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A comparative study of the ability and academic achievement of senior high school boys with relation to participation in interscholastic sports

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**A COMPARATIVE STUDY OF THE ABILITY AND ACADEMIC ACHIEVEMENT OF SENIOR
HIGH SCHOOL BOYS WITH RELATION TO PARTICIPATION IN
INTERSCHOLASTIC SPORTS**

**A Thesis
Presented to
the Graduate Faculty of the
University of Richmond**

**In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Education**

**by
Grant Hudson, Jr.**

August 1961

APPROVAL SHEET

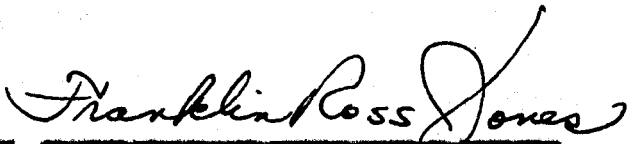
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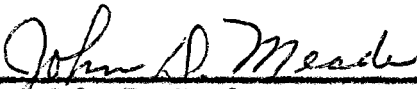
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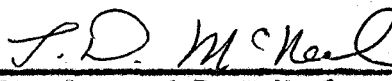
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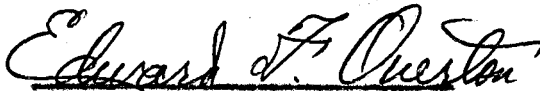
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ACKNOWLEDGEMENTS

This study was written under the direction of Dr. Edward O. Overton, Professor of Education and Dean of the Summer School, University of Richmond.

The writer wishes to express his appreciation to the Graduate Committee, and also to the following persons:

Mr. Roderick J. Britton, Director of Research, Henrico County Public Schools

Mr. Robert R. Marks, Director of Instruction, Henrico County Public Schools

Mr. Victor W. Kreiter, Principal of Highland Springs High School

Mrs. Gail M. Hudson, his wife who typed the manuscript.

Without the guidance and assistance of the persons mentioned above, this study would not have been possible.

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Frequently the high school athletic program comes under attack from the press, laymen, and even educators who feel that more time is being spent in athletic contests and practice for athletic contests than is warranted for the amount of educational value which the athlete receives through participating. There is some feeling that the grades of athletic participants are not up to the standard of achievement of non-participants and that in many cases participating in sports tends to lower the scholastic grades of the participants.

On the other hand, many believe that the athletic program has a vital role in the high school curriculum and that, when kept in its proper perspective, the grades of participants are not affected; some may even be motivated to better scholastic achievement.

I. THE PROBLEM

Statement of the problem. The purpose of this study is to make a comparison of ability, and achievement in relation to ability, of graduating male athletes and male non-athletes in the public high schools of Henrico County, and to study the achievement of students at one of these schools in certain high school subjects. More specifically, the study is intended (1) to determine

at the County level whether there is any significant difference in the ability of the two groups mentioned as shown by the School and College Ability Test; and (2) to determine whether there is any difference in educational progress in relation to ability as shown by standardized tests. The study also included a total of three successive graduating classes at one of the schools in Henrico County, which will be called "School N" in this paper. The 1958, 1959, and 1960 classes in School N were studied to determine whether there was any significant difference in the mean grades and in the percentages of drop-outs among athletes and non-athletes. The grades of fifty-three athletes participating in only one sport, either football, baseball, or track, were compared to determine whether there was any significant difference in their grades in the semester in which they participated and the semester in which they did not participate. Basketball players were eliminated, since basketball season overlaps both semesters. Any students who participated in more than one sport were also eliminated.

Justification of the study. The history of high school athletics is filled with many controversies. Some of these controversies arose because athletic programs were poorly administered when first introduced into the high school curriculum. Many states had few, if any, academic requirements for participation in sports. In the State of Virginia, stringent requirements were not enforced

until 1956,¹ and as recently as June, 1961, regulations were passed to make the eligibility requirements even more stringent.²

One of the more prevalent controversies is that athletes are not as intelligent or as capable as other students. Interscholastic sports in Virginia, prior to 1956, are filled with instances of youngsters participating in athletics with poor academic records. There were also those who continued to compete far beyond the time of their normal graduation. These discrepancies in the athletic program did not go unnoticed and there was a tendency to condemn the entire sports program. Athletics generally came to be associated with poor scholarship. Many such instances are cited by the critics of high school athletic programs with just cause. However, the situation has improved greatly, at least in Virginia. For instance, in 1956 an eight-consecutive-semester-rule was introduced and enforced.³

The idea that athletics lead to poor scholarship is difficult to substantiate. A general feeling prevails that athletics properly administered will motivate some youths and their grades

¹University of Virginia Extension, Virginia High School League Handbook for 1956-57 (Charlottesville: University of Virginia, August, 1956), p. 44.

²Richmond Times-Dispatch, June 20, 1961, p. 17, col. 5.

³University of Virginia Extension, loc. cit.

will improve. Some insight into this problem should be gained from this study which has been conducted on a limited basis at a local level.

Limitations of the study. The study was limited to the 1960 male graduates of the four public high schools in Henrico County. The study was further limited to the scores made on the School and College Ability Test and on the Sequential Tests of Educational Progress which were administered in 1960.

A separate study was made of the 1958, 1959, and 1960 graduating classes at one of the high schools in the County. This study included: (1) the mean grades for four years of high school; (2) drop-outs that should have graduated with these classes; and (3) semester grades of the athletes in these classes who participated in only one sport.

Sources of data. Records of all boys graduating from Henrico County public schools were studied to obtain the following information: (1) 1960 scores on the School and College Ability Test and the Sequential Tests of Educational Progress; and (2) Virginia High School League Eligibility Lists to divide the total boys into athletes and non-athletes.

The cumulative record folders of all boys at School N for the graduating classes of 1958, 1959, and 1960 were studied (see the cumulative record card in Appendix A) (1) to obtain the mean

grade; (2) to divide the students according to their course of study--college preparatory or non-college preparatory; and (3) to study the athletes at School N to determine whether there was any significant difference in their grades during the season they participated and the season they did not participate.

The Virginia High School League Eligibility Lists were studied for School N to divide further the total boys into athletes and non-athletes.

II. DEFINITIONS OF TERMS USED

Ability. In this study, ability represents more specifically scholastic aptitude or academic ability. The term represents "a general ability or any special ability required in school work or a combination of abilities used in education, in which verbal or linguistic accomplishment and numerical or mathematical facility are emphasized."⁴

Academic achievement. Throughout this report, the term "academic achievement" is used as a measure of the knowledge attained and skills developed in school subjects⁵ and acquired in other ways. The academic achievement of the two groups studied

⁴Carter V. Good (ed.), Dictionary of Education (New York: McGraw-Hill Book Company, Inc., 1945), p. 1.

⁵Ibid., p. 6.

was measured by school subjects and the Sequential Tests of Educational Progress.

Athlete and non-athlete. The term "athlete" is used to distinguish those boys who participated in any of the four major sports in the school system studied,--football, basketball, baseball and track. The term, as used in this report, refers only to those boys whose names appeared on the Virginia High School League's Eligibility Lists for the four schools studied.

If an individual's name did not appear on these Eligibility Lists, he was considered a non-athlete.

College preparatory and non-college preparatory. Students taking Algebra I, Algebra II, and Plane Geometry, in addition to the eight required courses for graduation, were considered college preparatory at School N. The required courses for graduation at this school included four years of English, one year of General Science, one year of United States Government, one year of United States History, and one year of Mathematics.

The guidance director at School N felt that a foreign language was not mandatory for a college preparatory curriculum, since most colleges will admit students without foreign language credits. However, these colleges require additional work in foreign languages.

All graduates of School N who did not take Algebra I, Algebra II, and Plane Geometry were placed in the non-college preparatory curriculum, even though several of these boys were accepted by different colleges.

Converted score. Converted scores are made by the process of changing a series of test scores from one score to another score having a different unit of measurement.⁶ The scores on the School and College Ability Test and on the Sequential Tests of Educational Progress in Chapter III are converted scores. However, they are as close as possible to raw scores and are acceptable as units of measurement.

Frequency distribution. This is a "tabulation showing the frequencies of the values of a variable when these values are arranged in order of magnitude."⁷ Frequency distribution tabulations are used in Chapter III for simplicity in showing the comparison of scores of the two groups studied and in finding the mean score and the standard deviation.

Mean grade. The mean grade is most often referred to as the average. To find the mean grade, the total numeral value of grades were added and then divided by the total number of grades. Another

⁶ Ibid., p. 98.

⁷ Ibid., p. 137.

way of stating this is that "the mean is equal to the sum of the measures divided by their number."⁸

Population. The total number of individuals constituting a given group is called "population."⁹ In this study, population refers to (1) the total group studied in Henrico County; (2) the total group in three successive graduating classes at School N; and (3) the total number of athletes who participated in only one sport at School N, either football, track, or baseball.

School and College Ability Test. The general purpose of the School and College Ability Test, which was used in the 1959-1960 State-wide testing, is to measure school-learned abilities. "The four sub-tests in each of the SCAT were designed to aid in estimating the capacity of the student to undertake the next higher level of learning. They involved (1) comprehending the 'sense' of a sentence read, (2) solving quantitative problems, manipulating numbers and applying number concepts accurately in a computation situation."¹⁰

Sequential Tests of Educational Progress. These are "a special kind of achievement-test series...STEP focuses on skill in solving new problems on the basis of information learned, rather

⁸ Denton J. Underwood and others, Elementary Statistics (New York: Appleton-Century-Crofts, Inc., 1954), p. 44.

⁹ Good, op. cit., p. 302.

¹⁰ Educational Testing Service, Cooperative Test Division, School and College Ability Test Technical Report (Princeton, New Jersey: Educational Testing Service, 1957), p. 5.

than on ability to handle only 'lesson material.'¹¹ The tests, which also were given Statewide in 1959-1960, are long enough and broad enough to provide data for sound individual interpretation. They include the following major fields of school and college instruction: Reading, Writing, Listening, Social Studies, Mathematics, and Science.¹²

Standard deviation. This widely used measure of variability consists of the square root of the mean of the squared deviations of scores from the mean of the distribution.¹³ In a normal distribution, if a distance is laid off on each side of the mean, 68.26 per cent of the population will be included.

Statistically significant difference. The use of this term means:

a difference between two comparable statistics, computed from separate samples, that is of such magnitude that the probability that the difference may be imputed to chance is less than some defined limit; often arbitrarily defined as a difference that exceeds two or three times the standard error of the difference or three or four times the probable error of the difference or that would arise by chance one time in twenty or one time in one hundred.¹⁴

¹¹ Educational Testing Service, Cooperative Test Division, Sequential Tests of Educational Progress Manual (Princeton, New Jersey: Educational Testing Service, 1957), p. 5.

¹² Ibid.

¹³ Good, op. cit., p. 129.

¹⁴ Good, op. cit., p. 389.

Virginia High School League Eligibility Lists. The Eligibility Lists used in this study are required by the Virginia High School League and must be submitted to the League office and to each school on any school's athletic schedule at least one day prior to the date of the first game. These lists are compiled by the coaches of each sport and include only those boys who made the team and met the eligibility requirements. The principal of the school must sign the list certifying that the students listed are eligible to participate. A copy of the Virginia High School League Eligibility List is included in Appendix B.

III. REVIEW OF THE LITERATURE

A wide variety of books and other reference material was read, both as background material for this study and to see if any similar studies had been made. Only a limited amount of material dealing specifically with athletics and scholastic achievement was found in the literature available.

