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# A study of the physical fitness program in the Albert H. Hill School

Thomas Costas Stavredes

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A STUDY OF THE PHYSICAL FITNESS PROGRAM  
IN THE ALBERT H. HILL SCHOOL

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

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

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by  
Thomas Costas Stavredes  
August 1963

## APPROVAL SHEET

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## CHAPTER I

### INTRODUCTION

Throughout the years the story of man's development has been one of long continuous change. Thousands of years ago primitive man lived without the use of fire, tools or language. Gathering his food and other necessities, he was at the mercy of the cold, the wind, the rain and other dangers harmful to his existence. This individual came to realize that in order to survive he had to be fit--fit in the sense of meeting successfully any situation of hardship or danger as well as any other experience harmful to his existence. To him fitness was necessary for survival.

As man became more and more civilized, the concept of "survival of the fittest" was increased in many ways. Statements from two of the world's great thinkers illustrate these motivating factors: Aristotle--"The body is the temple of the soul and to reach harmony of body, mind and spirit, the body must be physically fit."

John Locke--"A sound mind in a sound body is a short but full description of a happy state in this world; he that has these two has little more to wish for."<sup>1</sup>

The early settlers of this country were a vigorous and energetic people. They had to be to clear the land, erect log cabins, till the fields, and fight the Indians. Their recreational activities too were vigorous and rough. They valued work, strength, energy, and skill. As a result of this philosophy and these values this nation has become the greatest in the world.

If this country is to remain great, it must continue to work towards the qualities which made it great. But will it? Has it not already lost some of these qualities? No longer does one climb stairs; escalators and elevators are used. No longer does one shovel coal into the furnace; thermostats are used. No longer are slaves used; machines accomplish the chores. People have forgotten that daily physical chores were an important part of healthy living. There is ample evidence that this country is becoming "soft".

In 1956 Drs. Hans Kraus and Sonja Weber introduced a series of physical-fitness tests, which demonstrated

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<sup>1</sup>Charles A. Bucher, "Fitness and Health", Educational Leadership (Washington: Judd & Detweiler, Inc., 1963), p. 356.

statistically the inferiority of the muscular development in the United States. Orthopedic tests of minimal physical fitness were administered to American and European youths with the following results: 57.9% of the American youths failed these minimal tests while only 8.7% of the European youths failed.<sup>2</sup> In a more recent study released by the office of the State Superintendent of Public Instruction, Olympia, Washington, results indicated that there has been a decline in the physical fitness of youth over the past 12 years. On the average, boys perform 3 fewer chins, jump  $4 \frac{1}{2}$  inches less in the jump reach, perform  $1 \frac{3}{4}$  less squat-thrust movements in a period of ten seconds and  $2 \frac{1}{2}$  movements less in the period of one minute than did their counterparts of twelve years ago.<sup>3</sup>

Upon discovering alarming facts of the type mentioned above, President Dwight David Eisenhower created a President's Council on Youth Fitness July 16, 1956. It was to focus public attention and concern on the physical fitness problem and assist in the improvement of physical fitness and total fitness of children by

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<sup>2</sup>Hans Kraus and Wilhelm Raab, Hypokinetic Disease (New York: C.C. Thomas Company, 1961), p. 47.

<sup>3</sup>Leroy Hittle, The Physical Educator (Indianapolis, Indiana; Educational Press Association of America, 1961), p. 91.

helping the school health and physical education programs.

Physical educators devised a more elaborate series of tests than the Kraus-Weber tests, which were accepted by the President's Council on Youth Fitness, as a suggested guide toward a school-centered program on youth physical fitness. It included: 600-yard dash; softball throw; standing broad jump; shuttle run; sit-up; 50-yard dash; and pull-up. These tests were given to 10,000 children from Great Britain and 8,500 American children in 1959. The results showed that with the exception of the softball throw, the British children's all-around fitness was 24% better than that of the American children.<sup>4</sup>

However with all of these facts, it is important to understand that these low results in the American children's physical fitness may not necessarily be the results of any defect in her national character, but instead it may be due to the fact that she is, industrially, the most advanced nation in the world. Other countries fall behind her in production and distribution of labor saving plans, thus they are involved in more strenuous activities to perform duties manually.

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<sup>4</sup>Max Eastman, "Let's Close the Muscle Gap", Reader's Digest, November, 1961, p. 48-51.

With the new labor saving methods reducing the need of strenuous physical activities in the United States, the problem of physical fitness has become one of great importance. President John Fitzgerald Kennedy has continued the work of the Council on Youth Fitness. On January 8, 1963 President Kennedy changed the name to the President's Council on Physical Fitness to clarify the Council's assignment and to include its work in adult fitness, military fitness, and community recreation.

Once again the schools have been asked to assist in the development of our children. In the days of the American frontier of the 18th and 19th centuries the home was the center of all activities. However, with the coming of vast changes in our society, the home has had to rely on other institutions for assistance. The schools have answered the call in assisting the home meet the needs necessary to man in life, and so it should be, for the school is a servant of the people. With this in mind the writer has set out to study the fitness program in the Health and Physical Education Program at Albert H. Hill Junior High School.

## I. THE PROBLEM

Statement of the problem. It is the purpose of this study (1) to investigate the Health and Physical Education Program at Albert H. Hill School, (2) to determine how students at Albert H. Hill School compare with the national standings of students taking the National Physical Fitness Tests, (3) to determine what relationship there is in the physical fitness tests between varsity athletes and non-varsity athletes at Albert H. Hill School, (4) to determine how students who have achieved "excellent" and "good" on their physical fitness tests compare academically with other students who have done "satisfactory" and "poor" at Albert H. Hill School, (5) to determine what relationship exists between students who have achieved "excellent" and "good" on their physical fitness tests and what attitude these students have toward school with other students who have achieved "satisfactory" and "poor" on their fitness tests at Albert H. Hill School, (6) to determine the opinion of the students at Albert H. Hill School towards the Health and Physical Education Program by the use of a questionnaire, and (7) to determine the opinion held by the parents and guardians of students towards the Health and Physical Education Program by the use of a questionnaire.



Value of the study. The scholastic ability of the athlete when compared with the non-athlete has been a controversial issue for many years. This issue is one of the problems facing Albert H. Hill School and the extent of this problem has pointed up one of the needs of this study. For example, many of the teachers felt that the athletic program at Albert H. Hill was interfering with the academic area of the school and that athletes were not as intelligent or as capable as other students.

The idea that athletics leads to poor scholarship is difficult to verify. A general feeling exists that athletics when properly controlled will stimulate some pupils to improve their academic grades.

The results of the National Physical Fitness Tests also revealed a need for this study, as a lack of physical skills was evident, especially in the development of arm and shoulder girdle muscles. The Physical Education Department is now aware of this problem and plans to improve the situation by using additional exercises in their classes to improve the arm and shoulder girdle muscles of the Albert H. Hill students.

Some insight into these problems should be gained from this study which has been conducted on a limited

basis within one school.

## II. DEFINITIONS OF TERMS USED

Total Fitness. Total fitness is the ability of a person to live a full and balanced existence--an individual who possesses the proper physical abilities to carry out daily chores and those activities which arise in emergencies is well on the way to becoming a totally fit individual.

Physical Fitness. Physical fitness is the physical condition enabling one to perform proper physical activities and to carry out daily chores as well as those which come about in emergencies.

National Physical Fitness Tests. The National Physical Fitness Tests are those which were developed by physical education instructors throughout the United States. The tests were accepted by the President's Council on Youth Fitness in 1956.

Physical Education. Physical Education is the provision of opportunities for the normal physical growth and development of all pupils. It is that phase of the curriculum which deals chiefly with large muscle activities.

Health Education. Health Education is the acquisition of knowledge about good nutrition, healthful

physical and emotional environment, and methods of preventing disease.

### III. LIMITATIONS

In a study of this type it must be understood that the investigator was limited to a specific group. Even though a study was conducted concerning an entire school, one cannot expect to find similar results in all schools, as the economic and social background of a community plays an important part in the final results of such a study. The author was also limited by the use of the questionnaire, as the questionnaire is a subjective instrument. Used as a basis for further investigation, the questionnaire was prepared in such a way to get direct answers to direct questions. In this way the participants were limited in giving opinions.

It is hoped that similar studies will take place and in so doing improve the fitness of the children of this country.

### IV. SOURCES OF DATA AND METHODS OF PROCEDURE

Various methods were used by the writer to uncover the material needed for the study. Minutes of the Albert H. Hill Parent-Teacher Association, Annual Reports

of the Richmond City School Board, past reports of Parent-Teacher Association presidents and principals of Albert H. Hill School were read. This study also included interviews with past and present principals, assistant principals, teachers, counselors of each grade level, the nurse, the dietician, the visiting teacher, students and parents of Albert H. Hill School. Of additional assistance were interviews with other administrators of other schools and the Director of Health and Physical Education for the Richmond Public Schools, Mr. Ludwell Sherman.

The study includes a brief background of the Health and Physical Education Program at Albert H. Hill, followed by a study of the present program with its principles and objectives. It also includes a survey of the parents and students of Albert H. Hill School. The survey was performed by distributing questionnaires to the parents and students in order to determine the opinion the parents and students had toward the Health and Physical Education Program.

The questionnaires were distributed to the students of the school by the homeroom teachers. Every one of the questionnaires that were given to the students was returned, showing the excellent cooperation that was given the investigator by all who were concerned.

Questionnaires were also distributed to the parents or guardians of the Albert Hill students. Of the questionnaires that were distributed to the parents more than 90% were returned, showing once again the interest and cooperation that was given this investigator. All concerned--parents, teachers, students, and administrators--assisted whenever called upon and were enthusiastic in learning of the results.

The results of the questionnaires were tabulated and can be found in Chapter IV entitled "The Use And Results Of A Questionnaire Study Of The Health And Physical Education Program".

The questionnaire study was followed by a further investigation, which compared the students of Albert H. Hill in their physical fitness performances and academic performances. The results indicated that students who were above the average on their physical fitness tests were more likely to receive better academic grades, attend school more regularly, and have a more positive attitude toward liking school than those students who were below the average on their physical fitness tests.

Chapter VI summarizes the results of the 1963 National Physical Fitness Tests that were given to the students of Albert H. Hill. A summary and conclusions

then followed with recommendations for further development of the program.

#### V. REVIEW OF THE RELATED LITERATURE

Comparative intelligence and scholastic ability of the athlete and the non-athlete have been disputed issues for many years. The results of studies are not in complete agreement on these issues. However, the evidence which does exist indicates that there is either no difference in scholastic success between the athlete and the non-athlete or the athlete generally obtains higher scholastic grades than the non-athletes.<sup>5</sup>

To illustrate these statements, the following studies are briefly mentioned: After studying 100 high school athletes and a like number of non-athletes, Cook and Thompson<sup>6</sup> resolved that on the whole there appeared to be no justification for the assumption that boys who earned athletic letters differed significantly from other high school boys. Snooddy and Shannon<sup>7</sup> and

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<sup>5</sup>William A. Cook and Mabel Thompson, "A Comparison of Letter Boys and Non-Letter Boys in a City High School", School Review, February, 1928, p. 350.

<sup>6</sup>Ibid.

<sup>7</sup>Marvin H. Snooddy and J. R. Shannon, "Standardized Achievement Measurements of Athletes and Non-Athletes," School Review, September, 1939, p. 610.

Dore and Cooper<sup>8</sup> obtained similar results with other high school boys. Jones<sup>9</sup> reported that high school athletes were significantly more intelligent than non-athletes, while Hudson<sup>10</sup> discovered that high school athletes generally participated in more extra-curricula activities than the non-athlete. He also found that athletics properly administered will motivate some youths and their grades will improve. Fowlkes<sup>11</sup> found that the average grades of athletes were higher during their four years at the university than were the grades of non-athletes.

No study was found which compared children of the junior high school as to their mental and physical abilities. Neither was a study found which compared students of any grade level as to their performances

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<sup>8</sup>Elwood C. Dore and John A. Cooper, "A Resume of Studies Comparing Scholarship Abilities of Athletes and Non-Athletes," Research Quarterly, May, 1934, p. 68.

<sup>9</sup>Rowland H. Jones, "A Comparison of the Intelligence of High School Athletes and Non-Athletes," School and Society, March, 1935, p. 415.

<sup>10</sup>Grant Hudson, "A Comparison of the Intelligence of High School Athletes and Non-Athletes in Henrico County" (unpublished Master's thesis, the University of Richmond, Richmond, Virginia, 1961), p. 58.

