores									
T.P.S.	35	30	40	25	35	30	40	25	
N	17	17	17	17	19	19	19	19	
M	25.00	18.41	16.41	12.00	23.95	22.45	21.72	14.30	
R	21	21	22	14	18	17	26	14	
σ (dis.)	6.95	8.18	7.17	3.48	5.14	4.23	6.67	3.32	
σ (ave.)	1.51	1.50	1.74	.84	1.18	.92	1.53	.88	
D					*1.05	4.04	5.31	2.30	
σ (diff.)					1.48	1.76	2.31	1.21	
D/ σ (diff.)					.71	2.30	2.30	2.31	
Chances in 100					68	99	99	99	

* In favor of Group V.

TEST RECORD THIRTY-ONE
Groups V and VI on the English-Latin Vocabulary Tests

Pupil	Score	Score	Score	Pupil	Score	Score	Score
Group	Test	Test	Test	Group	Test	Test	Test
V	I	II	III	VI	I	II	III
1	49	54	52	1	48	54	54
2	41	46	41	2	47	58	41
3	46	55	58	3	50	63	44
4	39	56	42	4	43	58	47
5	42	60	51	5	50	67	66
6	39	50	45	6	49	55	54
7	39	51	35	7	43	55	50
8	40	48	43	8	49	62	56
9	40	42	44	9	46	47	46
10	45	52	50	10	41	52	42
11	38	41	36	11	45	62	52
12	45	60	53	12	49	61	63
13	49	69	69	13	46	59	55
14	43	63	57	14	50	67	61
15	46	54	54	15	38	50	39
16	38	50	52	16	47	63	59
17	38	50	52	17	47	60	54
18	42	56	43	18	47	59	54
19				19	43	63	61
20				20			
21				21			
22				22			
23				23			
24				24			
25				25			
26				26			
27				27			
28				28			
29				29			
30				30			
31				31			
32				32			
33				33			
34				34			
35				35			
36				36			
37				37			
38				38			
39				39			
40				40			
41				41			
42				42			
43				43			
44				44			
45				45			
46				46			
47				47			
48				48			
49				49			
50				50			
51				51			
52				52			
53				53			
54				54			
55				55			
56				56			
57				57			
58				58			
59				59			
60				60			
61				61			
62				62			
63				63			
64				64			
65				65			
66				66			
67				67			
68				68			
69				69			
70				70			
71				71			
72				72			
73				73			
74				74			
75				75			
76				76			
77				77			
78				78			
79				79			
80				80			
81				81			
82				82			
83				83			
84				84			
85				85			
86				86			
87				87			
88				88			
89				89			
90				90			
91				91			
92				92			
93				93			
94				94			
95				95			
96				96			
97				97			
98				98			
99				99			
100				100			
Sum of scores	717	917	821		976	1109	994
T.P.S.	50	70	70		50	70	70
N	17	16	17		19	19	19
M	42.20	53.94	47.71		46.11	58.37	52.32
R	14	17	33		12	20	22
σ (dis.)	3.73	7.47	7.93		3.13	5.37	7.37
σ (ave.)	.60	1.91	1.94		.71	1.23	1.70
D					3.91	4.43	4.61
σ (diff.)					1.15	2.19	2.58
D/ σ (diff.)					3.40	2.02	1.80
Chances in 100					100	93	96

<u>A.</u>		
LATIN WORD	RELATED LATIN WORD	ENGLISH DERIVATIVE
1. <u>accuso</u> , <u>accusare</u> , <u>accusavi</u> , <u>accusatus</u> , <u>blamo</u> , <u>scuse</u>		accusation
2. <u>aqua</u> , <u>aque</u> , f., <u>water</u> .		aqueous
3. <u>agricola</u> , <u>agri</u> = <u>ager</u> (field) <u>colas</u> , n., <u>farmer</u>		agrarian
4. <u>amo</u> , <u>amare</u> , <u>amavi</u> , <u>amatus</u> , <u>love</u>	<u>amicitia</u> (friendship) <u>amicus</u> (friendly, friend) <u>inimicus</u> (unfriendly)	amiable amiable inimical
5. <u>ad</u> , prep. with <u>acc.</u> , <u>to</u> , <u>toward</u> (with verbs of motion) <u>near</u> (with verbs of rest)		
6. <u>sugco</u> , <u>sugere</u> , <u>auxi</u> , <u>suctus</u> , <u>in-</u> <u>crease</u>		augment
7. <u>altus</u> , <u>alts</u> , <u>al-</u> <u>tum</u> , <u>high</u> , <u>deep</u> .		altitude

* Pupils underline the English meanings of the Latin words, so that the eye can readily distinguish between the two.

F

LATIN WORD	RELATED LATIN WORD	ENGLISH DERIVATIVE
7. facio, facere, fecit, factus, <u>do</u> , <u>make</u>	efficio (make out, bring about) afficio (affect, afflict with) beneficium (kindness) factum (deed) facilis (easy) difficilis (difficult) conficio (do thoroughly) interficio (kill) perficio (finish) praeficio (put in charge of)	efficient affect beneficial fact facility difficulty confection perfection prefect fugitive
8. fugio, fugere, fugit, fugiturus, <u>flee</u>	fuga (flight) in fugam (rare) (to put to flight)	firmness
9. firmus, firmus, firmus, <u>strong</u> , <u>steadfast</u> , <u>firm</u>	confirmo (make firm, establish)	confirmation
10. finitimus, finitimus, finitimum, <u>neighboring</u>	finitimus (neighbor)	
11. flumen, fluminis, n., <u>river</u>		fluid
12. finis, finis, terminus, n., <u>end</u> , <u>limit</u> ; plur., <u>border</u> , <u>terri-</u>		final