Of the many references read, such as Fretwell's Extra-Curricular Activities in Secondary Schools, McKown's Extra-Curricular Activities, and Foster's Extra-Curricular Activities in the High School, all dealt with athletics specifically in only one chapter. However, much of the general information found about the value of extra-curricular activities can also be applied to athletics. Although an uncounted number of texts have been written on associated subjects

dealing with a specific sport, such as the coaching of basketball, the fundamentals of football, or the administration of high school and college athletics, few texts or articles were found on the value or role of athletics in the high school program. This is rather surprising in view of the amount of criticism voiced and the popularity of the subject.

Of the literature read, Roy Rangle's article on Scholastic Attainment which appeared in the Peabody Journal of Education relates the closest to this study and is therefore reviewed in detail below.

Rangle began his article with the question, "Is there any significant difference in scholastic achievement between participants in organized athletics and those who do not participate?"¹⁵

To conduct his study, he chose a sample group from Madisonville High School in Madisonville, Tennessee, with an enrollment of 392 students and fifteen faculty members. The study included all graduating boys for a five-year period, a total of 101 graduates. In the division of students, the athletes were determined by the earning of a letter in football, basketball or baseball, and all others were in the non-participating group. There was a total of forty-two boys in the participants group and fifty-nine in the non-participants group.¹⁶

¹⁵Roy Rangle, "Scholastic Attainment and the High School Athlete," Peabody Journal of Education, XXXIII (May, 1956), p. 360.

¹⁶Ibid., pp. 360-61.

The average grade in all subjects, excluding Physical Education, was determined for each boy and recorded according to the group in which each was placed. The average four-year high school grade for participants was 82.71, while the average grade for non-participants was 83.25.¹⁷

After using the appropriate statistical procedures, it was determined that there was no significant difference between the two groups.¹⁸

This study differs from Rangle's in that a larger group was used. The abilities of the two groups were studied as well as achievement in relation to ability, as shown by standardized tests given on a national basis. In the scholastic average study at School N the athletes were divided into college preparatory and non-college preparatory. In addition to this, a drop-out study was made in this school to determine if more athletes or non-athletes drop out. The grades of the athletes also were compared in the semester in which they participated in a sport and the semester in which they did not participate.

IV. ORGANIZATION OF REMAINDER OF THE STUDY

Chapter II of this study will deal with the role of athletics in the high school program and will trace briefly the development

¹⁷Ibid., p. 363.

¹⁸Ibid., p. 364.

of athletics. Included in this chapter is some background information on the nature and scope of athletics in Henrico County, the locality studied.

In Chapter III the comparisons are made between athletes and non-athletes in the four high schools included in the study, on the basis of the data collected. The two groups are analyzed from the scores made on each of the progress tests and on the ability tests. The athletes and non-athletes from School N are analyzed by comparing mean grades and comparing percentage of drop-outs.

The final chapter summarizes and evaluates the findings of the study. Some conclusions are drawn as to the validity of the two opposing viewpoints raised in the opening paragraphs of Chapter I.

CHAPTER II

THE ROLE OF ATHLETICS IN THE HIGH SCHOOL PROGRAM

What is the role of athletics in the high school curriculum?

In an attempt to find the answer to this question, a number of references were consulted and they differed from opposition toward too strong emphasis on the athletic program. The majority opinion of educators, however, is that athletics can serve to broaden the student and has a definite place in the high school curriculum.

An apt statement of policy was found in a paper by Earl Cline in which he commented:

In discussing then a question that deals with the welfare of physical education in its relation to education as a whole, we must remember that it should be decided with the idea in mind of making the best possible citizens for our country in the future. If athletics, physical training and competitive contests assist in the making of a worthy citizen let them be fostered; if they hinder let them be eliminated.¹

When analyzed closely, the statement by Principal Cline gets to the heart of the problem faced in the high schools today. When the abuses, which admittedly have existed in some cases, are eliminated, then the basic question of the whole matter of athletics in high school revolves around the educational values that the student

¹Earl Cline, "Inter-High-School Athletics," American Physical Education Review January, 1910, p. 1.

receives from the experience, and further, the educational values that the student body as a whole will gain from athletics.

Forsythe gives an excellent list of some of the educational values of athletics, even though he states that his list is not all-inclusive. The ten points mentioned were the following:

1. Opportunity to learn new games.
2. Improvement in playing skills.
3. Development of physical vigor and desirable habits in health, sanitation, and safety.
4. Opportunity to make real friendships with squad members.
5. Opportunity to widen a circle of friends by acquaintance with members of opposing teams and to visit and play in other communities.
6. A chance to observe and exemplify good sportsmanship.
7. Realization that athletic competition is a privilege which carries definite responsibilities with it.
8. Association with real gentlemen and true sportsmen in the persons of athletic coaches.
9. A chance to enjoy one of the greatest heritages of youth--the right to play.
10. To learn that violation of a rule of the game brings a penalty--and that this same sequence follows in the game of life.²

Similar lists of the detrimental aspects of athletics can be found, but most of these would apply to the poorly administered athletic program. There are many other values not mentioned by Forsythe to be gained from participation in interscholastic athletics. In a survey of almost any athletic team one would see

² Charles E. Forsythe, The Administration of High School Athletics (New York: Prentice-Hall, Inc., 1939), p. 7.

democratic principles at work. Certainly in the selection of a team there is equality of opportunity. Athletic ability, attitude, and desire are the criteria that coaches use in the selection of their teams, not family position or economic standing.

Youngsters in athletics must learn early the "give and take" of competition which will be important to them in life. Valuable lessons in discipline and respect for authority are emphasized. Learning situations arise in athletic contests which are almost impossible to reproduce in classroom situations. Athletes are taught the value of hard work, mental alertness and the need for quick and correct decisions. It is easy to see that athletics definitely have a part in the development of the complete citizen.

The growth of athletics in high schools has stemmed from a number of factors, but the primary one has been the nation's exodus from country to city. Figures from the United States Department of Agriculture show that 1,346,000 persons left the farm annually between 1950 and 1959.³ This trend has tended to reduce the physical work which the adolescent is called upon to perform and has therefore left the physical side of his development less active. Athletics has become a substitute for the work an adolescent previously did on the farm.⁴

³United States Department of Agriculture, Agriculture Marketing Service, Farm Population Estimates for 1950-59 (Washington, D. C.: Government Printing Office, February, 1960), p. 3.

⁴Elbert K. Fretwell, Extra-Curricular Activities in Secondary Schools (New York: Houghton Mifflin Company, 1931), pp. 405-406.

The development of athletics in this role of substitute has been a matter of evolution in our school system. McKown traces this development through three stages. The first of these periods was opposition. In this era the matter of athletics in the schools was generally ignored by the educators, initially in the hope that it would go away. But the nature of the contests themselves aroused the natural competition of the students and the even stronger competitive spirit of the local population. Groups from individual schools began playing each other under an unsupervised program which served to bring about the abuses which cause some of today's problems in athletics. There were no training rules to assure that the students were in the best physical condition for sports. Nor were there any scholastic requirements for participation. The second period noted by McKown was one of toleration. At this point the schools recognized that the program of athletics was underway and they positioned themselves to protect the good name of the school. However, they still withheld from any active participation in the program itself. This was usually left to the town fathers or to an alumni group which handled the scheduling, training and coaching of the teams. Since neither opposition nor toleration seemed to solve the problem of growing athletics and its place in the curriculum, the final phase of cooperation was entered. This phase began with an effort to bring the athletic program completely within the jurisdiction of the schools.

The schools accepted the athletic programs and put them under rule and regulation, thereby eliminating a great number of the abuses. Yet the problem still was not solved, for there were those who felt that the rules were either too lax or 'winked at' and those, on the other hand, who considered the rules too strict.⁵

In determining the role of athletics in the high school, the first fact to be considered is that athletics must take a secondary position. The primary reason for the individuals' attendance at a high school is to gain an education. The formal aspects of the high school dictate the curriculum which each student must complete to gain his education. His ability in this curriculum should dictate what other facets of school life he may also pursue. It is at this stage, after the completion of all scholastic requirements, that the individual pupil should seek to round out his education.

Not every high school student will have the physical ability to participate in athletics at the varsity level. This can readily be seen as impossible and brings up another of the arguments against athletics--that a limited number are able to participate and thus only a small percentage of the student body is involved. The number participating in athletics in this study is about twenty-five per cent of the male student bodies involved. The argument is used that what is good for a few is good for all.

⁵ Harry C. McKown, Extra-Curricular Activities (New York: The MacMillan Company, 1942), pp. 283-286.

Most of the students of any school can be reached through a program of intramural athletics and there is a definite need for such a program. A good sound athletic program will stimulate interest in the different sports and many youngsters will be encouraged to play at the intramural and playground levels. The athletic program also stimulates interest in physical education classes and here is where the fundamentals of the major sports should be introduced to all, along with the fundamentals of many other types of recreational activity.

In addition to stimulating an interest in the different sports, a sound athletic program can benefit the entire student body which can gain certain values from attending school athletic contests. School spirit is definitely fostered and rules of good sportsmanship and good conduct can also be learned.

The program of athletics in the secondary schools can play additional roles to those already discussed. It is not all a physical development process, for if properly employed and administered, it can also provide a bridge between the mental and physical aspects of education. It is in this role that the athletic program may be able to perform its most noteworthy service to education. In looking into the educational values of the athletic program, McKown points out that the student can readily learn the need of teamwork, the competition draws out his best efforts and

he learns to think under stress.⁶ In some cases the need to maintain proper scholastic standards helps to motivate school work.

The entire program of extra-curricular activities, says Foster:

...develops such virtues as self-control, initiative, self-reliance, courage, cooperation, vitality, respect for the rights of others, loyalty, courtesy, fair play, purpose, devotion to duty, and self-sacrifice. Certainly athletic games take no less prominent a place in developing these than student government organizations, school assemblies, clubs and the rest.⁷

One other role that the athletic program can play is brought out by Foster: the athletic program can act as "a safety valve."⁸

In working with the average high school student, an abundance of exuberance and energy is evident. The high school student must be with others and so will find group activity in one form or another. Thus he finds an excellent outlet in the form of competitive athletic contests. If the school does not provide activities for the students which are wholesome and educational, then many may find outlets for their energy and natural tendencies in forms that are detrimental to themselves and to the community.

In any discussion of athletics, the question of over-emphasis is generally raised. A wholesome desire to win is often misconstrued

⁶Ibid., p. 289.

⁷Charles R. Foster, Extra-Curricular Activities in the High School (Richmond: Johnson Publishing Company, 1925), p. 209.

⁸Ibid.

as too much emphasis being placed on winning. Only in a few isolated cases can examples of the "win-at-all-cost" philosophy attributed to some teams and coaches be found in high school athletics. These are often played up by the press because of their sensationalism. Examples of this philosophy have not been observed in the local schools.

There should be emphasis but not over-emphasis on winning. This provides training for living in a competitive society. Youngsters in athletics are taught to use their energies and abilities to develop their skills in order to win. Naturally, someone has to lose and most athletes are taught to lose gracefully, after putting forth every effort to win within the framework of the rules and good sportsmanship.

After considering all these points then, it appears that the role of athletics in the high schools today provides many learning experiences for the participant and some for the spectators. Students should be encouraged to follow their teams and to participate in intramural programs. Earlier abuses have been eliminated by the close supervision of the school administrations and the Virginia High School League.