<sup>11</sup>John G. Fowlkes, "Your Every-Day Problems," Nations Schools, March, 1929, p. 79.

in the National Physical Fitness Tests with their academic abilities, their feelings toward school work, and their school attendance.



## CHAPTER II

### A HISTORY OF THE PHYSICAL FITNESS PROGRAM AT ALBERT H. HILL SCHOOL

With the opening of the fifty-eighth session of the Richmond Public Schools, September, 1926, the Richmond Normal School (Albert H. Hill School) opened its doors for the first time. The school had been built to house all of the elementary grades and the teacher training classes for students who had graduated from high school and who wished to become teachers.

Experimental programs and the need of instruction to the student teachers made it necessary for the Director of Physical Education to devote much of her time to the teacher training building. Under the director's guidance the physical education department was very successful.<sup>1</sup> The experienced teachers as well as the student teachers devoted a great deal of time to building sound and physically fit children. Health education at this time was not taught as a separate part of physical education but was introduced along with the other classes, having no specific part of the curriculum.

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<sup>1</sup>Fifty-Eighth Annual Report of the Superintendent of the Public Schools of Richmond, Virginia, 1926-1927 (Richmond: W.C. Hill Printing Company, Inc., 1927), p. 42.

In September, 1933 the teacher training department was disbanded. The following academic year the school was expanded to care for children of junior high school age, as well as the elementary grades.<sup>2</sup> The Physical Education Program was divided into three sections, which would appeal to the junior high school children--classroom instruction, the intramural program, and the interscholastic program.

The program in the elementary grades was conducted by the grade teacher. In the first three grades the program consisted of rhythms, group games, and simple stunts. Beginning with the fourth grade and extending into the sixth, the rhythmic activities consisted of folk dancing, the need for which grew out of some unit of work which was being conducted by the pupils within the grade at the time. The program also included group games, relays, stunts and team games.<sup>3</sup>

In the junior high grades the program specifically included dancing, folk and tap, track and field events, highly organized games such as volley ball, basketball, baseball, hand ball, tennis; apparatus work, stunts

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<sup>2</sup>Sixty-fifth Annual Report of the Superintendent of the Public Schools of Richmond, Virginia, 1933-1934. (Richmond: Clyde W. Saunders & Sons, Inc., 1934). p. 92.

<sup>3</sup>Ibid., p. 73.

and tumbling.<sup>4</sup>

With the seriousness of the world situation and the national emergency existing due to World War II, the teachers of physical education at Albert Hill were conscious of their share of the responsibility towards the building of a better and bigger health program for the children of all grade levels. Greater emphasis was placed upon physical development, as a more strenuous program of physical activities was planned. The program consisted of health instruction and physical education. Lessons in hygiene consisted of the presentation of facts which developed into proper attitudes towards habits of healthful living. The nature and control of communicable diseases and the various phases of sanitation were taught. First aid, safety at home, at school and at play received major emphasis. In the physical education program the physical growth of children was sought by offering activities which would bring into use the large voluntary muscles of the body. Neuro-muscular skills were developed by the teaching of game skills, gymnastics, marching, dancing, tumbling, and stunts. Also another highly important objective of the

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<sup>4</sup>Ibid., p. 74.

physical education program received attention--the<sup>5</sup> development of desirable character traits.

Throughout the Second World War the students, parents and teachers turned toward the war efforts. Parents were interested in the progress of their children in their physical abilities, for they had been alarmed when the facts concerning the poor physical condition of the many draftees had been released. A large percentage of the draftees could not meet the minimum requirements for entering the military service, but these requirements had to be waived as the need for men was great. An all out effort was made to give the children an adequate period within every school day for some physical conditioning.<sup>6</sup>

Following the war years the school continued its program in health and physical education and attempted to offer the best possible program for the children in both of the elementary and junior high school grades.

In September, 1956 the Albert H. Hill School was converted into a junior high school and the elementary grades were shifted to near-by elementary schools.

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<sup>5</sup>Seventy-second Annual Report of the Superintendent of the Public Schools of Richmond, Virginia, 1940-1941. (Richmond: Clyde W. Saunders & Sons, Inc., 1941), p. 101.

<sup>6</sup>Ibid., p. 103.

This move brought about a change in the Health and Physical Education Program. The department could now devote more time to the junior high school children with the new educational program, for it was particularly designed to meet the needs, the interests and the abilities of boys and girls during early adolescence.<sup>7</sup>

The program presently serves approximately 720 students who come from homes with various cultural and socio-economic levels. Serving a community with varied traditions, interests and beliefs, Albert H. Hill School has attempted to work with each student as an individual, and develop him into a person who is totally fit in order that he may take his rightful place in society.

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<sup>7</sup>William T. Gruhn and Harl R. Douglass, The Modern Junior High School (New York: The Ronald Press Company, 1956), p. 4.

## CHAPTER III

### THE HEALTH AND PHYSICAL EDUCATION PROGRAM AT ALBERT H. HILL

The present Health and Physical Education Program at Albert H. Hill Junior High School is centered around the term fitness. The term fitness implies more than physical fitness. Fitness is the condition of a person to live a full and balanced existence. The totally fit person possesses physical well-being but also such qualities as good human relations, maturity, and high ethical standards. He also satisfies such basic needs as love, affection, security, and self-respect.<sup>1</sup> The school Health and Physical Education Program is vitally concerned with physical fitness, but it also strives to contribute to total health and fitness.

The term physical fitness includes more than muscular strength. It includes soundness of such body organs as the heart and lungs, and a reasonable measure of skill in the achievement of certain physical activities. The same degree of physical fitness is not necessary for everyone; it depends on the characteristics

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<sup>1</sup>Charles A. Bucher, "Fitness and Health," Educational Leadership (Washington, D.C.: Judd & Detweiler, Inc., 1963), p. 358.

of the tasks to be performed.<sup>2</sup> It is a happy mixture of the best possible bodily health plus the physical condition to perform everyday tasks effectively and to meet emergencies as they arise.

Although closely allied, health and physical education are separate fields of endeavor. Whereas physical education is concerned primarily with education of and through the physical, the school health program is concerned with teaching for health (disclosing facts about good nutrition), living healthfully at school (providing healthful physical and emotional environment), and providing services for health improvement (measures for control of communicable disease).<sup>3</sup>

Albert H. Hill School Objectives of Physical Education Program. The student needs to take part in regular physical activity but in addition needs to understand the effects this activity has on his organism. The student needs to have activities fitted to his individual requirements but also needs to have these activities conducted in a safe and healthful environment. The student needs to develop skill in various sports

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<sup>2</sup>Ibid., p. 359.

<sup>3</sup>Fred V. Hein, Your Child's Health and Fitness (Washington, D.C.: National Education Association, 1960), p. 3.

but also needs skill in first aid and home nursing. These are only a few examples of how the health and physical education programs together contribute to physical fitness.

Physical fitness is an objective of physical education. It is important to have physically fit boys and girls, but it is more than just having physically fit children. It is developing physical skills, teaching knowledge about the human organism, and using the body as a vehicle for achieving desirable social traits.

The school physical education program includes the class program for every student, the adjusted program--a program which fits the activities to handicapped individuals, the intramural and extramural program which provides a laboratory experience for the skills and knowledge acquired in the class program, and the interscholastic athletic program for those students with exceptional physical skill. All four of these aspects of the physical education program must work in a manner which gives balance and harmony, and which allows for the achievement of physical fitness and other objectives for all students.

It is felt that all pupils, regardless of their



future occupations, should be able to understand, appreciate the value of, and adjust to effective participation in the activities of our democratic society. General education is offered for everyone and is concerned with one's nonspecialized activities, no matter what his present or future vocation may be. It is concerned with the total personality--not merely with the intelligence but with tastes, emotions, attitudes, and appreciations. It is concerned not so much with what is learned as with the qualities that one develops in the process of learning.<sup>4</sup>

Physical education activities have an important part in contributing to general education. As only a part of the student body eventually goes to college, a special responsibility is held by the physical education department in developing all adolescent boys and girls in the following directions:<sup>5</sup>

1. To secure and maintain a condition of personal good health and fitness.
2. To develop effective methods of thinking.
3. To teach desirable social attitudes.
4. To teach useful work habits and study skills.
5. To acquire a wide range of significant interests.

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<sup>4</sup>A Guide for Teaching Health and Physical Education, (Richmond Public Schools, 1959), p.1.

<sup>5</sup>Ibid., p. 3.

6. To develop an increased appreciation of the dance, music, literature, art, and other aesthetic experiences.
7. To develop social sensitivity and better personal-social relationships.
8. To use leisure in acceptable ways.
9. To acquire important information.
10. To develop a consistent philosophy of life.

In facing situations of everyday living, students need to develop fitness and capacities to keep good health, to solve problems by thoughtful thinking, to make moral choices, to express themselves emotionally by wholesome ideals, tastes, attitudes, and appreciations. They have to deal with other individuals in actual relations and through social participation in groups. Finally, social development is intensified by intergroup relations, as in athletic team contests and the like.

Certain specific objectives have been developed within the program:<sup>6</sup>

1. Organic power, the ability to maintain adaptive effort of the ability to meet the physiological demands made upon the organism. (Strengthen muscles, ability to resist fatigue, and increase cardiovascular efficiency).
2. Neuromuscular development (game and sport skills, grace, a sense of rhythm, and improved reaction time).

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<sup>6</sup>Ibid., p. 2.

3. Personal-social attitudes and adjustment (situations to encourage individual self-confidence, sociability, initiative, self-direction, and a feeling of belonging).
4. Interpretive and intellectual development (Encourage approach to problems with imagination and originality, to develop the ability to solve problems by thinking, analyzing, abstracting, and reaching conclusions based on sound evidence).
5. Emotional responsiveness. (Emotional satisfaction and pleasure from overcoming difficult challenges, thrills and sense of loyalty from cooperative success or team work).

When students participate in physical activities, it is an important investment in social and emotional adjustment. Every aspect of development--physical, social, emotional, intellectual--acts upon the other. Motor development in the form of individual, dual, or team sports plays an important role in social development. The social contacts of children and youth are made to a large extent through common motor activities, especially games and sports. Likewise, the degree of motor development and skill is closely related to many emotional features of behavior. One feels emotionally secure when he feels adequate. Physical strength and a fund of skills, good coordination, and a good looking and attractive physique do not seem to go along with physical cowardice, fear, anxiety, lack of participation, and dislike of games and sports.<sup>7</sup>

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<sup>7</sup>Ibid.

Albert H. Hill Physical Education Activities.

The central aim of the department is to provide health education and a variety of physical activities so that every student is reached with some special interest. Instruction in rules and games is given in each physical education class. In planning the program of activities an account of individual differences in achievement is considered, as some students reach their limitations sooner than others. To require all to reach a certain standard, which only the more proficient could reach, would not only be unfair, but also might result in harm to the student. Realizing these limitations, the department has adjusted the standards to the ability of each individual, as nearly as possible. With these less skilled individuals and with those who lack ability the department gives extra individualized instruction.

Included in the physical education curriculum for girls are activities such as field hockey, soccer, basketball, stunts and tumbling, softball, volleyball, tennis, golf, archery, badminton, track, gymnastics, lead-up games, and physical fitness tests.

The boys' curriculum parallels that of the girls and includes such activities as touch football ,

gymnastics, wrestling, tumbling, basketball, softball, track, tennis, volleyball, golf, archery, and other leading games. (TABLES I and II)

Albert H. Hill Programs of Physical Education.

Health education includes three fundamental aspects: health services, healthful school living, and health instruction. Health service comprises the procedures in the schools for inspecting and examining children to determine their health status, and includes physical examinations, correction of defects, communicable disease control, and first aid. Healthful school living includes the establishment of a safe and sanitary school environment and the organization of the day to minimize fatigue and facilitate learning. Health instruction denotes the planning of educational experiences to that the student develops desirable habits of living, receives scientifically accurate information about the need and value of these habits, and acquires proper attitudes toward behavior in matters of individual and community health.<sup>8</sup>

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<sup>8</sup>Virginia State Board of Education Bulletin on Health Education (Richmond: Division of Purchase and Printing, Commonwealth of Virginia, 1955), p. 22.