Nature and scope of athletics in Henrico County schools.

Henrico County embraces some 245 square miles and has a population

of 120,000.⁹ There are four high schools in the County included in this report. Three of the schools are in the Virginia High School League classification of Group I-A and are members of the Central District. Schools with an enrollment of more than one thousand fall into the classification of Group I-A.¹⁰ The three Group I-A Central District schools included in this study have an enrollment of approximately one thousand to eleven hundred students each.

One school in the County falls into the Group II classification which includes schools with enrollments up to six hundred students.¹¹ This school had an enrollment of approximately 350 in 1960, the year this study was made.

All four schools fielded teams in the four major sports-- football, basketball, baseball, and track, as a check of each school's eligibility lists showed. In addition, some of the schools fielded teams or have had teams in wrestling, tennis and golf.

Inquiries at the different schools revealed that the length of practice sessions for each sport differs and the amount of time

⁹County of Henrico, Commonwealth of Virginia, Guide to Henrico County (Richmond: County of Henrico, March, 1961), p. 5.

¹⁰University of Virginia Extension, Virginia High School League Handbook for 1959-60 (Charlottesville: University of Virginia, August, 1960) p. 10.

¹¹Ibid.

spent in practice sessions in a given sport differs among the schools. The longest length of time spent seldom exceeds two hours in any one afternoon and most practice sessions tend to be shorter.

The football and basketball games are generally played at night, with Friday night the most popular night for ballgames. Some basketball games are played during the week on school nights, but there is a tendency to play as many as possible on Friday or Saturday nights. In baseball and track, the majority of the games and meets are held in the afternoon.

Most coaches in the County have only a short practice session the day prior to the game and, in some instances, practice on days following games is shortened.

The Virginia High School League limits the number of games to be played to ten in football, eighteen during the regular season in basketball, and twenty in baseball. No post-season games are allowed in football and baseball in Group I-A. However, single elimination tournaments are allowed for the District in basketball. Eight out of eleven teams participate in these tournaments. An eight-team State tournament is held also in basketball, with one or two teams from each district in the State qualifying on a rotating basis.¹²

¹²Ibid., pp. 57-71.

The length of the season is also set forth in the Virginia High School League Handbook. Football practice cannot begin prior to August twenty-fifth and no games can be played without a minimum of fifteen days practice. The season must end prior to December first.¹³

Organized basketball practice is not permitted to begin until November first and no games can be played prior to December first. The basketball season must end prior to March fifteenth.¹⁴

Baseball and track practice does not begin usually until February or early March, and ends prior to examinations in June.¹⁵

The Virginia High School League also requires that (1) a participant must pass a physician's examination each year; (2) must not be older than nineteen years and six months at the start of the school year; (3) must be a bona fide student; and (4) must not participate beyond the eighth semester in high school, which begins when a student enters the ninth grade and runs consecutively from that time.¹⁶ (See the Virginia High School League Individual Eligibility Rules in Appendix C.)

The level of competition of the Group I-A schools in this study compares favorably with other schools of the same classification in the State. This is apparent from a check of the standings of the schools within their district and within the State.

¹³ Ibid., p. 58. ¹⁴ Ibid., p. 66. ¹⁵ Ibid., p. 71. ¹⁶ Ibid., pp. 38-50.

The same can be said for the school that falls into the Group II classification. Here the same record of achievement is observed.

Approximately twenty-five to thirty per cent of the boys in the County schools participate in the four major sports. Many others are encouraged to participate in church leagues and recreation leagues. The entire student body in each of the schools is made to feel a part of the athletic program through extra-curricular activities, such as pep rallies, cheerleading squads for the girls, and pep clubs.

Keen rivalry is observed between the schools and with other schools in the District. This rivalry fosters good sportsmanship, good school spirit, and good competition which is wholesome for the participants and the student bodies of the respective schools.

CHAPTER XII

ANALYSIS OF COLLECTED DATA

I. SCHOOL AND COLLEGE ABILITY TEST AND SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS FOR ALL MALE GRADUATES OF HENRICO COUNTY PUBLIC HIGH SCHOOLS IN 1960

In determining whether there was any significant difference in the mean grades of athletes and non-athletes in Henrico County, the following procedure was followed.

The records used were from the Henrico County Department of Education and gave the scores on the School and College Ability Test and on the Sequential Tests of Educational Progress alphabetically by sex and by schools. A total of 362 senior boys took all the tests and nine senior boys took only parts of the tests, which makes the total population a possible 371. Since nine boys took different parts of the tests, the total population ranges from 366 on Science and Social Studies to 370 on Listening and the total School and College Ability Test.

In checking the Virginia High School League Eligibility Lists for the four high schools of the County, it was found that there were a total of ninety-seven boys on the lists for the four major sports. Of this total, seventy-seven took all of the tests and three took only parts of the tests, which makes the total athletes range from seventy-seven to eighty.

There are a number of reasons why seventeen of the athletes did not take the tests. Some of these were (1) drop-outs during the senior year prior to the date the test was given; (2) transfers to another school system prior to the test; and (3) absentees during the administering of the tests.

After separating the athletes, all other boys were left in the non-athlete group. The total then was 285 boys who took all the tests and six boys who took only parts of the tests. Here again the total number taking a given test varied from a low of 288 taking the Social Studies test to a high of 291 taking the Listening test.

For recording purposes, the eighty athletes were marked on the records of the School and College Ability Test and the Sequential Tests of Educational Progress to insure their proper placement in the athlete column on the distribution charts. (See Table I through Table VI on pages 32 through 37.) The non-athletes were not marked and were placed in the non-athlete column on the distribution charts.

The frequency distribution charts were recorded using an interval of two and using the converted score from the records of the School and College Ability Test and the Sequential Tests of Educational Progress. The range of the distribution charts was made to include the lowest and the highest grades recorded for the total boys.

In Table I, on page 32, the total scores on the School and College Ability Test are recorded. In the non-athlete column the

range is from 262 through 325. The number of cases at each interval, or the frequency, is recorded in column *f*.

The purpose of the frequency chart is to find the mean and standard deviation scores of the large number of scores in the group.

The formula to find the mean is $M = \frac{\sum (fX)}{N}$

where: \sum = the sum of the quantity that follows (here, all the *fX*'s)
X = the midpoint of a class interval
fX = a midpoint multiplied by its corresponding frequency (*f*).
N = total number of cases, equal to the sum of the frequencies (*f*)¹

The following procedure was used to find the mean in Table I. By multiplying the frequency (column *f*) by the mid-point of the interval (column *X*), the data for column *fX* is derived. To get the sum of the scores for all non-athletes, which is 85,777.00, the data in column *fX* was added. The next step was to divide this number by the total number taking the test. This figure can be found in the *Cf* column in Table I and is 290. This gives a mean grade of 295.78 for the non-athlete group.

The next step is to find the standard deviation. The formula

is²

$$\sigma = \sqrt{\frac{\sum fX^2}{N} - M^2}$$

¹Benton J. Underwood and others, Elementary Statistics (New York: Appleton-Century-Crofts, Inc., 1954), p. 50.

²Ibid., p. 77.

One step in finding this is to multiply column X by column fX, which gives the data for column fX². The total from Table I is 25,418,808.50. This total divided by 290 is equal to 87,651. The mean squared for the non-athlete group (293.78) is equal to 87,486. Subtracting these two numbers will give a figure of 165. The last step is to take the square root of the number, which is 12.7, and is the standard deviation of the non-athlete group.

Using the same procedure, the mean for the athlete group is 294.08 and the standard deviation is 10.4. An inspection of these figures indicates there is no significant difference in the School and College Ability Test measured abilities of the two groups. However, a statistical formula is used to test this.

To test this, two formulas are needed. The formula for the standard error of the difference is³

$$\sigma_D = \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}$$

The formula for the critical ratio⁴ is $\frac{M_1 - M_2}{\sigma \text{ Diff.}}$

Using the figures from Table I, page 32, the standard error of the difference is equal to $\sqrt{\frac{12.7^2}{290} + \frac{10.4^2}{80}}$

³ Henry H. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1958), p. 27.

⁴ Ibid., p. 215.

This equals to $.56 + 1.35 = 1.91$. Taking the square root of 1.91, results in the standard error of the difference, 1.37.

Now the critical ratio can be found by substituting in the formula. The result is $\frac{293.78 - 294.08}{1.37}$ and this is equal to 1.31.

The Table of T shows that there is no significant difference at the .05 level of confidence.⁵

An inspection of the Sequential Tests of Educational Progress, which included Mathematics, Science, Social Studies, Reading, Writing, and Listening, shows clearly that there is no significant difference between the two groups in any of these areas as measured by these tests. (See Tables II-VII on pages 33-38.)

The mean score for athletes and non-athletes on all of these tests varies less than the difference found in the total School and College Ability Test scores for the two groups. The largest difference in mean scores for all six of the tests in the series was 1.27. The non-athlete group's scores were a few percentage points above the athletes' scores in Science and Social Studies, while the athlete group was a few percentage points above the non-athletes in Mathematics, Reading, Writing, and Listening. The standard deviation varied only slightly, therefore the computations will not be shown for the remaining tests.

⁵Ibid., p. 449.

When the same procedure was used as outlined above for the total School and College Ability Test and in all of the Sequential Tests for Educational Progress, Tables II-VII, pages 33-38, it was found that there was no significant difference in the Sequential Tests of Educational Progress measured achievement of the two groups.

A distribution curve was made for the two groups on the total School and College Ability Test. A study of the curve, Figure 1, page 39, clearly shows the close relationship between the two groups.

TABLE I

**1960 SCHOOL AND COLLEGE ABILITY TEST SCORES FOR HENRICO COUNTY
SENIOR BOYS TOTAL SCAT**

NON-ATHLETE				ATHLETE			
f	x	fx	fx ²	f	x	fx	fx ²
324-25	3	324.5	973.5				
322-23	1	322.5	322.5				
320-21	4	320.5	1282.0				
318-19	3	318.5	955.5				
316-17	6	316.5	1899.0	3	316.5	949.5	300516.75
314-15	6	314.5	1887.0	2	314.5	629.0	197820.50
312-13	8	312.5	2500.0	2	312.5	625.0	195312.50
310-11	12	310.5	3726.0				
308-09	9	308.5	2776.5	4	308.5	1234.0	380689.00
306-07	16	306.5	4904.0	1	306.5	306.5	93942.25
304-05	14	304.5	4263.0				
302-03	21	302.5	6352.5	2	302.5	605.0	183012.50
300-01	15	300.5	4507.5	7	300.5	2103.5	632101.75
298-99	15	298.5	4477.5	3	298.5	895.5	267306.75
296-97	12	296.5	3558.0	11	296.5	3261.5	967034.75
294-95	14	294.5	4123.0	6	294.5	1767.0	520381.50
292-93	23	292.5	6727.5	9	297.5	2632.5	770006.25
290-91	16	290.5	4648.0	7	290.5	2033.5	590731.75
288-89	14	288.5	4039.0	5	288.5	1442.5	416161.25
286-87	15	286.5	4297.5	3	286.5	859.5	246246.75
284-85	12	284.5	3414.0	3	284.5	853.5	242820.75
282-83	13	282.5	3672.5	3	282.5	847.5	239418.75
280-81	10	280.5	2805.0	1	280.5	280.5	78680.25
278-79	8	278.5	2228.0	3	278.5	835.5	232686.75
276-77	5	276.5	1382.5	2	276.5	553.0	152904.50
274-75	2	274.5	549.0	1	274.5	274.5	75350.25
272-73	5	272.5	1362.5				
270-71	3	270.5	811.5	1	270.5	270.5	73170.25
268-69	2	268.5	537.0				
266-67	2	266.5	533.0	1	266.5	266.5	71022.25
264-65							
262-63	1	262.5	262.5				
cf 290		85777.0	25418808.50	cf 80		23526.0	6927318.00
		ME = 295.78				ME = 294.08	
		SD 12.7				SD 10.4	