TABLE I  
PHYSICAL EDUCATION PROGRAM FOR BOYS BY GRADES

| 7th Grade                                  | 8th Grade                                  | 9th Grade                                  |
|--|--|--|
| Orientation                                | Orientation                                | Orientation                                |
| Conditioning Exercises                     | Conditioning Exercises                     | Conditioning Exercises                     |
| Tests:<br>Agility<br>Strength<br>Endurance | Tests:<br>Agility<br>Strength<br>Endurance | Tests:<br>Agility<br>Strength<br>Endurance |
| Touch Football                             | Touch Football                             | Speed Ball                                 |
| Basketball                                 | Speed Ball                                 | Soccer                                     |
| Softball                                   | Basketball                                 | Basketball                                 |
| Track                                      | Volley Ball                                | Volley Ball                                |
| Recreational Games                         | Softball                                   | Track                                      |
| Relays                                     | Track                                      | Badminton                                  |
| Stunts                                     | Tennis                                     | Archery                                    |
| Tumbling                                   | Recreational Games                         | Horse Shoes                                |
| Apparatus                                  | Relays                                     | Tennis                                     |
|  | Stunts                                     | Recreational Games                         |
|  | Tumbling                                   | Relays                                     |
|  | Apparatus                                  | Stunts                                     |
|  |  | Tumbling                                   |
|  |  | Apparatus                                  |
|  |  | Wrestling Fundamentals                     |
|  |  | Combatives                                 |

TABLE II

## PHYSICAL EDUCATION PROGRAM FOR GIRLS BY GRADES

| 7th Grade                                  | 8th Grade                                  | 9th Grade                                  |
|--|--|--|
| Orientation                                | Orientation                                | Orientation                                |
| Conditioning<br>Drills                     | Conditioning<br>Drills                     | Conditioning<br>Drills                     |
| Tests:<br>Agility<br>Strength<br>Endurance | Tests:<br>Agility<br>Strength<br>Endurance | Tests:<br>Agility<br>Strength<br>Endurance |
| Kickball                                   | Field Ball                                 | Field Hockey                               |
| Field Ball                                 | Field Hockey                               | Soccer                                     |
| Field Hockey                               | Basketball                                 | Basketball                                 |
| Basketball                                 | Volley Ball                                | Volley Ball                                |
| Softball                                   | Softball                                   | Softball                                   |
| Track                                      | Track                                      | Track                                      |
| Recreational<br>Games                      | Recreational<br>Games                      | Badminton                                  |
| Relays                                     | Relays                                     | Tennis                                     |
| Stunts                                     | Stunts                                     | Archery                                    |
| Tumbling                                   | Tumbling                                   | Recreational<br>Games                      |
| Apparatus                                  | Apparatus                                  | Relays                                     |
|  |  | Stunts                                     |
|  |  | Tumbling                                   |
|  |  | Apparatus                                  |

Albert H. Hill Health Education Program. Certain objectives, which follow, are used in presenting the health education program.<sup>9</sup>

1. To instruct students so that they may conserve and improve their own health.
2. To establish in students the habits and principles of living which throughout their lives will assure that abundant vigor and vitality which provide the basis for the greatest possible happiness and service in personal, family, and community life.
3. To develop appropriate habits, skills, attitudes, and ideals toward health.
4. To develop a health consciousness through the exercise of a critical attitude toward health experiences and problems.
  - a. An awareness of health problems or conditions.
  - b. A felt need for positive action in meeting or overcoming the conditions.
5. To aid students to acquire a knowledge of sufficient basic facts to understand the importance and need of health.

The program is taught at different grade levels.

The eighth and ninth graders are taught health and physical education by the Health and Physical Education Department, but the seventh graders are taught differently. One semester the seventh graders have physical education three days a week and are taught by the Physical Education

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<sup>9</sup>Ibid.



Department. The other two days a week these pupils take a general science course. Also included is the teaching of health education, which is taught by the Science Department. The following semester the pupils change their schedule by taking science three days a week and physical education only two days a week.

Great care is taken in order to avoid repetition in each grade level. The program at different levels follows:

### Seventh Grade

- A. Personal Health Appraisal
  - 1. Good Grooming
    - a. Cleanliness
    - b. Personal Appearance
  - 2. Individual Differences
    - a. Mental Growth
    - b. Social Growth
    - c. Physical Growth
    - d. Emotional Growth
- B. Body Functions and Care
  - 1. Skeleton
  - 2. Muscles
  - 3. Teeth
    - a. Structure
    - b. Care
    - c. Types
  - 4. Eyes
    - a. Structure
    - b. Disease
    - c. Care

## 5. Ears

- a. Structure
- b. Diseases
- c. Care

## 6. Digestive System

- a. Structure
- b. Functions

## 7. Respiratory System

- a. Structure
- b. Functions
- c. Diseases

## 8. Circulatory System

- a. Heart
- b. Vessels
- c. Structure
- d. Diseases

## C. Nutrition

1. Vitamins, proteins, fats, minerals and carbohydrates
2. Basic foods, importance of well-balanced diet

This subject matter taught by:

- a. Questions
- b. Visual Aids
- c. Discussions
- d. Tests

## D. Safe Living

1. Bicycle
2. Home Safety

Eighth Grade

## A. Teenage Problems

## 1. Home

- a. Relationships
- b. Responsibilities

## 2. School

- a. Assuming Responsibility
- b. Adjustments

## B. Junior First Aid Course as prescribed by the American Red Cross

This subject matter taught by:

1. Visual Aids
2. Text Book
3. Practical Work

## C. Safe Living

1. School Safety
2. Water Safety

## D. Citizenship

1. Analyze Qualities of a Good Citizen
2. Practice Qualities

Ninth Grade

## A. Your Personality

1. Behavior
2. Appearance
3. Accepting Yourself as You Are

## B. Alcohol

1. Harmful Effects on Body
2. Social Problem

## C. Tobacco

1. Harmful Effects on Body

D. Narcotics

1. Uses and Control

E. Safe Living

1. Automobile Safety

- a. Driving Fundamentals
- b. Safety Features of Modern Cars

F. Teenage Topics

1. Selected by Students with Research and Outside Reading

- a. Reports Given in Class with General Discussions
- b. Youth Panel

- (1) Teenage Questions Submitted by Both Boys and Girls
- (2) Discussed by the Panel of Both Sexes at a Joint Meeting
- (3) Evaluation

Athletic Program At Albert H. Hill. Since boys and girls in junior high school need a program of athletics, a great deal of attention is directed to the needs of these children who are undergoing rapid physical growth, who have special need for improving body coordination, who seek to take part in an increasing number of activities, who have strong desire for group acceptance, and who are beginning to be interested in the opposite sex.

Eager to participate in all sorts of activities, all junior high school pupils are not yet physically ready for sports that call for a great deal of endurance and strength. Realizing that many body changes come

about during this early adolescent period, the children are led to choosing the correct program.

The core of the athletic program at Albert H. Hill School is the instruction in sports that takes place in the required classes in physical education. What is learned in such classes is applied in after-school games within the intramural program. The intramural program provides each student a place to compete with his own classification. This gives a recreational opportunity to develop his skill further and a permanent interest in sports participation and competition during his leisure time. The intramural program strives to improve group spirit and solidarity, fosters a feeling of belonging, teaches students to be a member as well as an individual, and improves their self-control and self-discipline.

The Intramural Program At Albert H. Hill. The program at Albert H. Hill offers many options. Young adolescents are especially eager to explore many possibilities for future specialization. Variety of offerings also serves to broaden the appeal of intramurals so that the ideal of involving all pupils in the school can be more nearly realized. It is often said that boys want to play only football, basketball, and baseball. This may be true when they have never had suitable

opportunities to take part in other sports. Most boys or girls of junior high school age develop interests in many activities when they have chances to learn them.<sup>10</sup>

The following activities were scheduled for each of the 24 homerooms this past school year:

| <u>FALL</u>    | <u>WINTER</u>      | <u>SPRING</u>   |
|----------------|--------------------|-----------------|
| Hockey         | Basketball         | Softball(Co-ed) |
| Touch Football | Volley Ball(Co-ed) | Tennis          |
| Bowling(Co-ed) | Bowling(Co-ed)     |                 |

Approximately 90% of the student body participated in one or more intramural sports that were offered in the 1962-1963 school year. Although this percentage is high, the department is striving for 100% participation in the intramural program. Many of the children who did not actively participate in the playing of the game did participate by attending the games, thus adding an important part to the activity--that of school spirit.

Because it is felt that junior high school pupils, with their increased social interests and more highly developed athletic skills, can profit from informal games with children of other schools, Albert H. Hill

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<sup>10</sup>Educational Policies Commission of the National Education Association and the American Association of School Administrators, School Athletics (Washington, D.C. National Education Association, 1954), p. 34.

School offers an interscholastic (extramural) program, which consists of varsity and junior varsity activities. The program, which is open to all students of all grade levels through a system of try-outs, is planned for the students whose abilities are in advance of those of the average player and need an incentive and stimulus to seek still more skill.

The interscholastic program offers both girls' and boys' teams, and games are played with city and surrounding county schools. There are varsity squads in football, basketball, softball, baseball, track, and tennis.

The program of interscholastic activities in no way interferes with the principle of "athletics for all", which is evident in the school's intramural program, where 90% of the student body actively participates in at least one or more sports.

## CHAPTER IV

### THE USE AND RESULTS OF A QUESTIONNAIRE STUDY OF THE HEALTH AND PHYSICAL EDUCATION PROGRAM

Many of the reports and studies written today use primary source material as their basis. These primary sources may be actual records, original letters or diaries, the data collected from interviews, questionnaires that have been completed, or the personal observations of a problem or situation.<sup>1</sup>

One important primary source which is used extensively today is the questionnaire.<sup>2</sup> It is true that a questionnaire is a set of questions given to a number of persons to get information. The results of the questionnaire are opinions of the persons who are answering the questions. What they like or dislike about the program or how they feel about the program is important, for it is through their reaction and support that the program is offered. Their likes and dislikes must be investigated and problems which appear must be solved. In this manner persons involved within the program and who receive the end results help to make up a program

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<sup>1</sup>Norman B. Sigband, Effective Report Writing (New York: Harper & Brothers, Publishers, 1960), p. 57.

<sup>2</sup>Ibid.



in which they will participate. The questionnaire was used as a basis for further study of the Health and Physical Education Program at Albert H. Hill School.<sup>3</sup>

Several conversations were held with the principal, assistant principal, faculty, parents and students, and a list of carefully prepared questions was organized, as a result of the discussions. Each question was concerned with one major thought, and the questionnaire was prepared to allow the individual answering the question to respond by making a check by the proper answer. Comments were welcomed and additional space was left at the bottom for those wishing to make any comments. Room was left on the form for those wishing to sign their names, but a signature was not required.

Questionnaires were first distributed to the students by their homeroom teachers, following a program which was held in the school auditorium. The program, which was given by the Health and Physical Education Department, explained the offerings of the department. Following the program the students were given a brief history of their school and the programs that were

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<sup>3</sup>See Tables III, IV, V and VI for results of questionnaire that were given to the parents and students of Albert H. Hill School.

offered by the school. Students were shown that the school was able to offer the wide variety of programs to the students, because the students showed a need for them. Also discussed was the necessity of a close working agreement between the students, parents and school. With this understanding the children were told that once again their help was needed. They were told that a questionnaire would be given to each child, where various questions would be asked concerning the Health and Physical Education Program. A similar program was given to the parents of the school.

The questionnaires were distributed to 668 students. Fifty students were absent from school on the day that the questionnaires were distributed and did not receive one. Answering the questionnaire was on a voluntary basis. Of the 668 students who received a questionnaire every one was returned, showing a 100% return.

The questionnaires were distributed and collected by the homeroom teachers. They were tabulated by grade and sex in order to find a comparison of opinions given by boys and girls in the various grades. (Tables III, IV, V, and VI)

TABLE III

## RESULTS OF THE STUDENT QUESTIONNAIRES BY GRADE LEVEL

| GRADE          | NUMBER ISSUED |       | NUMBER RETURNED |       | NUMBER ABSENT |       | TOTAL RETURNED |       |
|----------------|---------------|-------|-----------------|-------|---------------|-------|----------------|-------|
|                | BOYS          | GIRLS | BOYS            | GIRLS | BOYS          | GIRLS | BOYS           | GIRLS |
| 7              | 121           | 99    | 121             | 99    | 9             | 6     | 130            | 105   |
| 8              | 106           | 115   | 106             | 115   | 9             | 9     | 115            | 124   |
| 9              | 114           | 113   | 114             | 113   | 7             | 10    | 121            | 123   |
| GRAND<br>TOTAL | 341           | 327   | 341             | 327   | 25            | 25    | 366            | 352   |

<sup>4</sup>On the day that the student questionnaires were distributed 668 of the 718 students enrolled were present. Each of the 668 students that were present received a questionnaire and each returned their form, which represents a return of 100%. The number of students participating in the study represented 93.03% of the entire student body.

It is interesting to note that the answers of all three grade levels were similar and were very favorable toward the Health and Physical Education Program as offered.

The first question asked the students of all three grade levels "Do you generally feel that Physical Education is an important part of your program at school?" More than 95% of the student body answered this question in the affirmative, which showed a definite feeling of importance of the program to the entire student body.

In answer to the second question, "Do you generally enjoy participating in the Physical Education classes?", the results indicated that 325 out of 341 boys or 95.3% and 314 out of 327 girls or 96.1% enjoyed participating in the Physical Education classes.

The third question on the 7th grade questionnaire asked the students if they would prefer having Health and Physical Education during the entire week instead of having the present split Science/Physical Education week. Approximately 67% of the seventh graders preferred having Health and Physical Education the entire week instead of the present system. As this is an administrative problem, the situation was studied by the

administration and it was felt that the present system was the more desirable. In order to offer the minimum requirements as established by the city, the only other way in which seventh grade students could have Health and Physical Education the entire week would be to offer one semester of Health and Physical Education and one semester of science. This had been tried previously, and it proved to be unsatisfactory with all concerned, as the children would take only one semester of each class. This resulted in the children being instructed in the seasonal sports that were going on while they were taking physical education. They were not instructed in the sports that were going on when they were not taking physical education, as the other semester had to be in science. This interfered with the intramural program, as many children did not know the basic fundamentals in playing the games that were offered in the program. Although no change is planned in the coming school year, the administration is planning to explain the situation to the new seventh grade students when they arrive in the fall. It is felt that by informing the new students a better understanding will take place in the future.

The third question on the 8th and 9th grade questionnaire asked: "Do you generally feel that the study of health has been beneficial to you?" Only 58.1% of the boys and 61.9% of the girls answered in the affirmative. Many children were approached in personal interviews and were asked the same question orally. Most of them answered in the same way and gave the reason that "It's too boring" or "It's repetition and uninteresting". This problem of the Health Program was brought to the attention of the Health and Physical Education Department and much study has been done to see what improvements are needed for the program.

The fourth question asked the students "Do you generally feel that Physical Education classes are helping you become better physically fit?" The boys answered in the affirmative with a result of 308 out of 341 or a 90.4% and the girls' results were 295 out of 327 with a similar feeling--90.1%. Thus the children are aware of physical fitness within the program.

TABLE IV

7TH GRADE STUDENT QUESTIONNAIRE

(Items 1-4)

PURPOSE:

This questionnaire has been prepared to enable you as a student to express your honest opinion on certain matters concerning the Health and Physical Education Program at Albert Hill. Your opinion will assist the school in offering a program which will benefit you, your school, and your community.

Circle:      BOY      GIRL      NAME: \_\_\_\_\_ (if desired)

|   | BOYS    |       | GIRLS   |       |
|---|---------|-------|---------|-------|
|   | YES     | NO    | YES     | NO    |
| 1. Do you generally feel that Physical Education is an important part of your program at school?  | 114---- | 6     | 96----  | 3     |
|   | 95%---- | 5%    | 97%---- | 3%    |
| 2. Do you generally enjoy participating in Physical Education classes?  | 112---- | 8     | 98----  | 1     |
|   | 93.3%-- | 6.7%  | 99%---- | 1%    |
| 3. Would you prefer having Health and Physical Education during the entire week instead of the present split Science/Physical Education week? | 82----  | 38    | 66----  | 32    |
|   | 68.3%-- | 31.7% | 66.6%-- | 33.4% |
| 4. Do you generally feel that Physical Education classes are helping you become better physically fit?  | 108---- | 12    | 93----  | 6     |
|   | 90%---- | 10%   | 93.9%-- | 6.1%  |

TABLE IV

7TH GRADE STUDENT QUESTIONNAIRE

(Items 1-4)

PURPOSE:

This questionnaire has been prepared to enable you as a student to express your honest opinion on certain matters concerning the Health and Physical Education Program at Albert Hill. Your opinion will assist the school in offering a program which will benefit you, your school, and your community.

Circle:      BOY      GIRL      NAME: \_\_\_\_\_ (if desired)

|   | <u>BOYS</u> |       | <u>GIRLS</u> |       |
|---|-------------|-------|--------------|-------|
|   | YES         | NO    | YES          | NO    |
| 1. Do you generally feel that Physical Education is an important part of your program at school?  | 114         | 6     | 96           | 3     |
|   | 95%         | 5%    | 97%          | 3%    |
| 2. Do you generally enjoy participating in Physical Education classes?  | 112         | 8     | 98           | 1     |
|   | 93.3%       | 6.7%  | 99%          | 1%    |
| 3. Would you prefer having Health and Physical Education during the entire week instead of the present split Science/Physical Education week? | 82          | 38    | 66           | 32    |
|   | 68.3%       | 31.7% | 66.6%        | 33.4% |
| 4. Do you generally feel that Physical Education classes are helping you become better physically fit?  | 108         | 12    | 93           | 6     |
|   | 90%         | 10%   | 93.9%        | 6.1%  |



TABLE V

8TH GRADE STUDENT QUESTIONNAIRE

(Items 1-4)

PURPOSE:

This questionnaire has been prepared to enable you as a student to express your honest opinion on certain matters concerning the Health and Physical Education Program at Albert Hill. Your opinion will assist the school in offering a program which will benefit you, your school, and your community.

Circle:      BOY      GIRL      NAME: \_\_\_\_\_ (if desired)

|  | BOYS  |       | GIRLS |       |
|--|-------|-------|-------|-------|
|  | YES   | NO    | YES   | NO    |
| 1. Do you generally feel that Physical Education is an important part of your program at school?       | 98    | 8     | 110   | 5     |
|  | 92.5% | 7.5%  | 95.7% | 4.3%  |
| 2. Do you generally enjoy participating in Physical Education classes?                                 | 104   | 2     | 109   | 5     |
|  | 98.1% | 1.9%  | 95.6% | 4.4%  |
| 3. Do you generally feel that the study of health has been beneficial to you?                          | 59    | 46    | 67    | 48    |
|  | 55.7% | 44.3% | 58.3% | 41.7% |
| 4. Do you generally feel that Physical Education classes are helping you become better physically fit? | 96    | 10    | 98    | 17    |
|  | 90.6% | 9.4%  | 85.2% | 14.8% |

TABLE VI

9TH GRADE STUDENT QUESTIONNAIRE

(Items 1-4)

PURPOSE:

This questionnaire has been prepared to enable you as a student to express your honest opinion on certain matters concerning the Health and Physical Education Program at Albert Hill. Your opinion will assist the school in offering a program which will benefit you, your school, and your community.

Circle:      BOY      GIRL      NAME: \_\_\_\_\_ (if desired)

|  | BOYS    |       | GIRLS   |       |
|--|---------|-------|---------|-------|
|  | YES     | NO    | YES     | NO    |
| 1. Do you generally feel that Physical Education is an important part of your program at school?       | 111---- | 3     | 106---- | 7     |
|  | 97.4%-- | 2.6%  | 93.9%-- | 6.1%  |
| 2. Do you generally enjoy participating in Physical Education classes?                                 | 109---- | 5     | 107---- | 6     |
|  | 95.6%-- | 4.4%  | 95.3%-- | 4.7%  |
| 3. Do you generally feel that the study of health has been beneficial to you?                          | 69----  | 45    | 75----  | 38    |
|  | 60.5%-- | 39.5% | 65.4%-- | 34.6% |
| 4. Do you generally feel that Physical Education classes are helping you become better physically fit? | 98----  | 16    | 104---- | 9     |
|  | 86%---- | 14%   | 92.4%-- | 7.6%  |

Question number five asked the children if they thought children who achieved high scores on their physical fitness tests should receive some form of recognition. Approximately 70% of the student body felt that these students should receive some form of recognition. After a thorough study and interviews with students and faculty members, it was decided to recognize children who achieved high scores on their physical fitness tests by honoring them in an assembly program. The temporary plan is to hold an assembly program, sponsored by the Physical Education Department, and discuss the results of the physical fitness tests and compare them with the results of other city schools. Children who did well on these physical fitness tests will assist in this program, showing the proper ways to take the tests and reasons why one should strive to become better physically fit. In this manner the children who did well on the physical fitness tests will be recognized and it will bring out the results of these tests.

Question number six asked the children: "Do you think the homeroom intramural program generally

benefits the entire school." Approximately 80% of the boys or 270 out of 341 and about 84% of the girls or 275 out of 327 answered affirmatively. The Physical Education Department was extremely interested in the results, as they wanted to know whether the many hours of after school work involved in the intramural program were of benefit to the students. The results indicated their time was spent wisely.

The results of the seventh question, "Do you think learning the rules of the game and playing together in Physical Education classes has helped you to get along with others better?", would give the impression that the program is teaching students good citizenship and good social traits. Only 10% of the student body answered the question negatively.

Of particular interest were the results of question nine, which asked "Would you like to have dancing instructions and participation in this activity during your Physical Education classes?". In the seventh grade, 45 boys answered "yes" and 75 answered "no" or 37.5% of the seventh grade boys

answered affirmatively. This is compared to the seventh grade girls who answered affirmatively--79 "yes" and 18 "no", representing 80%. In the eighth grade the affirmative answer to this question for the boys increased to 58.5% (62 "yes" and 44 "no") as compared to the girls, 78.3% affirmative answer (90 "yes" and 25 "no"). In the ninth grade the results were 66 "yes" and 48 "no" or 57.9% answered in the affirmative for the boys. The girls answered 67 "yes" and 46 "no" or 59.4% answered in the affirmative.

The results to this question show that girls within the junior high school are more interested in dancing than boys, but as boys continue to move up through the junior high school, their attitude toward dancing becomes more positive.

TABLE IV (CON'T)  
 7TH GRADE  
 (Items 5-9)

|  | <u>BOYS</u> |       | <u>GIRLS</u> |       |
|--|-------------|-------|--------------|-------|
|  | YES         | NO    | YES          | NO    |
| 5. Do you think students achieving high scores on their physical fitness tests should receive some form of recognition?                        | 92----      | 26    | 66----       | 32    |
|  | 78.3%--     | 21.7% | 66.6%--      | 33.4% |
| 6. Do you think the homeroom intramural program generally benefits the entire school?  | 101----     | 17    | 90----       | 8     |
|  | 85%----     | 15%   | 91%----      | 9%    |
| 7. Do you think learning the rules of the game and playing together in Physical Education classes has helped you get along with others better? | 104----     | 16    | 93----       | 6     |
|  | 86.6%--     | 13.4% | 93.9%--      | 6.1%  |
| 8. Would you like to see bowling continued within the program?   | 90----      | 30    | 74----       | 23    |
|  | 75%----     | 25%   | 74.7%--      | 25.3% |
| 9. Would you like to have dancing instructions and participation in this activity during your Physical Education classes?                      | 45----      | 75    | 79----       | 18    |
|  | 37.5%--     | 62.5% | 80%----      | 20%   |

TABLE V (CON'T)  
 8TH GRADE  
 (Items 5-9)

|  | <u>BOYS</u> |             | <u>GIRLS</u> |             |
|--|-------------|-------------|--------------|-------------|
|  | YES         | NO          | YES          | NO          |
| 5. Do you think students achieving high scores on their physical fitness tests should receive some form of recognition?                        | 74<br>69.8% | 32<br>30.2% | 81<br>70.4%  | 34<br>29.6% |
| 6. Do you think the homeroom intramural program generally benefits the entire school?  | 81<br>71.1% | 24<br>28.9% | 91<br>59.4%  | 24<br>40.6% |
| 7. Do you think learning the rules of the game and playing together in Physical Education classes has helped you get along with others better? | 90<br>84.9% | 16<br>15.1% | 100<br>86.9% | 15<br>13.1% |
| 8. Question eight was not answered by the eighth grade students as it did not apply to them.   |             |             |              |             |
| 9. Would you like to have dancing instructions and participation in this activity during your Physical Education classes?                      | 62<br>58.5% | 44<br>41.5% | 90<br>78.3%  | 25<br>21.7% |

TABLE VI (CON'T)  
 9TH GRADE  
 (Items 5-9)

|  | <u>BOYS</u>               |    | <u>GIRLS</u>              |    |
|--|---------------------------|----|---------------------------|----|
|  | YES                       | NO | YES                       | NO |
| 5. Do you think students achieving high scores on their physical fitness tests should receive some form of recognition?                        | 81----33<br>71.1%--28.9%  |    | 67----46<br>59.4%--40.6%  |    |
| 6. Do you think the homeroom intramural program generally benefits the entire school?  | 88----26<br>77.2%--22.8%  |    | 94----19<br>83.2%--16.8%  |    |
| 7. Do you think learning the rules of the game and playing together in Physical Education classes has helped you get along with others better? | 102----12<br>89.4%--10.6% |    | 101----12<br>89.3%--10.7% |    |
| 8. Do you generally feel that the study of driver education was beneficial to you?   | 104----10<br>91.2%--8.8%  |    | 102----11<br>90.2%--9.8%  |    |
| 9. Would you like to have dancing instructions and participation in this activity during your Physical Education classes?                      | 66----48<br>57.9%--42.1%  |    | 67----46<br>59.4%--40.6%  |    |



Question number 10 showed an over-all acceptance of the activities, which were offered in the program, with one exception. The exception was in "health classes", offered by the department to the 8th and 9th graders. In answer to "Do you generally enjoy taking part in health classes?", 59 boys in the two grades answered "yes" and 161 answered "no" or 26.7% answered in the affirmative. The girls' results in the two grades were almost as alarming as the boys, as only 74 answered "yes" and 153 answered "no", which represented an affirmative answer of 32.6%.