TABLE II

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO COUNTY SENIOR BOYS MATHEMATICS

NON-ATHLETE				ATHLETE			
f	X	fX	fX ²	f	X	fX	fX ²
312-13	1	312.5	312.5				
310-11	6	310.5	1863.0				
308-09	4	308.5	1234.0				
307-07	5	306.5	1532.5				
304-05	3	304.5	913.5	1	304.5	304.5	92720.25
302-03	8	302.5	2420.0	3	302.5	907.5	274518.75
300-01	4	300.5	1202.0	3	300.5	901.5	270900.75
298-99	8	298.5	2388.0	5	298.5	1492.5	445311.25
296-97	18	296.5	5337.0	3	296.5	889.5	263736.75
294-95	18	294.5	5301.0	3	294.5	883.5	260190.75
292-93	10	292.5	2925.0	1	292.5	292.5	85556.25
290-91	21	290.5	6100.5	9	290.5	2614.5	759512.25
288-89	14	288.5	4039.0	4	288.5	1154.0	332929.00
286-87	23	286.5	6589.5	8	286.5	2292.0	656658.00
284-85	30	284.5	8535.0	9	284.5	2560.5	728462.25
282-83	25	282.5	7062.5	6	282.5	1695.0	478837.50
280-81	15	280.5	4207.5	4	280.5	1122.0	314721.00
278-79	8	278.5	2228.0	6	278.5	1671.0	465373.50
276-77	6	276.5	1659.0	3	276.5	829.5	229356.75
274-75	19	274.5	5215.5	4	274.5	1098.0	301401.00
272-73	9	272.5	2452.5	2	272.5	545.0	148512.50
270-71	9	270.5	2434.5				
268-69	5	268.5	1342.5	3	268.5	805.5	216276.75
264-65	4	264.5	1058.0	1	264.5	264.5	69960.25
262-63	3	262.5	787.5				
260-61	6	260.5	1563.0				
250-51				1	250.5	250.5	62750.25
242-43	2	242.5	485.0	1	242.5	242.5	58806.25
230-31	5	230.5	1152.5				
cf 289		<u>82340.5</u>	<u>23515932.25</u>			<u>22816.0</u>	<u>6316692.00</u>
		ME = 284.91				ME = 285.20	
		SD 14.4				SD 10.9	

TABLE III

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO COUNTY SENIOR BOYS SCIENCE

NON-ATHLETE				ATHLETE			
f	X	fX	fX ²	f	X	fX	fX ²
324-25	1	324.5	324.5				
322-23		322.5					
320-21		320.5					
318-19		318.5					
316-17	1	316.5	316.5				
314-15	5	314.5	1572.5				
312-13	2	312.5	625.0				
310-11	8	310.5	2484.0				
308-09	10	308.5	3085.0				
306-07	4	306.5	1226.0				
304-05	14	304.5	4263.0				
302-03	20	302.5	6050.0				
300-01	5	300.5	1502.5				
298-97	18	298.5	5373.0				
296-97	18	296.5	5337.0				
294-95	24	294.5	7068.0				
292-93	13	292.5	3802.5				
290-91	13	290.5	3776.5				
288-89	9	288.5	2596.5				
286-87	32	286.5	9168.0				
284-85	12	284.5	3414.0				
281-83	14	282.5	3955.0				
280-81	7	280.5	1963.5				
278-79	11	278.5	3063.5				
276-77	16	276.5	4424.0				
274-75	6	274.5	1647.0				
272-73	4	272.5	1090.0				
270-71	3	270.5	811.5				
268-69	3	268.5	805.5				
266-67	2	266.5	533.0				
264-65	2	264.5	529.0				
262-63	2	262.5	525.0				
260-61	2	260.5	521.0				
258-59	4	258.5	1034.0				
256-57	1	256.5	256.5				
254-55		254.5					
252-53	1	252.5	252.5				
250-51		250.5					
248-49	2	248.5	497.0				
<u>CF289</u>		<u>83892.5</u>	<u>24404606.75</u>				

ME = $\frac{83892.5}{289}$ ME 290.29

SD 13.3

1	310.5	310.5	96410.25
2	308.5	617.0	190344.50
2	306.5	613.0	187884.50
3	304.5	913.5	278160.75
5	302.5	1512.5	457531.25
2	300.5	601.0	180600.50
2	298.5	597.0	178204.50
4	296.5	1186.0	351649.00
11	294.5	3239.5	954032.75
3	292.5	877.5	256668.75
3	290.5	1871.5	253170.75
7	288.5	2019.5	582625.75
7	286.5	2005.5	574575.75
5	284.5	1422.5	404701.25
1	282.5	282.5	79806.25
3	280.5	841.5	236040.75
4	276.5	1106.0	305809.00
2	274.5	549.0	150700.50
4	272.5	1090.0	297025.00
1	270.5	270.5	73170.25
4	266.5	1066.0	284089.00
1	262.5	262.5	68906.25
<u>CF77</u>		<u>22254.5</u>	<u>6442107.25</u>

ME = 289.02

SD 11.4

TABLE IV

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO
COUNTY SENIOR BOYS
SOCIAL STUDIES

35

NON-ATHLETE				ATHLETE				
	f	X	fX	fX^2	f	X	fX	fX^2
324-25	2	324.5	649.0	210600.50				
322-23								
320-21								
318-19	1	318.5	318.5	101442.25				
316-17	3	316.5	949.5	300516.75				
314-15	4	314.5	1258.0	395641.00				
312-13	5	312.5	1562.5	488281.25	1	312.5	312.5	97656.26
310-11	6	310.5	1863.0	578461.50	2	310.5	621.0	192820.50
308-09	3	308.5	925.5	285516.75				
306-07	3	306.5	919.5	281826.75	2	306.5	613.0	187884.50
304-05	14	304.5	4263.0	1298083.50	2	304.5	609.0	185440.50
302-03	3	302.5	907.5	274518.75				
300-01	6	300.5	1803.0	541801.50	1	300.5	300.5	90300.25
298-99	22	298.5	6567.0	1960249.50	10	298.5	2985.0	891022.50
296-97	9	296.5	2668.5	791210.25	1	296.5	296.5	87912.25
294-95	12	294.5	3534.0	1040763.00	5	294.5	1472.5	433651.25
292-93	12	292.5	3510.0	1026675.00	3	292.5	877.5	256668.75
290-91	16	290.5	4648.0	1350244.00	7	290.5	2033.5	590731.75
288-89	12	288.5	3462.0	998787.00	3	288.5	865.5	249696.75
286-87	19	286.5	5443.5	1559562.75	5	286.5	1432.5	410411.25
284-85	16	284.5	4552.0	1295044.00	4	284.5	1138.0	323761.00
282-83	27	282.5	7627.5	2154768.75	7	282.5	1977.5	558643.75
280-81	9	280.5	2524.5	708122.25	1	280.5	280.5	78680.25
278-79	16	278.5	4456.0	1240996.00	6	278.5	1671.0	465373.50
276-77	6	276.5	1659.0	458713.50	2	276.5	553.0	152904.50
274-75	16	274.5	4392.0	1205604.00	2	274.5	545.0	149602.50
272-73	6	272.5	1635.0	445537.50	3	272.5	814.5	221951.25
270-71	10	270.5	2705.0	731702.50	1	270.5	270.5	73170.25
268-69	4	268.5	1074.0	288369.00	1	268.5	268.5	72092.25
266-67	4	266.5	1066.0	284089.00	2	266.5	533.0	142044.50
264-65	5	264.5	1322.5	349801.25	2	264.5	529.0	139920.50
262-63	4	262.5	1050.0	275625.00	1	262.5	262.5	68906.25
260-61	3	260.5	781.5	203580.75	1	260.5	260.5	67860.25
258-59	3	258.5	775.5	200466.75				
256-57		256.5			2	256.5	513.0	131584.50
254-55	2	254.5	509.0	129540.50				
252-53	5	252.5	1262.5	318781.25	1	252.5	252.5	63756.25
Cf288			82644.0	23774924.00	Cf78		22288.0	6384448.00

ME = 286.96

ME = 285.75

SD 14.3

SD 14.3

TABLE V

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO
 COUNTY SENIOR BOYS
 READING

36

NON-ATHLETE				ATHLETE				
	f	X	fX	fX ²		X	fX	fX ²
332-33					1	332.5	332.5	110556.25
330-31	1	330.5	330.5	109230.25	1	330.5	330.5	109230.25
328-29	2	328.5	657.0	215824.50	1	328.5	328.5	107912.25
326-27	3	326.5	979.5	319806.75	1	326.5	326.5	106602.25
324-25	10	324.5	3245.0	1053002.50	1	324.5	324.5	105300.25
322-23	3	322.5	967.5	312018.75	1	322.5	322.5	104006.25
320-21	6	320.5	1923.0	616321.50	2	320.5	641.0	205440.50
318-19	5	318.5	1592.5	507211.25	1	318.5	318.5	101442.25
316-17	10	316.5	3165.0	1001722.50	1	316.5	316.5	100172.25
314-15	7	314.5	2201.5	692371.75	3	314.5	943.5	296730.75
312-13	13	312.5	4062.5	126954.25	4	312.5	1250.0	390625.00
310-11	9	310.5	2794.5	867692.25	1	310.5	310.5	96410.25
308-09	16	308.5	4936.0	1522756.00	4	308.5	1234.0	380689.00
306-07	17	306.5	5210.5	1597018.25	2	306.5	613.0	187884.50
304-05	22	304.5	6699.0	2039845.50	9	304.5	2740.5	834482.25
302-03	10	302.5	3025.0	915062.50	5	302.5	1512.5	457531.25
300-01	11	300.5	3305.5	993302.75	5	300.5	1502.5	451501.25
298-99	29	298.5	8656.5	2583965.25	13	298.5	3880.5	1158329.25
296-97	9	296.5	2668.5	791210.25	2	296.5	593.0	175824.50
294-95	20	294.5	5890.0	1734605.00	4	294.5	1178.0	346921.00
292-93	7	292.5	2047.5	598893.75	2	292.5	585.0	171112.50
290-91	19	290.5	5519.5	1603414.75	3	290.5	871.5	253170.75
288-89	7	288.5	2019.5	582625.75	1	288.5	288.5	83232.25
286-87	10	286.5	2865.0	820822.50	1	286.5	286.5	82082.25
284-85	6	284.5	1707.0	485641.50	2	284.5	569.0	161880.50
282-83	8	282.5	2260.0	638450.00	1	282.5	282.5	79806.25
280-81	3	280.5	841.5	236040.75	1	280.5	280.5	78680.25
278-79	7	278.5	1949.5	542935.75	3	278.5	835.5	232686.75
276-77								
274-75	1	274.5	274.5	75350.25				
272-73	1	272.5	272.5	74256.25				
270-71	3	270.5	811.5	219510.75	1	270.5	270.5	73170.25
268-69	2	268.5	537.0	144184.50				
266-67	1	266.5	266.5	71022.25				
264-65	1	264.5	264.5	69960.25	1	264.5	264.5	69960.25
262-63	2	262.5	525.0	137812.50				
260-61	2	260.5	521.0	135720.50				
258-59	1	258.5	258.5	66822.25				
256-57	1	256.5	256.5	65792.25	1	256.5	256.5	65792.25
254-55	1	254.5	254.5	64770.25	CF79	2378.95	7179165.75	
252-53								
250-51	1	250.5	250.5	62750.25				
248-49								
246-47								
244-45	2	244.5	489.0	119560.50				
CF289			86500.5	25958836.25				