A great deal of attention has been focused on why children dislike health classes. One reason that was given by the students was "repetition". Investigation shows that this may be true, as children do learn some of the material in health classes in their science classes. This problem is being studied carefully and some new suggestions will be tried in the fall to see whether this attitude toward the health classes can be improved.

The over-all results of the student questionnaires were indeed helpful in determining what the students thought were the weaknesses and strengths in the Health and Physical Education Program.

TABLE IV (CON'T)  
7TH GRADE  
(Item 10)

|   | <u>BOYS</u>                |    | <u>GIRLS</u>               |    |
|---|----------------------------|----|----------------------------|----|
|   | YES                        | NO | YES                        | NO |
| 10. Do you generally enjoy taking part in the following during your Physical Education classes? |                            |    |                            |    |
| a. <u>Basketball?</u> - - - - -   | 108---- 12<br>90%----10%   |    | 94---- 4<br>95.9%-4.1%     |    |
| b. <u>Stunts and tumbling?</u> - - - - -  | 88---- 32<br>73.3%--26.7%  |    | 72.7%-27.3%<br>72.7%-27.3% |    |
| c. <u>Softball?</u> - - - - -   | 118---- 2<br>98.3%-- 1.7%  |    | 89----10<br>89.8%-10.2%    |    |
| d. <u>Volley ball?</u> - - - - -  | 109---- 11<br>90.8%-- 9.2% |    | 93---- 5<br>95.9%-4.1%     |    |
| e. <u>Tennis?</u> - - - - -   | 87---- 33<br>72.5%--27.5%  |    | 96---- 3<br>97%-- 3%       |    |
| f. <u>Archery?</u> - - - - -  | 104---- 16<br>86.6%--13.4% |    | 77----18<br>80.2%-19.8%    |    |
| g. <u>Track?</u> - - - - -  | 86---- 34<br>71.7%--28.3%  |    | 33----65<br>33.6%-66.4%    |    |
| h. <u>Gymnastics?</u> - - - - -   | 87---- 33<br>72.5%--27.5%  |    | 78----21<br>78.7%-21.3%    |    |
| i. <u>Physical fitness tests?</u> - - - - -   | 82---- 37<br>68.3%--31.7%  |    | 63----36<br>63.6%-36.4%    |    |

TABLE V (CON'T)  
8TH GRADE  
(Item 10)

|   | <u>BOYS</u>               |    | <u>GIRLS</u>               |    |
|---|---------------------------|----|----------------------------|----|
|   | YES                       | NO | YES                        | NO |
| 10. Do you generally enjoy taking part in the following during your Physical Education classes? |                           |    |                            |    |
| a. <u>Basketball?</u> - - - - -   | 95-----11<br>89.6%--10.4% |    | 107-----8<br>92.1%--7.9%   |    |
| b. <u>Stunts and tumbling?</u> - - - - -  | 69-----37<br>65.1%--34.9% |    | 77-----38<br>66.9%--33.1%  |    |
| c. <u>Softball?</u> - - - - -   | 100-----6<br>94.3%--5.7%  |    | 102-----13<br>88.7%--11.3% |    |
| d. <u>Volley ball?</u> - - - - -  | 99-----7<br>93.4%--6.6%   |    | 112-----3<br>97.2%--2.8%   |    |
| e. <u>Tennis?</u> - - - - -   | 85-----21<br>80.2%--19.8% |    | 111-----4<br>96.5%--3.5%   |    |
| f. <u>Track?</u> - - - - -  | 67-----38<br>63.3%--36.7% |    | 36-----79<br>31.2%--68.8%  |    |
| g. <u>Physical fitness tests?</u> - - - - -   | 81-----25<br>76.4%--23.6% |    | 73-----42<br>62.6%--37.4%  |    |
| h. <u>Health classes?</u> - - - - -   | 32-----74<br>30.2%--69.8% |    | 30-----84<br>26.3%--63.7%  |    |

TABLE VI (CON'T)  
9TH GRADE  
(Item 10)

|   | <u>BOYS</u> |       | <u>GIRLS</u> |       |
|---|-------------|-------|--------------|-------|
|   | YES         | NO    | YES          | NO    |
| 10. Do you generally enjoy taking part in the following during your Physical Education classes? |             |       |              |       |
| a. <u>Basketball?</u> - - - - -   | 103         | 11    | 111          | 2     |
|   | 90.4%       | 9.6%  | 98.2%        | 1.8%  |
| b. <u>Stunts and tumbling?</u> - - - - -  | 72          | 42    | 65           | 48    |
|   | 63.2%       | 36.8% | 57.5%        | 42.5% |
| c. <u>Softball?</u> - - - - -   | 107         | 7     | 98           | 15    |
|   | 93.9%       | 6.1%  | 86.7%        | 13.3% |
| d. <u>Volley ball?</u> - - - - -  | 110         | 4     | 106          | 7     |
|   | 96.4%       | 3.6%  | 93.9%        | 6.1%  |
| e. <u>Tennis?</u> - - - - -   | 100         | 14    | 108          | 5     |
|   | 87.7%       | 12.3% | 94.7%        | 5.3%  |
| f. <u>Track?</u> - - - - -  | 76          | 38    | 37           | 76    |
|   | 66.7%       | 33.3% | 32.7%        | 67.3% |
| g. <u>Physical fitness tests?</u> - - - - -   | 82          | 32    | 59           | 54    |
|   | 71.9%       | 28.1% | 52.2%        | 47.8% |
| h. <u>Health classes?</u> - - - - -   | 27          | 87    | 44           | 69    |
|   | 23.6%       | 76.4% | 38.9%        | 61.1% |

Similar questionnaires were distributed to the parents and guardians of the students of Albert H. Hill to determine their opinion of the program. Five hundred and ninety-one questionnaires were distributed to the parents or guardians of the 718 enrolled children. In order to avoid duplication only one questionnaire was given to a home. Where there was more than one child from any one home, the oldest child took the questionnaire home. Of the 591 questionnaires that were distributed 532 responded, which represented a 90.01% return. Although this represents an excellent return, some of the parents did not answer every question on the questionnaire, however most questions were answered by all.

The results of the parent questionnaire were tabulated and placed in simple order in the following Table to make it easier to understand. (Table VII)

The over-all attitude of the parents showed that the Health and Physical Education Program was an important part of their child's program, and that they were happy with the results of the program--a stronger child, more physically fit and more mentally alert.



6. Would you like to have your child participate in dances and instruction of various dances as a part of the Physical Education classes?  
 Yes--432(79.5%)      No--94(17.7%)      No answer--15(2.8%)
7. Do you in general approve of your child taking part in the following during Physical Education classes?
- a. basketball?  
 Yes--498(93.6%)      No--12(2.2%)      No answer--22(4.2%)
- b. stunts and tumbling?  
 Yes--392(73.7%)      No--113(21.3%)      No answer--27(5%)
- c. softball?  
 Yes--502(94.4%)      No--15(2.8%)      No answer--15(2.8%)
- d. volley ball?  
 Yes--511(96.1%)      No--6(1.1%)      No answer--15(2.8%)
- e. tennis?  
 Yes--497(93.4%)      No--18(3.5%)      No answer--17(3.1%)
- f. archery?  
 Yes--459(86.3%)      No--48(9.02%)      No answer--25(4.7%)
- g. track?  
 Yes--397(74.6%)      No--90(16.9%)      No answer--45(8.5%)
- h. gymnastics?  
 Yes--455(85.5%)      No--47(8.9%)      No answer--30(5.5%)
- i. physical fitness tests?  
 Yes--455(85.5%)      No--42(7.7%)      No answer--35(6.7%)
- j. health classes?  
 Yes--469(88.3%)      No--42(7.7%)      No answer--21(4%)
8. Do you believe the school should make available more information as to what your child is doing in his classes of Health and Physical Education?  
 Yes--403(75.7%)      No--109(20.5%)      No answer--20(3.8%)
9. Do you generally believe the school's program in Health and Physical Education is sufficient in meeting the needs of your child?  
 Yes--433(81.4%)      No--60(11.3%)      No answer--39(7.3%)
10. List any suggestions that you may have for the improvement of the Health and Physical Education Program at Albert Hill:

Some of the suggestions and comments that appeared on the questionnaires most frequently are listed below.

The students suggested:

1. The health program should be improved by teaching it all in the Science Department or all in the Physical Education Department. This would do away with repetition.
2. A larger gymnasium should be provided to allow all children to take part in some type of physical activity.
3. The intramural program should be extended in the afternoon for a longer period of time.
4. Children who excel in physical activities should receive a medal or pin to show that they have excelled in that area.
5. If dancing is permitted within the program, children should not be forced to dance.

The parents suggested:

1. School facilities should be opened at night and during the summer.<sup>1</sup>
2. More attention needed on boy-girl relationships.
3. Information concerning what children do in classes should be sent home more frequently.

The results of the questionnaire have been studied and some changes have been made for the coming school year. Other suggestions are still being considered.

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<sup>1</sup>School facilities (gymnasium) are opened every night of the school year and neighboring playgrounds are opened in the summer.



Although questionnaires are subjective and are actually opinions of individuals, a study of this type is indeed advantageous. An interest concerning the Health and Physical Education Program was initiated among the administration, faculty, students and parents, as they reviewed the program, searching for the proper answers. A feeling of importance was brought to the students, as they were asked to give their opinions concerning the program--they were made to feel important, as they realized they were being asked to assist in improving a program that would benefit them. A closer relationship was built up between the home and the school, as communications were improved. And most important of all a thorough study of the program was conducted and all who were concerned had a part in making this study.

The questionnaires and the results were given to the principal and they are on file in the school office.

It is hoped that similar studies may be conducted in the future to improve other programs and boost the morale of the faculty, students and parents and in so doing, bringing about a more enriched program for every child, and parent as well as the school and the community.

## CHAPTER V

### A COMPARISON OF STUDENTS IN THEIR PHYSICAL FITNESS PERFORMANCES AND ACADEMIC PERFORMANCES

A special study was conducted at Albert H. Hill to determine how students who maintain an above average level of physical fitness compare academically with those students having a below average level of physical fitness.

A total of 686 students were included in this study from the seventh, eighth and ninth grades. The data were compiled separately in order to compare boys and girls.

Every student was given the National Physical Fitness Tests, which consist of the following tests: sit ups, pull ups, broad jump, 50-yard dash, shuttle run, softball throw, and 600 yard run-walk. Each was graded "excellent", "good", "satisfactory" or "poor". The tests were given and graded by following the directions which were given in the book, Youth Physical Fitness.<sup>1</sup>

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<sup>1</sup>President's Council on Youth Fitness, Youth Physical Fitness (Washington, D.C.: U.S. Government Printing Office, 1961), p. 44. Tables VIII through XIV are the national averages which were used in comparing Albert H. Hill Students with those students throughout the nation.

In doing the Sit Up Test the pupil lies on his back with legs extended, feet about 1 foot apart. The hands, with fingers interlaced, are grasped behind the neck. Another pupil holds his partner's ankles and keeps his heels in contact with the floor while counting each successful sit up.