ME = 299.31

ME = 301.13

SD 15.4

SD 14.0

TABLE VI

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO
COUNTY SENIOR BOYS
WRITING

37

NON-ATHLETE				ATHLETE				
	f	X	fX	fX ²	f	X	fX	fX ²
342-43	1	342.5	342.5	117306.25				
340-41								
338-39								
336-37								
334-35	1	334.5	334.5	111890.25	1	334.5	334.5	111890.25
332-33	1	332.5	332.5	110556.25				
330-31								
328-29	2	328.5	657.0	215824.50				
326-27								
324-25	1	324.5	324.5	105300.25	1	324.5	324.5	105300.25
322-23	5	322.5	1612.5	520031.25	1	322.5	322.5	104006.25
320-21	8	320.5	2564.0	821762.00	2	320.5	641.0	205440.50
318-19								
316-17	5	316.5	1582.5	500861.25	1	316.5	316.5	100172.25
314-15	11	314.5	3459.5	1088012.75	3	314.5	943.5	296730.75
312-13	5	312.5	1562.5	488281.25	2	312.5	625.0	195312.50
310-11	11	310.5	3415.5	1060512.75	1	310.5	310.5	96410.25
308-09	13	308.5	4010.5	1237239.25	3	308.5	925.5	285516.75
306-07	11	306.5	3371.5	1033364.75				
304-05	7	304.5	2131.5	649041.75	4	304.5	1218.0	370881.00
302-03								
300-01	13	300.5	3906.5	1173903.25	4	300.5	1202.0	361201.00
298-99	12	298.5	3582.0	1069227.00	2	298.5	597.0	178204.50
296-97	16	296.5	4744.0	1406596.00	2	296.5	593.0	175824.50
294-95	6	294.5	1767.0	520381.50	4	294.5	1178.0	346921.00
292-93	20	292.5	5850.0	1711125.00	11	292.5	3217.5	941118.75
290-91	12	290.5	3486.0	1012683.00	6	290.5	1743.0	506341.50
288-89	17	288.5	4904.5	1414948.25	3	288.5	865.5	249696.75
286-87	17	286.5	4870.5	1395398.25	5	286.5	1432.5	410411.25
284-85	11	284.5	3129.5	890342.75	6	284.5	1707.0	485641.50
282-83	6	282.5	1675.0	478837.50	2	282.5	565.0	159612.50
280-81	18	280.5	5049.0	1416244.50	3	280.5	841.5	236040.75
278-79	6	278.5	1671.0	465373.50	2	278.5	557.0	155124.50
276-77	7	276.5	1935.5	535165.75	1	276.5	276.5	76452.25
274-75	14	274.5	3843.0	1054903.50	1	274.5	274.5	75350.25
272-73		272.5						
270-71	7	270.5	1893.5	512191.75	1	270.5	270.5	73170.25
268-69	4	268.5	1074.0	288369.00	2	268.5	537.0	144184.50
266-67	3	266.5	799.5	213066.75	1	266.5	266.5	71022.25
264-65	4	264.5	1058.0	279841.00	1	264.5	264.5	69960.25
262-63	1	262.5	262.5	68906.25				
260-61	4	260.5	1042.0	271441.00	1	260.5	260.5	67860.25
258-59	2	258.5	517.0	133644.50				
256-57	1	256.5	256.5	65792.25				
254-55	2	254.5	509.0	129540.50				
252-53								
250-51	1	250.5	250.5	62750.25	1	250.5	250.5	62750.25
248-49					Gr78		22861.0	6718549.50
246-47	3	246.5	739.5	182286.75				
Gr289			84536.5	2481294.25				
			ME = 292.51				ME = 293.09	
			SD 17.2				SD 15.3	

TABLE VII

1960 SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS SCORES FOR HENRICO
COUNTY SENIOR BOYS
LISTENING

38

NON-ATHLETE				ATHLETE			
f	X	fX	fX ²	f	X	fX	fX ²
330-31	2 330.5	661.0	218460.50				
328-29	4 328.5	1314.0	431649.00	1	328.5	328.5	107912.25
326-27	5 326.5	1632.5	533011.25	1	326.5	326.5	106602.25
324-25	324.5						
322-23	5 322.5	1612.5	520031.25	2	322.5	645.0	208012.50
320-21	6 320.5	1923.0	616321.50				
318-19	11 318.5	3503.5	1175864.75	2	318.5	637.0	202884.50
316-17	5 316.5	1582.5	500861.25	2	316.5	633.0	200344.50
314-15	12 314.5	3774.0	1186923.00	4	314.5	1258.0	395641.00
312-13	16 312.5	5000.0	1562500.00	4	312.5	1250.0	390625.00
310-11	14 310.5	4347.0	1349743.50	1	310.5	310.5	96410.25
308-09	9 308.5	2776.5	856550.25	6	308.5	1851.0	571033.50
306-07	13 306.5	3984.5	1221249.25	2	306.5	613.0	187884.50
304-05	12 304.5	3654.0	1112643.00	4	304.5	1218.0	370881.00
302-03	14 302.5	4235.0	1281087.50	1	302.5	302.5	91506.25
300-01	22 300.5	6611.0	1986605.50	12	300.5	3606.0	1083603.00
298-99	5 298.5	1492.5	445511.25	3	298.5	895.5	267306.75
296-97	12 296.5	3558.0	1054947.00	4	296.5	1186.0	351649.00
294-95	19 294.5	5595.5	1647874.75	3	294.5	883.5	260190.75
292-93	21 292.5	6142.5	1796681.25	7	292.5	2047.5	598893.75
290-91	6 290.5	1743.0	506341.50	4	290.5	1162.0	337561.00
288-89	16 288.5	4616.0	1331716.00	4	288.5	1154.0	332929.00
286-87	11 286.5	3151.5	902904.75	3	286.5	859.5	246246.75
284-85	3 284.5	853.5	242820.75	1	284.5	284.5	80940.25
282-83	15 282.5	4237.5	1197093.75	2	282.5	565.0	159612.50
280-81	7 280.5	1963.5	550761.75	2	280.5	561.0	157360.50
278-79	3 278.5	835.5	232868.75				
276-77	7 276.5	1935.5	535165.75	3	276.5	829.5	229356.75
274-75	1 274.5	274.5	75350.25				
272-73	4 272.5	1090.0	297025.00	1	272.5	272.5	74256.25
270-71	2 270.5	541.0	146340.50				
268-69	2 268.5	537.0	144184.50				
266-67	2 266.5	533.0	142044.50				
264-65	1 264.5	264.5	69960.50				
262-63	2 262.5	525.0	137812.50				
260-61							
258-59							
256-57							
254-55							
252-53							
250-51	1 250.5	250.5	62750.25				
248-49							
246-47							
244-45							
242-43							
240-41	1 240.5	240.5	57840.25				
Cf291		86991.5	26071314.75	Cf79		23679.5	7109643.75

ME = 298.94
SD 15.0

ME = 299.74
SD 12.3

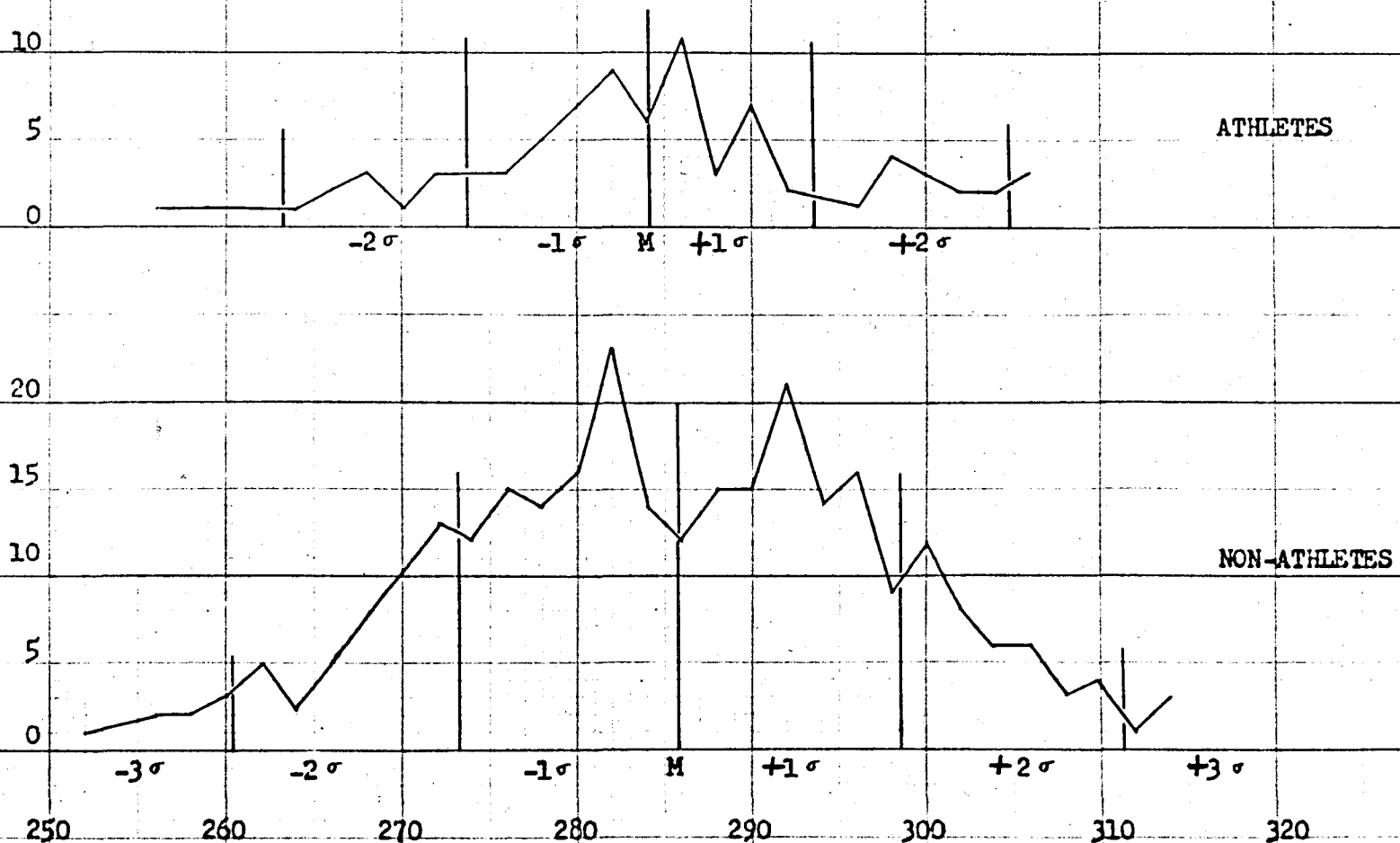


FIGURE 1

SCORES ON SCHOOL AND COLLEGE ABILITY TEST
 TOTAL SCAT TEST FOR ATHLETES AND NON-ATHLETES

II. MEAN GRADES, PERCENTAGES OF DROP-OUTS, AND PARTICIPANTS' GRADES BY SEMESTERS OF ALL MALE GRADUATES OF SCHOOL N FOR 1958, 1959, AND 1960

Mean grades. The mean grades were studied for three successive graduating classes at School N for athletes and non-athletes in three ways. They were studied without regard to curriculum or total graduates in one group and by college preparatory and non-college preparatory curriculums in the other two groups.

In the total group studied without regard to curriculum, the mean four-year grade was recorded from the cumulative record folders on a distribution chart (Table VIII on page 42). The grades ranged from a low of 78.18 to a high of 96.73.

The Virginia High School League Eligibility Lists were studied and a total was found of ninety-four who participated in the four major sports during the three-year study. Of this number, eleven were drop-outs, and this made the total athletes for the study number eighty-three.

All other boys were termed non-athletes and there was a total of 218 of these. In addition to this number, there were also 122 non-athletes who dropped out of school. The total population of the mean grade study was 301 students.

Using the same steps outlined in the preceding study at the County level, the mean four-year grade was found to be 85.26 for

the 218 non-athletes and 85.73 for the athlete group. The standard deviation was 3.92 for the non-athlete group and 3.86 for the athlete group. (See Table VIII.) An inspection of this table shows that there is no significant difference in the mean grades of the two groups.

In Tables IX and X on pages 43-44, the two groups are compared according to college preparatory and non-college preparatory curriculum. In the college preparatory curriculum, the mean grade for non-athletes was 87.43 and for athletes, 87.32. The standard deviation was 3.92 for non-athletes and 3.62 for athletes. (See Table IX). In the non-college preparatory curriculum, the mean grade for non-athletes was 83.49 as compared to 83.81 for athletes. The standard deviation was 2.69 for non-athletes as compared to 2.95 for athletes. (See Table X.)

In both curriculums, there was no significant difference in the mean grades of the two groups. One item does stand out, though. In checking the number under each curriculum, it was found that forty-seven of the eighty-three athletes took the college preparatory curriculum as compared to ninety-four of the 218 non-athletes who took the college preparatory curriculum.

Once again the close relationship between these two groups can be observed from the distribution curve shown in Figure 2 on page 45.

TABLE VIII

MEAN GRADES, SCHOOL N, FOR GRADUATING CLASSES 1958-1960,
 WITHOUT REGARD TO CURRICULUM 43

	NON-ATHLETE				ATHLETE			
	f	X	fX	fX ²	f	X	fX	fX ²
96.50-97.49	1	97	97	9409		97		
95.50-96.49	2	96	192	18432		96		
94.50-95.49	2	95	190	18050	1	95	95	9025
93.50-94.49	3	94	282	26508	1	94	94	8836
92.50-93.49	6	93	558	51894	1	93	93	8649
91.50-92.49	8	92	736	67712	5	92	460	42320
90.50-91.49	4	91	364	33124	2	91	182	16562
89.50-90.49	6	90	540	48600	3	90	270	24300
88.50-89.49	11	89	979	87131	6	89	534	47526
87.50-88.49	8	88	704	61952	10	88	880	77440
86.50-87.49	16	87	1392	121104	5	87	435	37845
85.50-86.49	23	86	1978	170108	7	86	602	51772
84.50-85.49	21	85	1785	151725	5	85	425	36125
83.50-84.49	19	84	1596	134064	11	84	924	77616
82.50-83.49	32	83	2656	220448	9	83	747	62001
81.50-82.49	24	82	1968	161376	8	82	656	53792
80.50-81.49	17	81	1377	111537	3	81	243	19683
79.50-80.49	11	80	880	70400	3	80	240	19200
78.50-79.49	1	79	79	6241	2	79	148	12482
77.50-78.49	3	78	234	18252	1	78	78	6084
CF 218			18587	1588067	cf 83		7116	611258
			ME = 85.26				ME = 85.73	
			SD 3.92				SD 3.86	

TABLE IX

MEAN GRADES, SCHOOL N, FOR GRADUATING CLASSES 1958-1960,

43

COLLEGE PREPARATORY CURRICULUM

	NON-ATHLETE				ATHLETE			
	f	X	fX	fX ²	f	X	fX	fX ²
96.50-97.49	1	97	97	9409		97		
95.50-96.49	2	96	192	18432		96		
94.50-95.49	2	95	190	18050	1	95	95	9025
93.50-94.49	3	94	282	26508	1	94	94	8836
92.50-93.49	5	93	465	43245	1	93	93	8649
91.50-92.49	6	92	552	50784	6	92	552	50784
90.50-91.49	4	91	364	33124	2	91	182	16562
89.50-90.49	4	90	360	32400	2	90	180	16200
88.50-89.49	8	89	712	63368	4	89	356	31684
87.50-88.49	4	88	352	30976	6	88	528	46469
86.50-87.49	10	87	870	75690	4	87	348	30276
85.50-86.49	13	86	1118	96148	4	86	344	29584
84.50-85.49	8	85	680	57800	3	85	255	21675
83.50-84.49	7	84	588	49392	5	84	420	35280
82.50-83.49	8	83	664	55112	2	83	166	13778
81.50-82.49	5	82	410	33620	5	82	410	33620
80.50-81.49	2	81	162	13122	1	81	81	6561
79.50-80.49	2	80	160	12800		80		
78.50-79.49		79				79		
77.50-78.49		78				78		
cf 94			8218	719980	cf 47		4104	358978
			ME = 87.43				ME = 87.32	
			SD 3.92				SD 3.62	

TABLE X

MEAN GRADES, SCHOOL N, FOR GRADUATING CLASSES 1958-1960. 44

NON-COLLEGE PREPARATORY CURRICULUM

NON-ATHLETE				ATHLETE					
	f	X	fX	fX ²		f	X	fX	fX ²
96.50-97.49		97					97		
95.50-96.49		96					96		
94.50-95.49		95					95		
93.50-94.49		94					94		
92.50-93.49		93					93		
91.50-92.49	1	92	92	8464			92		
90.50-91.49		91			1	91	91	8281	
89.50-90.49	3	90	270	24300	1	90	90	8100	
88.50-89.49	2	89	178	15842	1	89	89	7921	
87.50-88.49	5	88	440	38720	3	88	264	23232	
86.50-87.49	6	87	522	45414		87			
85.50-86.49	11	86	946	81356	3	86	258	22188	
84.50-85.49	13	85	1105	93925	3	85	255	21675	
83.50-84.49	13	84	1092	91728	6	84	504	42336	
82.50-83.49	24	83	1992	165336	8	83	664	55112	
81.50-82.49	19	82	1558	127756	2	82	164	13448	
80.50-81.49	15	81	1215	98415	2	81	162	13122	
79.50-80.49	9	80	720	57600	3	80	240	19200	
78.50-79.49	1	79	79	6241	2	79	158	12482	
77.50-78.49	3	78	234	18252	1	78	78	6084	
	cf 124		10353	865249	cf 36		3017	253181	
			ME = 83.49				ME = 83.81		
			SD 2.69				SD 2.95		

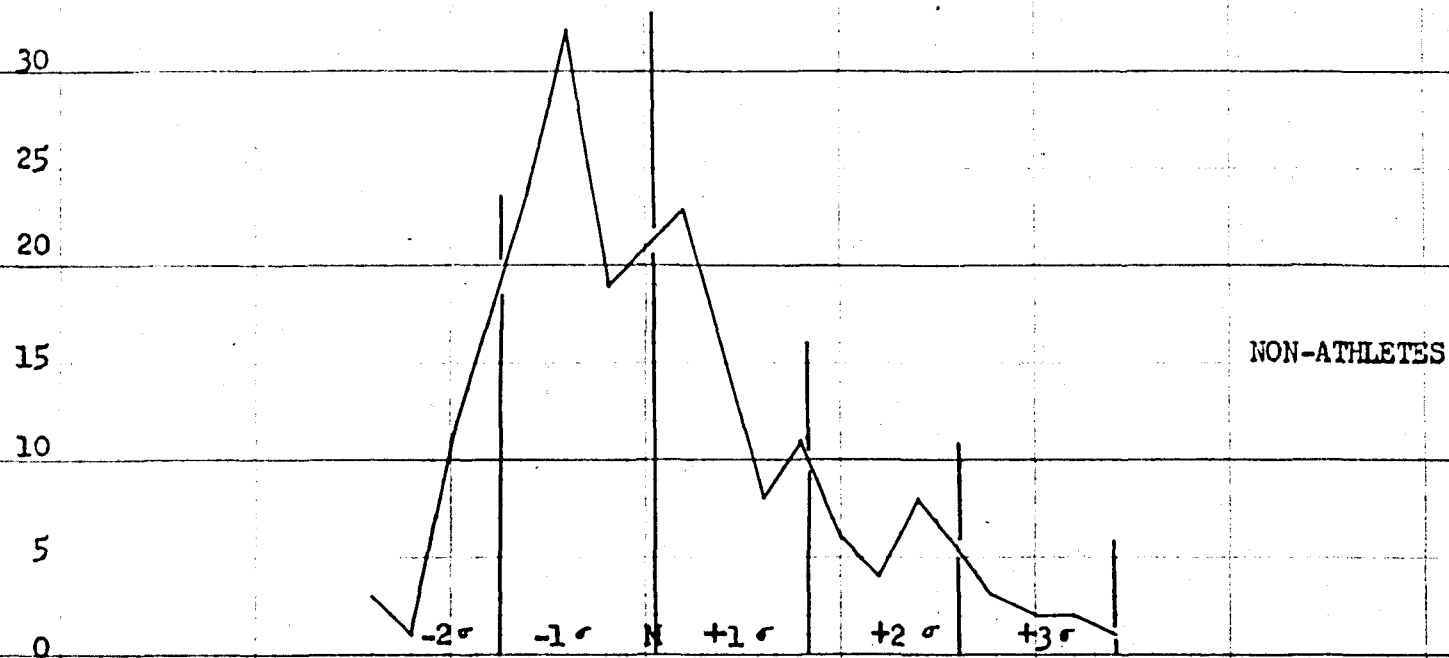
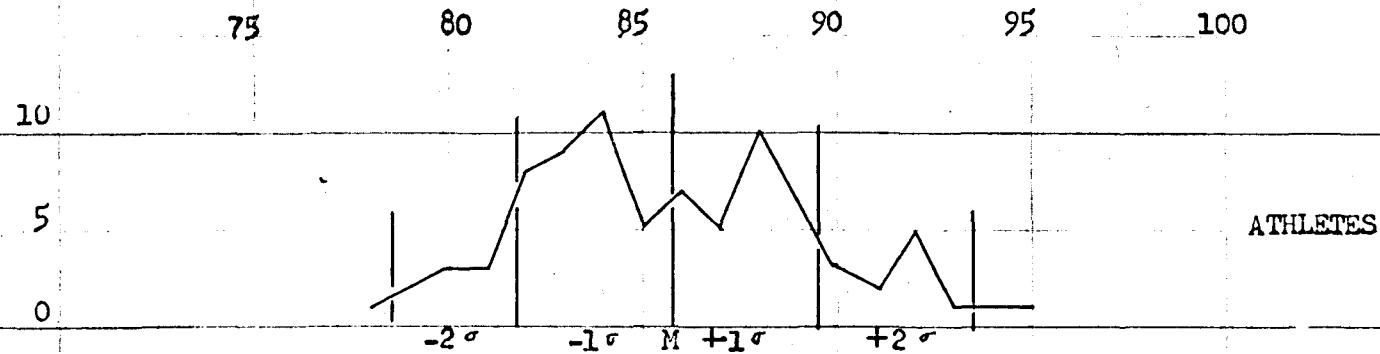


FIGURE 2

MEAN GRADES AT SCHOOL N FOR ATHLETES AND NON-ATHLETES

Percentage of drop-outs at School N. The drop-outs for the ninth through the twelfth grades for the three successive graduating classes were studied. Students who transferred to another school were not included in this study, since students transferring to School N from another school would tend to balance this number.