TABLE VIII  
NUMBER OF SIT UPS ACCORDING TO AGE

BOYS

| Age          | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------|----|----|----|----|----|----|----|
| Excellent    | 60 | 67 | 78 | 73 | 99 | 99 | 99 |
| Good         | 47 | 50 | 51 | 54 | 60 | 60 | 73 |
| Satisfactory | 30 | 31 | 37 | 40 | 44 | 45 | 50 |
| Poor         | 22 | 23 | 28 | 30 | 33 | 35 | 40 |

GIRLS

|              |    |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|----|
| Excellent    | 50 | 50 | 50 | 50 | 49 | 37 | 40 |
| Good         | 33 | 34 | 30 | 30 | 28 | 26 | 27 |
| Satisfactory | 22 | 25 | 22 | 21 | 20 | 20 | 21 |
| Poor         | 15 | 18 | 17 | 17 | 15 | 15 | 16 |

In doing pull ups boys must grasp a bar with palms facing forward and hang with arms and legs fully extended. Feet must be free of the floor. The partner stands

slightly to one side of the pupil being tested and counts each successful pull up. The girls do a modified pull up by adjusting the height of the bar to chest level. They must grasp the bar with palms facing out, extending the legs under the bar and keeping the body and knees straight. The heels are on the floor. Arms should be fully extended so they form an angle of 90 degrees with the body line. The partner braces the pupil's heels to prevent slipping.

TABLE IX  
NUMBER OF PULL UPS ACCORDING TO AGE

BOYS

| Age          | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------|----|----|----|----|----|----|----|
| Excellent    | 6  | 6  | 7  | 8  | 10 | 10 | 12 |
| Good         | 3  | 4  | 4  | 5  | 6  | 7  | 9  |
| Satisfactory | 2  | 2  | 2  | 3  | 4  | 5  | 6  |
| Poor         | 1  | 1  | 1  | 2  | 2  | 2  | 3  |

GIRLS

|              |    |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|----|
| Excellent    | 45 | 45 | 45 | 45 | 45 | 45 | 45 |
| Good         | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Satisfactory | 30 | 30 | 29 | 30 | 29 | 22 | 25 |
| Poor         | 17 | 20 | 20 | 20 | 19 | 12 | 14 |

In doing the standing broad jump pupils must stand with the feet comfortably apart, with toes just behind the takeoff line. Preparatory to jumping, pupils should have knees flexed and should swing the arms backward and forward in a rhythmical motion. They should then jump, swinging arms forcefully forward and upward, taking off from the balls of the feet.

TABLE X

## DISTANCE JUMPED IN BROAD JUMP ACCORDING TO AGE

## BOYS

| Age          | 10    | 11     | 12     | 13    | 14    | 15     | 16     |
|--------------|-------|--------|--------|-------|-------|--------|--------|
| Excellent    | 5' 6" | 5' 10" | 6' 2"  | 6' 8" | 7' 2" | 7' 8"  | 8' 0"  |
| Good         | 5' 0" | 5' 4"  | 5' 8"  | 6' 0" | 6' 7" | 7' 0"  | 7' 3"  |
| Satisfactory | 4' 8" | 5' 0"  | 5' 4"  | 5' 8" | 6' 1" | 6' 5"  | 6' 11" |
| Poor         | 4' 4" | 4' 7"  | 4' 11" | 5' 2" | 5' 7" | 5' 11" | 6' 4"  |

## GIRLS

|              |        |       |       |        |       |       |        |
|--------------|--------|-------|-------|--------|-------|-------|--------|
| Excellent    | 5' 4"  | 5' 7" | 5' 8" | 5' 9"  | 6' 2" | 6' 3" | 6' 5"  |
| Good         | 4' 10" | 5' 0" | 5' 2" | 5' 4"  | 5' 6" | 5' 6" | 5' 8"  |
| Satisfactory | 4' 5"  | 4' 8" | 4' 9" | 4' 11" | 5' 0" | 5' 0" | 5' 2"  |
| Poor         | 4' 1"  | 4' 3" | 4' 5" | 4' 6"  | 4' 8" | 4' 8" | 4' 10" |

In doing the fifty-yard dash pupils must stand behind the starting line. The starter takes a position at the finish line with a stopwatch. He raises one hand preparatory to giving the starting signal. When the starter brings his hand down quickly and hits his thigh, the pupil leaves his mark. As the pupil crosses the finish line, the time is noted and recorded.

TABLE XI

## TIME OF 50-YARD DASH ACCORDING TO AGE

## BOYS

| Age          | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| Excellent    | 7.6 | 7.3 | 7.0 | 6.5 | 6.5 | 6.2 | 6.1 |
| Good         | 8.1 | 7.9 | 7.5 | 7.2 | 7.0 | 6.7 | 6.4 |
| Satisfactory | 8.6 | 8.3 | 8.0 | 7.6 | 7.3 | 7.0 | 6.8 |
| Poor         | 9.0 | 8.7 | 8.3 | 8.0 | 7.7 | 7.3 | 7.0 |

## GIRLS

|              |     |     |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| Excellent    | 8.0 | 7.5 | 7.2 | 7.4 | 7.3 | 7.4 | 7.1 |
| Good         | 8.5 | 8.2 | 8.0 | 7.9 | 8.0 | 8.0 | 7.7 |
| Satisfactory | 8.9 | 8.6 | 8.4 | 8.2 | 8.3 | 8.3 | 8.2 |
| Poor         | 9.5 | 9.0 | 9.0 | 8.8 | 8.8 | 8.9 | 8.6 |

NOTE: This table should be read in seconds to the nearest tenth.

In doing the shuttle run two blocks of wood, 2-by 2-by 4-inches, and a stopwatch are needed. Two parallel lines 30 feet apart should be drawn. The blocks of wood are to be placed behind one of the lines. Pupils are to stand behind the line opposite the blocks and ready to run. On the signal the pupil runs to the blocks, picks up one, returns and places it behind the starting line. He then runs and picks up the second block and carries it back across the starting line.

TABLE XII

## TIME OF SHUTTLE RUN ACCORDING TO AGE

## BOYS

| Age          | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
|--------------|------|------|------|------|------|------|------|
| Excellent    | 10.3 | 10.4 | 10.0 | 9.7  | 9.4  | 9.3  | 9.1  |
| Good         | 11.2 | 11.0 | 10.5 | 10.3 | 10.0 | 10.0 | 9.5  |
| Satisfactory | 11.9 | 11.6 | 11.1 | 10.8 | 10.5 | 10.4 | 10.0 |
| Poor         | 12.3 | 12.0 | 11.7 | 11.5 | 11.0 | 10.9 | 10.5 |

## GIRLS

|              |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|
| Excellent    | 11.2 | 10.9 | 10.4 | 10.7 | 10.5 | 10.5 | 10.3 |
| Good         | 11.8 | 11.6 | 11.3 | 11.3 | 11.2 | 11.0 | 11.0 |
| Satisfactory | 12.4 | 12.2 | 12.0 | 12.0 | 11.8 | 11.8 | 11.5 |
| Poor         | 13.1 | 12.9 | 12.6 | 12.4 | 12.5 | 12.3 | 12.0 |

NOTE: This table should be read in seconds to the nearest tenth.

In doing the softball throw test a pupil must stand several feet behind a restraining line, ready to throw a 12" softball. Moving forward, the pupil must throw the ball, overhand, from behind the restraining line, as far as he can.

TABLE XIII

## DISTANCE OF SOFTBALL THROW IN FEET ACCORDING TO AGE

## BOYS

| Age          | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
|--------------|-----|-----|-----|-----|-----|-----|-----|
| Excellent    | 122 | 130 | 151 | 171 | 190 | 207 | 214 |
| Good         | 103 | 115 | 132 | 148 | 163 | 182 | 190 |
| Satisfactory | 92  | 103 | 118 | 129 | 147 | 164 | 172 |
| Poor         | 82  | 94  | 102 | 115 | 131 | 150 | 156 |

## GIRLS

|              |    |    |    |     |     |     |     |
|--------------|----|----|----|-----|-----|-----|-----|
| Excellent    | 69 | 88 | 94 | 106 | 112 | 117 | 120 |
| Good         | 56 | 68 | 78 | 88  | 89  | 94  | 99  |
| Satisfactory | 45 | 56 | 65 | 75  | 75  | 80  | 84  |
| Poor         | 38 | 48 | 55 | 63  | 64  | 67  | 71  |

In performing the last test, the 600-yard run-walk, a stopwatch, and running area with designated starting and finish lines are needed. Pupils must stand behind the starting line, and on the signal the pupil must run the 600-yard distance, walking only if necessary.



TABLE XIV  
600-YARD DASH RECORDED IN MINUTES AND SECONDS

ACCORDING TO AGE

BOYS

| Age          | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
|--------------|------|------|------|------|------|------|------|
| Excellent    | 2:15 | 2:2  | 2:5  | 2:0  | 1:50 | 1:43 | 1:40 |
| Good         | 2:30 | 2:24 | 2:19 | 2:13 | 2:5  | 1:59 | 1:51 |
| Satisfactory | 2:45 | 2:37 | 2:32 | 2:25 | 2:18 | 2:9  | 2:0  |
| Poor         | 2:58 | 2:50 | 2:46 | 2:36 | 2:30 | 2:20 | 2:10 |

GIRLS

|              |      |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|------|
| Excellent    | 2:30 | 2:25 | 2:22 | 2:24 | 2:20 | 2:27 | 2:23 |
| Good         | 2:49 | 2:44 | 2:41 | 2:43 | 2:45 | 3:5  | 2:48 |
| Satisfactory | 3:6  | 3:1  | 3:3  | 3:0  | 3:5  | 3:6  | 3:5  |
| Poor         | 3:21 | 3:16 | 3:21 | 3:24 | 3:24 | 3:24 | 3:23 |

After carefully administering the tests, the investigator tabulated the results. A four point value was given to each person receiving an "excellent" on any one test, a three point value for "good", a two point value for "satisfactory", and a one point value for "poor". If a student received "excellent" on all seven tests, he would receive a total score of 28 (seven tests X 4 points, the value for "excellent" per test). If a student received "poor" on all seven tests, he would receive a total score of 7 (seven tests X 1 point, the value for "poor" per test). In this way a student received a numerical

score for his National Physical Fitness Tests.

A scale was then established. Anyone receiving a numerical score between 7 and 17 was considered as below the average established for the physical fitness test scores. Anyone receiving between 18 and 28 was considered as above the average established for the physical fitness test scores.

Each student's score sheet was tabulated and he was given a number which could range from 7 to 28. This number represented a score of the child's total fitness. If a child scored below 17, the score which classifies him below the average established for the physical fitness test, it does not mean that the student was below average on every test; rather, it represents an overall score on all seven tests.

Of the 347 boys who participated in the study, there were 201 who were above the average and 146 who were below. Of the 339 girls who participated, 193 were above the average and 146 below. The totals were: 686 participated; 394 were above the average and 292 were below the average.

In order to make a comparison of each child's physical fitness ability with his academic ability, his physical fitness score sheet was used. On the back

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NOTE: The terms, above average and below average, represent a general expression and do not indicate a computed numerical average.

of his score sheet, his 1962-1963 subjects and grades were placed. Grades were assigned the following point values: A-5; B-4; C-3; D-2; F-1. If a student took six classes and made three B's and three C's, it would be totaled ( $3 \times 4$ , the point value for B's, and  $3 \times 3$ , the point value for C's, is equal to 21) and then averaged ( $21 \div 6 = 3.5$ ). Therefore, a student taking six classes and receiving 3 B's and 3 C's would have a grade average of 3.5. In this way a student received a numerical grade average, and it was placed on the back of his physical fitness score sheet for comparison purposes.

A grade scale was then established, which follows: A=4.6 to 5; B= 3.6 to 4.5; C=2.6 to 3.5; D=1.6 to 2.5; and F=1.0 to 1.5.

Of the 686 students who participated in this study seven boys and twenty girls received A's (TABLE XV)

The study revealed that students who maintained an above average level of physical fitness had a higher academic average in their school subjects than those students whose physical fitness was below average. Both the boys and girls followed a somewhat similar pattern with the girls receiving slightly higher grades.

TABLE XV

NUMBER AND PERCENT OF STUDENTS AND THEIR GRADES WHO  
WERE ABOVE AVERAGE AND BELOW AVERAGE  
ON THEIR PHYSICAL FITNESS TESTS

| ABOVE PHYSICAL FITNESS<br>(TEST AVERAGE) |  | BELOW PHYSICAL FITNESS<br>(TEST AVERAGE) |
|--|--|--|
| <u>BOYS</u>                              |  |  |
| 5 A's of 201= 2.4%                       |  | 2 A's of 146= 1.4%                       |
| 67 B's of 201=33.3%                      |  | 37 B's of 146=25.3%                      |
| 96 C's of 201=47.8%                      |  | 53 C's of 146=36.3%                      |
| 33 D's of 201=16.5%                      |  | 49 D's of 146=33.6%                      |
| 0 F's of 201= .0%                        |  | 5 F's of 146= 3.4%                       |
| <u>GIRLS</u>                             |  |  |
| 18 A's of 193= 9.3%                      |  | 2 A's of 146= 1.4%                       |
| 92 B's of 193=47.6%                      |  | 35 B's of 146=23.9%                      |
| 81 C's of 193=41.9%                      |  | 69 C's of 146=47.3%                      |
| 2 D's of 193= 1.2%                       |  | 36 D's of 146=24.6%                      |
| 0 F's of 193= .0%                        |  | 4 F's of 146= 2.8%                       |

Of the boys who were above the average level of physical fitness, 2.4% received an A academic average; 33.3% received a B academic average; 47.8% received a C average; 16.5% received a D average; and no one received an F average. This is compared to the boys who were below the average level of physical fitness when only 1.4% received an A average; 25.9% received a B average; 36.3% received a C average; 33.6% received a D average; and 2.8% received an F average.