During the six-year period of the study, the following school classes were studied: the ninth grade in the 1954-1955 school session; the ninth and tenth grades in the 1955-1956 session; the ninth, tenth, and eleventh grades in the 1956-1957 session; the tenth, eleventh, and twelfth grades in the 1957-1958 session; the eleventh and twelfth grades in the 1958-1959 session; and the twelfth grade in the 1959-1960 session.

A total of 132 boys dropped out during the school year throughout the four years of these three graduating classes. Of this number, eleven were athletes and 121 were non-athletes. By comparing this with the total number of non-athletes graduated, 218, and the total number of athletes graduated, 83, it is seen that a larger percentage of non-athletes drop out of school than do athletes.

Athletes grades by semester at School N for boys participating in only one sport. In this part of the study, the semester grades of twenty-seven football players and twenty-six baseball and track participants, who did not take part in any other sport, were studied

during the season in which they participated in the sport and the season in which they did not participate.

Basketball players were eliminated from this particular part of the study, since the basketball season overlaps both school semesters. Boys who participated in more than one sport were also eliminated. The total population is fifty-three boys, which is sixty-four per cent of the total number of athletes in the three graduating classes at School N.

The semester grades of the fifty-three boys were recorded during the junior and senior years only, because in all cases their names appeared on the varsity eligibility lists for only these years. Some of the athletes at School N have participated in varsity athletics during their sophomore year, but these same boys also participated in more than one sport.

Some of the fifty-three boys compared did not participate on the junior varsity team for the ninth and tenth grades. Since some did not participate for more than two years, the ninth and tenth grade years were not studied.

The frequency distribution tabulation, Table XI, page 49, was divided into participating and non-participating semesters. A total of from ten to twelve grades were recorded for each boy.

The first semester for the twenty-seven football players was the participating semester and their grades for this semester in their junior and senior years were recorded in the appropriate

column of the frequency distribution tabulation. The second semester was recorded under the non-participating semester column. For the baseball and track participants, this procedure was reversed.

A total of 474 grades were studied for each semester. This number was the same, completely by chance, for participants and non-participants. All the grades were recorded for the two-year period for each participant with the exception of Physical Education grades.

As can be seen in Table XI, when the ΣX columns are added for both participating and non-participating semesters, they equal 39,986 and 39,964, respectively. Dividing these numbers by the cf , which is 474, the mean is 84.36 for the semester in which the athlete participated and 84.31 for the semester in which he did not participate. The standard deviation is 8.37 for the participating semester and 8.99 for the non-participating.

From an inspection of Table XI and Figure 3, page 50, it can be seen that there is no significant difference in the grades during the semester in which the athlete participated in a sport and during the semester in which he did not participate.

GRADES BY SEMESTER OF ATHLETES PARTICIPATING IN ONLY ONE SPORT

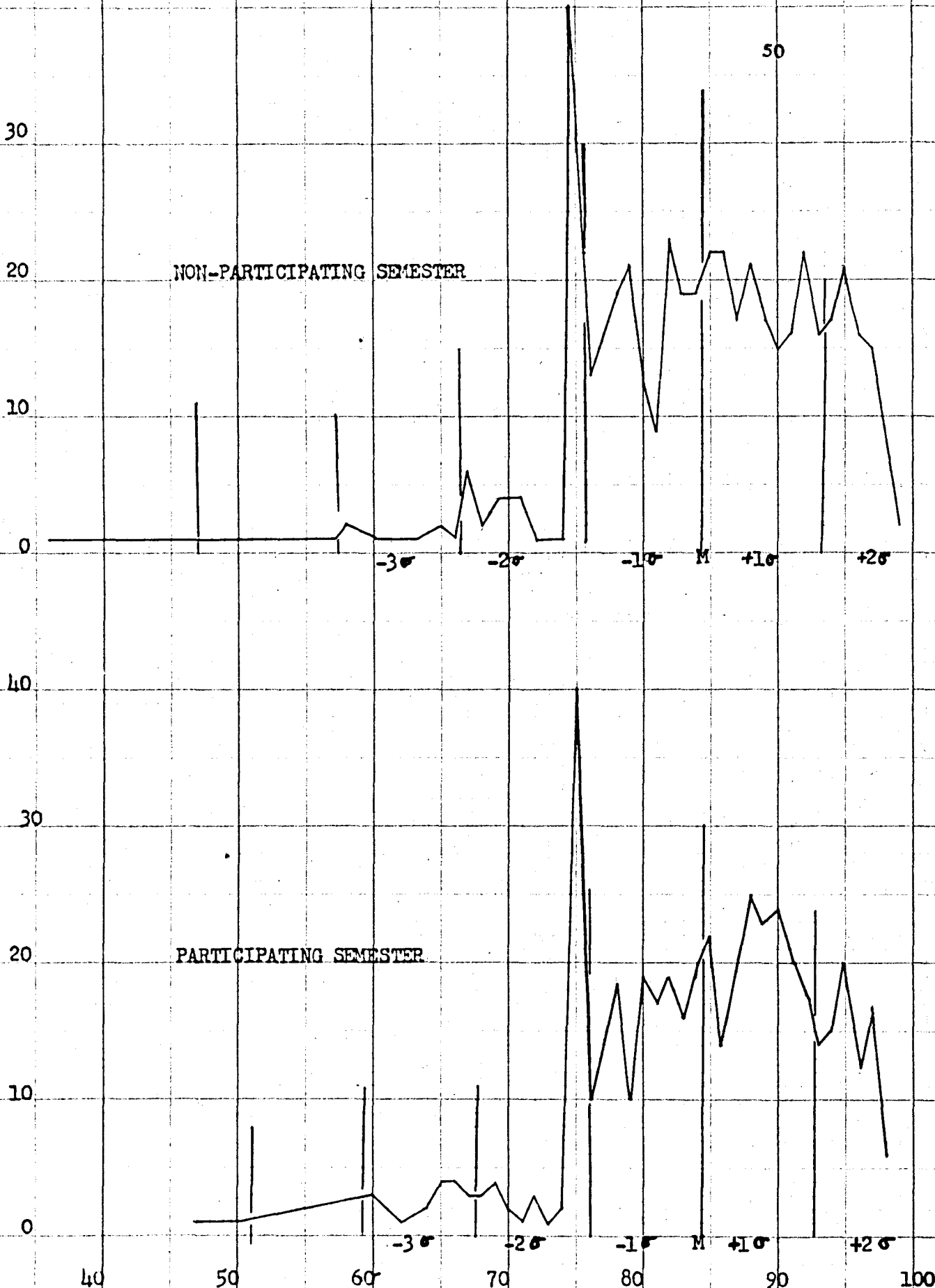
PARTICIPATING SEMESTER				NON-PARTICIPATING SEMESTER			
f	X	fX	fX ²	f	X	fX	fX ²
99		99		3	99	198	19602
98	6	98	588	9	98	882	86436
97	17	97	1649	13	97	1453	141135
96	12	96	1152	16	96	1536	147456
95	20	95	1900	21	95	1995	189525
94	15	94	1410	17	94	1598	150212
93	14	93	1302	16	93	1488	138384
92	18	92	1656	22	92	2024	186208
91	20	91	1820	16	91	1456	132496
90	23	90	2160	15	90	1350	121500
89	23	89	2047	17	89	1513	134657
88	25	88	2200	21	88	1848	162624
87	20	87	1740	17	87	1479	128673
86	14	86	1204	22	86	1892	162712
85	22	85	1870	22	85	1870	158950
84	20	84	1680	19	84	1596	134064
83	16	83	1328	19	83	1577	130891
82	19	82	1558	23	82	1886	154652
81	17	81	1377	9	81	729	59049
80	19	80	1520	12	80	960	76800
79	15	79	1185	21	79	1659	131061
78	19	78	1482	19	78	1482	115596
77	14	77	1078	16	77	1232	94864
76	10	76	760	13	76	988	75088
75	40	75	3000	41	75	3075	230625
74	2	74	148	1	74	74	5476
73	1	73	73		73		
72	3	72	216	1	72	72	5184
71	1	71	71	4	71	284	20164
70	2	70	140	4	70	280	19600
69	4	69	276	4	69	276	19044
68	3	68	204	2	68	136	9248
67	3	67	201	6	67	402	26934
66	4	66	264	1	66	66	4356
65	4	65	260	2	65	130	8450
64	2	64	128		64		
63		63		1	63	63	3969
62	1	62	62		62		
61		61			61		
60	3	60	180	1	60	60	3600
58		58		2	58	116	6728
57		57		1	57	57	3249
53		53		1	53	53	2809
52		52		1	52	52	2704
50	1	50	50		50		
47	1	47	47		47		
39		39		1	39	39	1521
36		36		1	36	36	1296
cf 747		<u>39986</u>	<u>3406464</u>			<u>39964</u>	<u>3407592</u>

ME = 84.36
SD 8.37

ME = 84.31
SD 8.99

FIGURE 3

ATHLETES' GRADES AT SCHOOL N BY SEMESTER



CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary. This study was undertaken to determine whether some of the criticisms leveled at athletics were valid or whether many of the attacks on the athletic programs in the high schools were actually unfounded. The athletic program in this country was traced from its early inception as part of the extra-curricular activities program in the high school in order to get some background information on the problem being considered in this study.

Criticisms have been present throughout the history of the high school athletic program and, no doubt, will continue. However, school administrators and state federations throughout the country have adopted and are enforcing rules and regulations which have eliminated or will help eliminate the abuses. The removal of these abuses should lead to a wider acceptance of the athletic program by the public and should insure that the useful role of athletics in the high school curriculum continues.

In this study, the 1960 male graduates in Henrico County in the athlete and non-athlete groups were compared by ability and by achievement as measured on nationally accepted tests.

The two groups also were compared at one of the schools in the County where three graduating classes were traced over a six-year

period. Included in this comparison was a study of percentages of drop-outs among the two groups.

The question of whether athletes' grades are up to the standard of the grades of boys who do not participate in athletics was investigated. In addition, a study was made on the group of athletes who participated in only one sport to determine whether participation tends to lower the scholastic grades of the participants.

Conclusions. The following conclusions have been reached from the investigation of ability and achievement on the School and College Ability Test and the Sequential Tests of Educational Progress.

There is no significant difference in the ability of the two groups nor is there any significant difference in the achievement of the two groups as measured by the tests given. Therefore, it is concluded that the time spent in athletics did not impede the educational progress in Mathematics, Science, Social Studies, Reading, Writing, and Listening of the boys who participated. These youngsters scored as well in these areas of study as did the non-athletes, and, in addition, they received the educational and physical values that are derived from interscholastic athletics. It is generally agreed among educators that athletics offer learning situations where the individual can condition himself emotionally and learn self-discipline.

respect for authority, and teamwork. The participants also learn the value of conditioning, care of the body, and proper health habits.