A further comparison of the boys shows that 83.5% of the boys who were above the average level of physical fitness received an A, B, or C academic average. This is compared to 63.6% who were below the average level of physical fitness, receiving an A, B, or C academic average.

Of the girls who were above the average level of physical fitness, 9.3% received an A academic average; 47.6% received a B academic average; 41.9% received a C average; 1.2% received a D average; and no one received an F average. This is compared to the girls who were below the average level of physical fitness when only 1.4% received an A average; 23.9% received a B average; 47.3% received a C average; 24.6% received a D average; and 2.8% received an F average.

A further comparison shows that 98.8% of the girls who were above the average level of physical fitness received an A, B, or C academic average. This is compared to 72.6% who were below the average level of physical fitness, and who received either an A, B, or C academic average. (FIGURES 1 AND 2)

While these figures do not prove that the students' academic performances resulted from superior physical fitness, the collected data tend to support a general belief among physical education authorities that physical fitness and intellectual excellence are related and are therefore compatible.<sup>2</sup>

Students were also rated in two other areas. These two areas were attendance and attitude toward school work.

Each of the 686 students was given a physical fitness score sheet and was asked to answer the following question on the back of the sheets. "Do you generally like school?" The answers were compiled and are shown in FIGURES 3 and 4.

The score sheets were then used to compare what relationship there was, if any, between good attendance and physical fitness. The results are compiled in FIGURE 5.

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<sup>2</sup>A joint interview with Mr. Ludwell E. Sherman, Director of Health and Physical Education of the Richmond Public Schools, and Mr. Clayton H. Rechenbach, principal of Albert H. Hill School, August 7, 1963.

FIGURE 1

COMPARISON OF GRADES OF STUDENTS(BOYS) WITH ABOVE AVERAGE PHYSICAL FITNESS SCORES AGAINST THOSE HAVING BELOW AVERAGE PHYSICAL FITNESS TEST SCORES

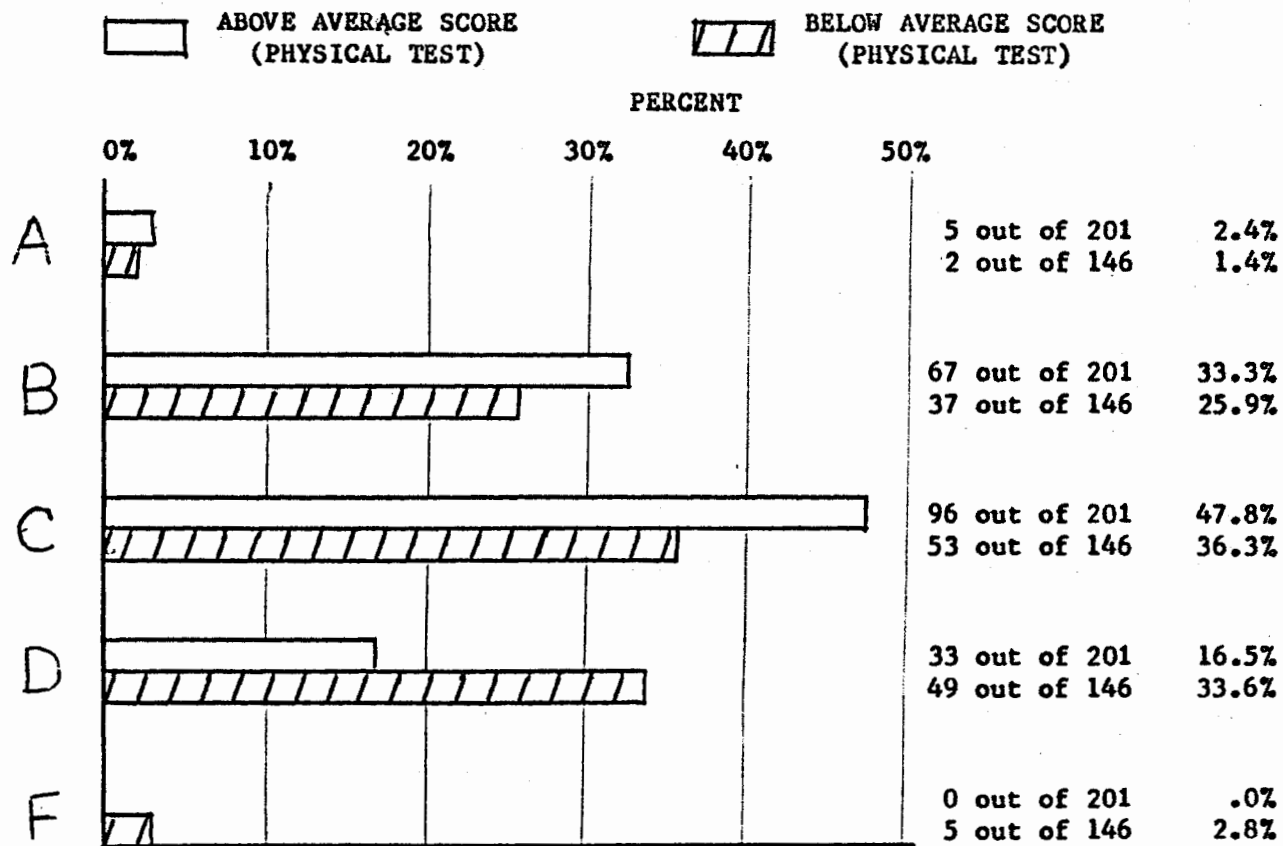
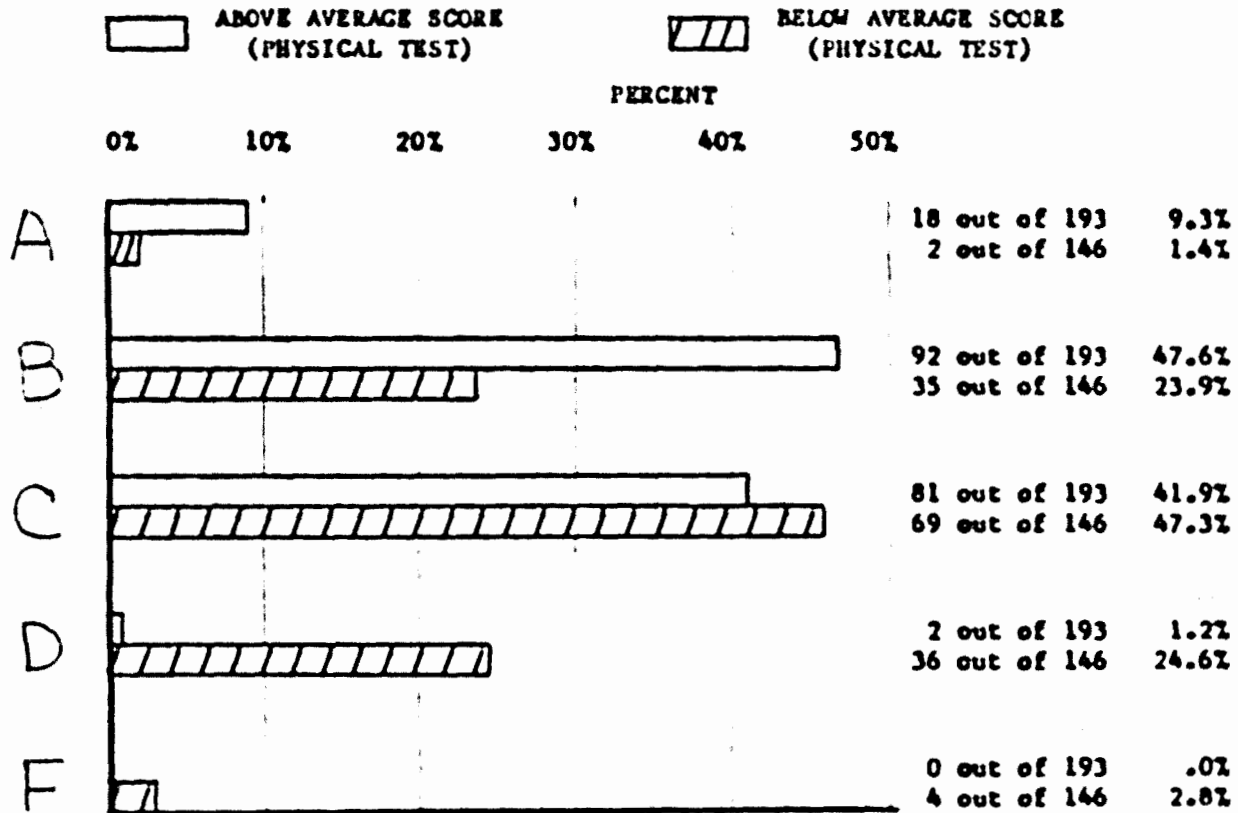


FIGURE 2

COMPARISON OF GRADES OF STUDENTS(GIRLS) WITH ABOVE AVERAGE PHYSICAL FITNESS SCORES AGAINST THOSE HAVING BELOW AVERAGE PHYSICAL FITNESS SCORES(TESTS)





The results of the study, concerning the attitude of students toward school work when compared with their physical fitness abilities, showed that students who were above the average level of physical fitness liked school more than the students who were below the average level of physical fitness. The higher physically fit children were also more inclined to make a definite decision concerning the question, as more students from this group answered the question in a positive or negative manner than the group that was lower physically fit. Thus the results of this study also showed that students who were better physically fit were able to make a decision on a question much better than students who were lower physically fit.

Of the boys who were above the average level of physical fitness, 78.6% liked school, while only 6.0% disliked school, and 15.4% were indifferent to the question.

Of the boys who were below the average level of physical fitness, 62.3% liked school, while 13.7% disliked school, and 24.0% were indifferent to the question.

Of the girls who were above the average level of physical fitness, 86% liked school, while only 3.6%

disliked school, and 10.4% were indifferent to the question.

Of the girls who were below the average level of physical fitness, 55.5% liked school, while 20.5% disliked school, and 24.0% were indifferent to the question.

Although the number of students disliking school from both groups was very low, the percentage of students from the group that were below the level of physical fitness was more than twice that of the group that was higher physically fit in this question of disliking school.

The third study in the area of academic performance, that of attendance, revealed that students who were better physically fit attended school more often than those students who were below the average level of physical fitness.

Each of the 686 students who were involved in the study was on the rolls of the school for the first thirty weeks of school or 150 days. The results of the study were based on the average number of days that each group was absent within this 150 day period.