In this study, in which scores from the accepted standardized tests were used, the criticism is eliminated that athletes sometimes receive preferential treatment. Perhaps this may have some foundation in a particular school, when the mean grade is studied, but no evidence has been found in this study to substantiate such an assumption.

In the mean grade study at School N in Henrico County there was no significant difference in the grades of the two groups. In the study of the total group without regard to curriculum, the mean grade differed only .47 per cent; the mean grade of the non-athlete group was 85.27 and the mean grade for athletes was 85.73.

When this group was divided further into college preparatory and non-college preparatory curriculums, the difference in the mean grade was found to be just as slight. The mean grade of non-athletes was 87.43 in the college preparatory curriculum and 83.49 in the non-college preparatory curriculum, while the mean grades of athletes was 87.32 and 83.81, respectively.

In all three of the studies at School N, the standard deviations differed only slightly. However, a much higher percentage of athletes was enrolled in the college preparatory curriculum,

which is the more difficult of the two curriculums. There was 56.6 per cent of the athletes who took the college preparatory curriculum as compared to 43.1 per cent of the non-athletes in the same curriculum.

The conclusion that boys who participate in athletics do not necessarily take the easy courses, but are concerned about furthering their education can be made.

Athletics affords the opportunity for some of the participants to continue their education who otherwise might not be able to do so. Many athletes in Henrico County have been awarded scholarships to colleges throughout this and other states on their athletic and scholastic ability. This is perhaps a factor that accounts for the larger percentage of athletes selecting the college preparatory curriculum.

The greater percentage of athletes have been able to complete this curriculum and still maintain grades comparable to those students who did not participate in athletics.

A much higher percentage of non-athletes drop out of school than do athletes. At School N, a total of 121 of 339 non-athletes dropped out of school over the six-year period covered by this study. These figures do not include transfers to other school systems. The main reasons given for dropping out was going to work or going into the armed services. In comparison, only eleven out of ninety-four athletes dropped out of school during the same period.

This definitely shows that the desire and the ability to participate in athletics will tend to hold the student in school until he graduates. Since school drop-outs are a serious problem, athletics and other extra-curricular activities can be utilized to interest the student in the school program and keep him in school. This can be an important contribution of athletics to the high school program.

In the study of athletes' grades by semester at School N in Henrico County, no significant difference was found in their grades in the season in which they participated in a sport and in the season in which they did not participate. Therefore, the time spent in athletic contests and practice for athletic contests did not affect the grades of the participants.

The statement in Chapter I that some athletes may be motivated to better scholastic achievement has not been substantiated. However, the possibility remains that because of the stringent academic requirements of the Virginia High School League, some of these athletes have been motivated to better achievement.

The careful attention given to reporting period grades by most coaches in the County encourages some athletes to maintain passing marks. The desire to participate in a given sport can be a source of motivation for extra effort in the classroom in order to insure eligibility to participate.

During the period covered by this report, the Virginia High School League required the passing of three subjects for eligibility. These three subjects did not include Physical Education for the junior and senior years.

As was noted in Chapter I, the requirements have been increased to four subjects. This rule may tend to improve the scholastic achievement of some athletes while eliminating others from participation.

From an analysis of the studies throughout this paper, there is nothing to substantiate the criticism that too much time is being spent in athletic contests and practice for athletic contests. There is evidence that the grades of the participants are not affected and that they are up to the level of non-participants.

This study could be more meaningful and the conclusions more valid if a larger population had been used. Due to the limitations of time and the difficulties in obtaining records, only one school was used for mean grades and one school division for scores on the School and College Ability Test and the Sequential Tests of Educational Progress.

Future studies could shed additional light on this problem by including other schools and other localities. A study using the standardized tests would be extremely beneficial at the district or State levels.

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BIBLIOGRAPHY

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APPENDICES

A P P E N D I X A

CUMULATIVE RECORD CARD

Form U.S. No. 8-75a-6-1-39

LAST NAME: _____ FIRST NAME: _____ MIDDLE NAME: _____ DATE OF BIRTH: _____
 RESIDENT: _____ NON-RESIDENT: _____ FULL: _____ PARTIAL: _____
 SCHOLARSHIP: _____
 OCCUPATION: _____
 DIVISION: _____
 HIGHLAND SPRINGS HIGH SCHOOL
 HIGHLAND SPRINGS, VIRGINIA

PLACE OF BIRTH: _____ LAST SCHOOL ATTENDED: _____ GRADE COMPLETED: _____
 NATIONALITY: _____ ENTERED: _____ LEFT: _____ REASON FOR LEAVING: _____
 PARENT OR GUARDIAN: _____ ADDRESS (IF PERMAL): _____
 OCCUPIED: _____
 MARK IN GRADUATING CLASS: _____ SIZE OF GRADUATING CLASS: _____

COURSES	MARKS-18				MARKS-19				MARKS-19				MARKS-19				MARKS-19			
	Mon.	Es.	Av.	Year Av.	Mon.	Es.	Av.	Year Av.	Mon.	Es.	Av.	Year Av.	Mon.	Es.	Av.	Year Av.	Mon.	Es.	Av.	Year Av.
PHYSICS																				
CHEMISTRY																				
BIOLOGY																				
ENGLISH																				
AMERICAN HISTORY																				
WORLD HISTORY																				
LANGUAGE ARTS																				
SCIENCE																				
SOCIAL STUDIES																				
MATHEMATICS																				
AGRICULTURE																				
HOME ECONOMICS																				
COMMERCIAL																				
INDUSTRIAL ARTS																				
FOREIGN LANGUAGE																				
PHYSICAL & HEALTH EDUCATION																				
FINE ARTS																				

A P P E N D I X . B

VIRGINIA HIGH SCHOOL LEAGUE MASTER ELIGIBILITY LIST

Date of first game: † _____

Form No. 3, Rev. 8-60

VIRGINIA HIGH SCHOOL LEAGUE

Box 3697 University Station, Charlottesville, Va.

Group _____

Sport: _____
(Boys) (Girls)

District _____

MASTER ELIGIBILITY LIST

_____ High School of _____, Va., Date _____

Principal is responsible for filing eligibility list as required by the League rules. List must be sent 1 day prior to date of first game. † One copy each to League office, District Secretary and each opponent on the schedule. Five dollar fine is automatic for failure to comply with this rule.

Names of Contestants (Use student's first name—not nick-name) *(Alphabetical)	Rule 5 Birthdate Mo. Da. Yr	Rule 12 Date of Most Recent Physi- cian's Certificate	Rule 3 Date Enrolled For Present Semester	Rule 10 Date of First Entry in Lowest H. S. Grade	Rule 96 No. Seasons Previous Participation	Rule 4 No. Subjects Passed Last Semester (Show exact number)
(example) JORGENSEN, JOHN H.	3-24-37	9-2-53	9-6-53	9-1-50	2	4

†First game is first contest regardless of whether or not contest is "in the League."

*Add information on pupils whose parents live elsewhere on the reverse side of this form.

(CONTINUE ON BACK IF NECESSARY)

A P P E N D I X C

**VIRGINIA HIGH SCHOOL LEAGUE FORM
INDIVIDUAL ELIGIBILITY RULES**

Virginia High School League

INDIVIDUAL ELIGIBILITY RULES

To be eligible to represent his school in any interschool athletic contest a student:

1. BONA FIDE STUDENT RULE—Shall be a regular bona fide student in good standing of the school which he represents.

2. GRADE RULE—Shall have been promoted to the ninth grade of a twelve-year school system or its equivalent except that a student may compete for one year only on the Junior Varsity, while in the grade immediately below the last four years of high school.

3. ENROLLMENT RULE—Shall have been regularly enrolled in the school which he represents not later than the beginning of the tenth day of school of the semester.

4. SCHOLARSHIP RULE—Shall have passed, at the end of the semester immediately preceding that in which he desires to compete, not less than three subjects, or their equivalent, offered for credit or required for graduation, and requiring full time in the regular schedule of classes. Deficiencies recorded at the end of the school year may be made up only by work recognized by the Department of Education provided that the deficiencies are made up before the opening of the fall semester.

5. AGE RULE—Shall not have reached the age of 19 years on the March first which last occurred before the opening of the next school year in which he wishes to compete.

6. TRANSFER RULE—Shall not have enrolled in one high school and subsequently transferred to and enrolled in another high school without a corresponding change in the residence of his parents, parent, or guardian.

7. POST-GRADUATE RULE—Shall not have been graduated from, or be eligible for graduation from or have completed the requirements for graduation from, a senior or four-year high school, or from any other secondary school, private or public, which has the same or equivalent requirements for graduation.

8. COLLEGE RULE—Shall not have matriculated in, or attended classes at, any regular recognized institution of higher learning, or have represented any such institution in any activity.

9. SEMESTER RULE—Shall not have been enrolled in the last four years of high school for a period of more than eight consecutive semesters, the semester in which he was enrolled for the first time in the lowest of the last four years of high school grade to be counted as the first of these semesters, and the semesters to be counted consecutively, regardless of whether or not he is enrolled in school.

10. AMATEUR RULE—Shall be an amateur as defined by the National Collegiate Athletic Association: "An amateur sportsman is one who engages in sports for the physical, mental, or social benefits he derives therefrom, and to whom the sport is nothing more than an avocation."

11. PARENTAL CONSENT AND PHYSICIAN'S CERTIFICATE RULE—Shall have submitted to the principal of his school, prior to becoming a member of any school athletic squad or team, League Form No. 2 (Student Participation—Parental Consent—Physician's Certificate Form), completely filled in and properly signed, attesting that he has been examined and found to be physically fit for athletic competition, and that his parents consent to his participation.

12. PROSELYTING RULE—Shall not have been subjected to undue influence by any individual or group of individuals in causing him to transfer from one school to another for athletic purposes.

13. AWARDS RULE—Shall not accept or have accepted from any source whatsoever, in recognition of or as a reward for his athletic skill, any award other than letters, medals, charms, cups, plaques, letter sweaters, or similar trophies. These listed awards may be accepted only when presented or approved by his school, or when earned in sanctioned meets or tournaments.

14. INDEPENDENT TEAM RULE—Shall not, while he is a member of a school squad or team in any sport, become a member of, or participate with, any other organized team in the same sport, either within the school, representing the school, or independent of the school's control.

15. ALL-STAR PARTICIPATION RULE—Shall not have participated in an all-star contest.

If in doubt regarding your eligibility contact your Principal for exceptions, interpretations, and notes.

VITA

Grant Hudson, Jr., was born in Farmville, Virginia, July 25, 1930, son of Ulus Grant and Daisy H. Hudson. He graduated from Farmville High School in 1947.

The writer attended Lynchburg College where he majored in Education--Physical Education and received his B.A. degree in 1951.

In November, 1951, he entered the United States Marine Corps and was commissioned a Second Lieutenant. After serving for two years, including one year in Korea, he was released in December, 1953. Since that time he has served with the Richmond Unit of the Marine Corps Reserve where he holds the rank of Captain.

Since September, 1954, the writer has been teaching Physical Education at Highland Springs High School.

He is married to the former Miss Gail Liebert McMahon and has one son, Robert Stephen, age three.

The writer is a member of the Virginia Teachers Association, the Henrico Education Association, and the Virginia Coaches Association. He is also a member of Theta Theta Chapter of Kappa Delta Pi.

In the summer of 1956 he began working toward his M.S. degree at the University of Richmond and expects to finish his work in August 1961.