FIGURE 3

ATTITUDE TOWARD SCHOOL WORK COMPARING THOSE STUDENTS(BOYS)  
 HAVING ABOVE AVERAGE LEVEL OF PHYSICAL FITNESS AGAINST  
 THOSE HAVING BELOW AVERAGE LEVEL OF PHYSICAL FITNESS

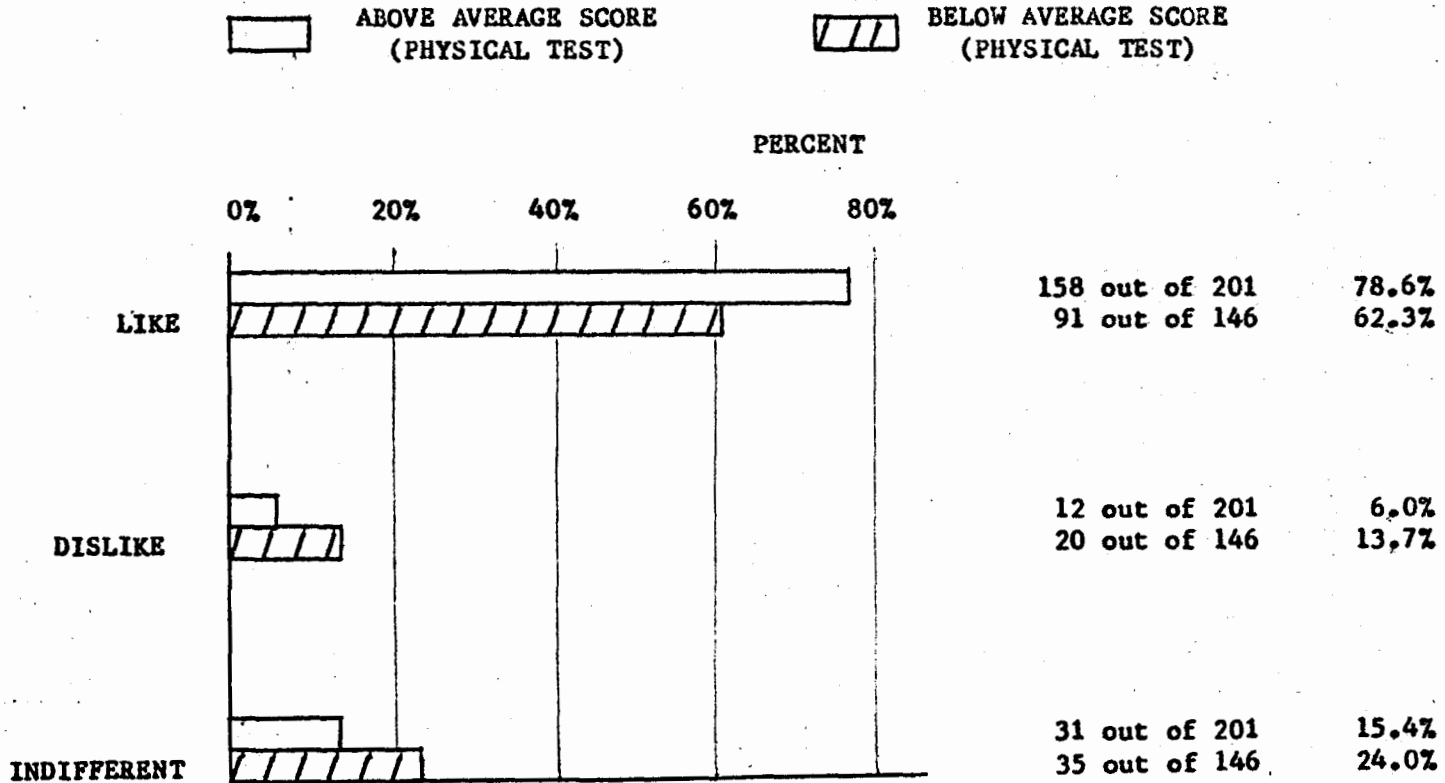
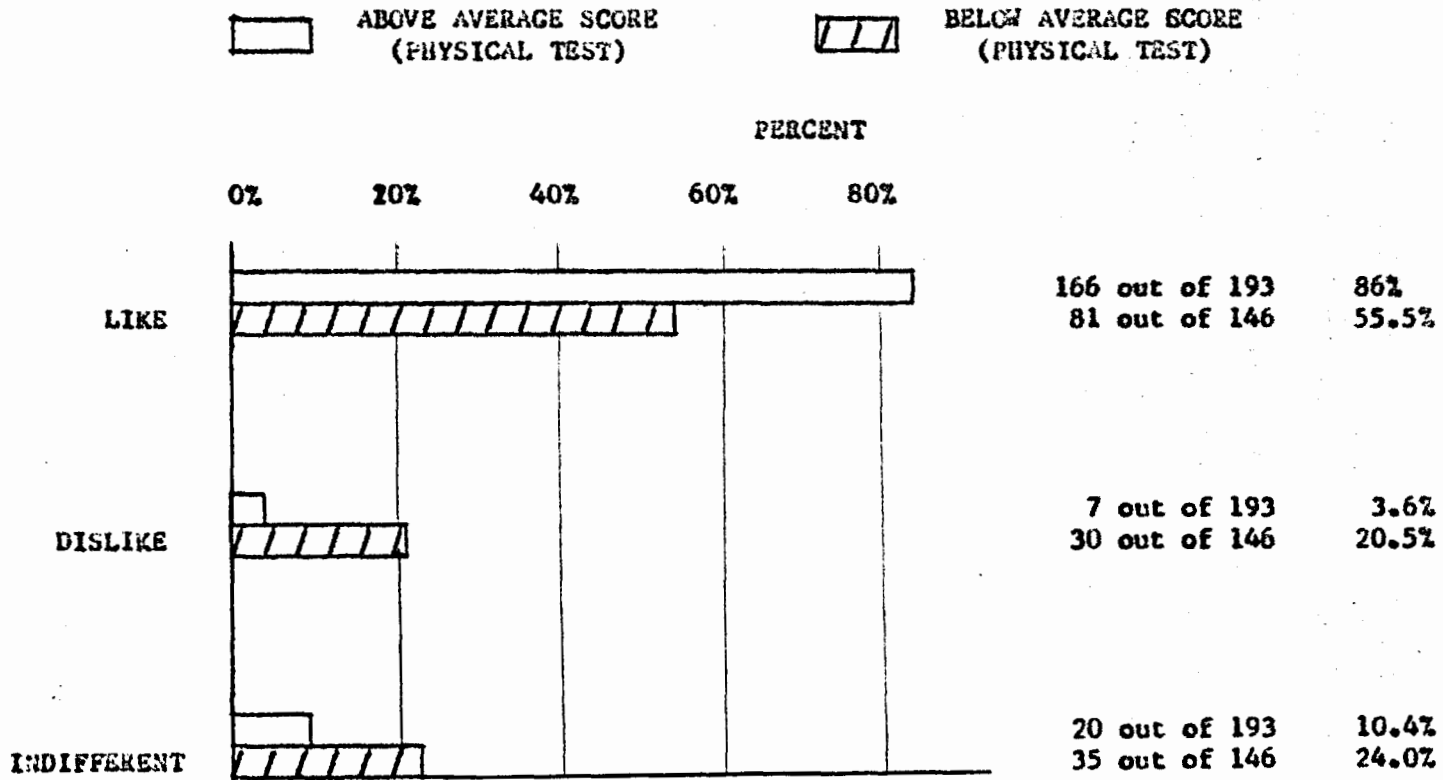


FIGURE 4

ATTITUDE TOWARD SCHOOL WORK COMPARING THOSE STUDENTS(GIRLS)  
 HAVING ABOVE AVERAGE LEVEL OF PHYSICAL FITNESS AGAINST  
 THOSE HAVING BELOW AVERAGE LEVEL OF PHYSICAL FITNESS



Of the boys who were above the average level of physical fitness, the average number of days absent was 4.9 days as compared to the 6.1 days for the group that was below the average level of physical fitness.

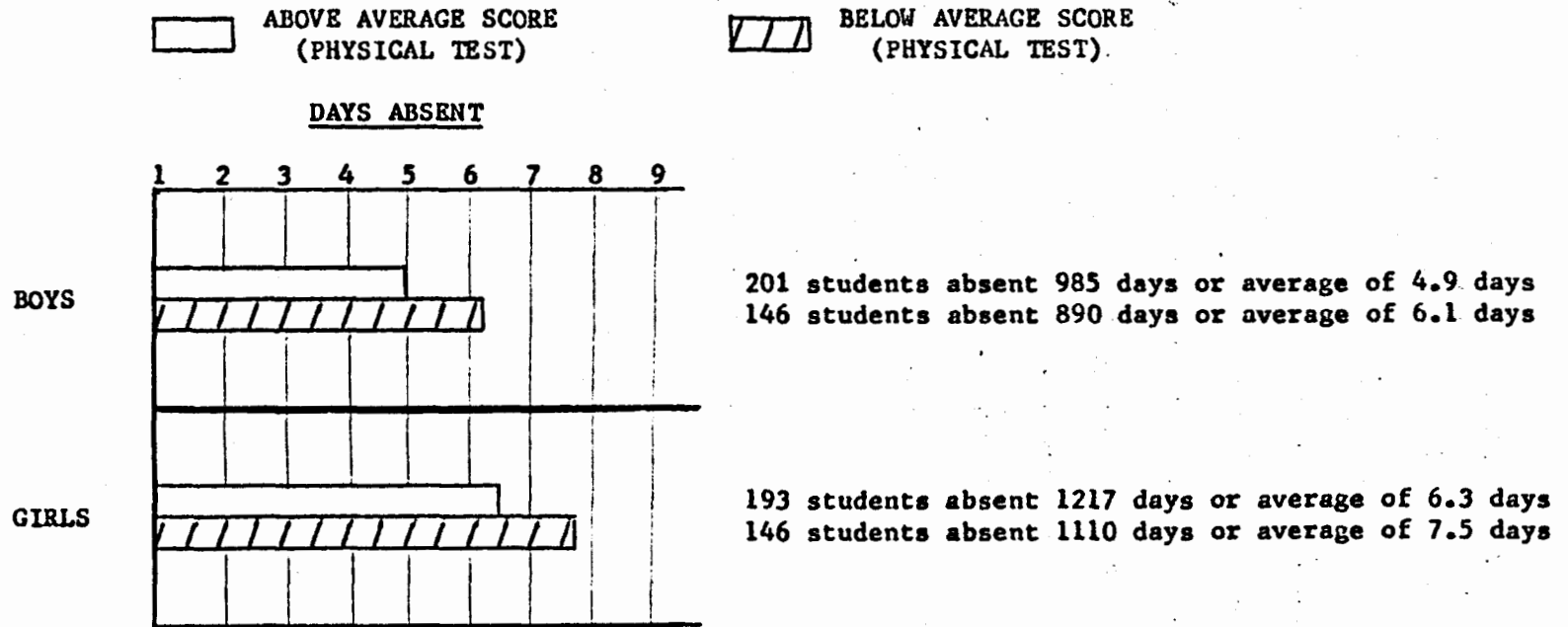
Of the girls who were above the average level of physical fitness, the average number of days absent was 6.3 days as compared to the 7.5 days for the group that was below the average level of physical fitness.

(FIGURE 5)

FIGURE 5

COMPARISON OF ATTENDANCE OF STUDENTS WITH ABOVE  
AVERAGE LEVEL OF PHYSICAL FITNESS AGAINST  
THOSE HAVING BELOW AVERAGE LEVEL OF  
PHYSICAL FITNESS

AVERAGE NUMBER OF DAYS ABSENT BASED ON 150 DAYS TOTAL



## CHAPTER VI

### A SUMMARY OF THE 1963 PHYSICAL FITNESS TEST RESULTS

The National Physical Fitness Tests are administered to all children at the beginning of the school year in September and at the end of the school year in May within their physical education classes. A great deal of improvement takes place during the school year as the students return from their summer vacations and work to improve their strength, agility and endurance through daily planned exercises. Weaknesses are discovered in the individual and special emphasis is placed in improving these weaknesses. Every student is treated as an individual, and he is assisted in improving his physical characteristics. Even those who score "excellent" in the national tests, the scales which are prepared by the President's Council on Youth Fitness, are encouraged to improve their physical condition.<sup>1</sup>

The results of the latest physical fitness tests, which were given to the students of Albert H. Hill in May, 1963, are given in Tables XVI and XVII to show

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<sup>1</sup>A personal interview with Mr. Ludwell E. Sherman, Director of Health and Physical Education of the Richmond Public Schools, February 18, 1963.

how students compare with the national figures.

The results indicated that the girls of Albert H. Hill School did exceptionally well when compared to the other eight junior high schools within the city, whereas the boys of Albert H. Hill School did not do as well when compared to the other city junior high schools.

It must be taken into consideration that muscular growth during the beginning of the adolescent period is rapid and coordination is usually poor. As girls usually develop their physical and emotional characteristics two years ahead of the boys, it should be expected that girls will do better than boys in the early years of the secondary school in some physical chores.<sup>2</sup>

In summarizing the results of the physical fitness tests, those students who had participated in some form of varsity sport within the interscholastic program at Albert H. Hill School were compared with those students who had not participated in a varsity sport. In every single test both boys and girls who

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<sup>2</sup>William T. Gruhn and Harl R. Douglass, The Modern Junior High School (New York: Ronald Press, Co., 1956, p. 22.



participated in a varsity sport did better than the boys and girls who had not participated in the interscholastic program.

Since students participating in the interscholastic program must pass a certain number of courses, depending on the number of courses that they are taking, the students generally do well in their academic classes.

TABLE XVI  
 PHYSICAL FITNESS TESTS-SUMMARY<sup>3</sup>  
 May, 1963

GIRLS

| ITEM                     | TOTAL<br>NO. | EXCEL. % | GOOD % | SATIS. % | POOR %   |
|--------------------------|--------------|----------|--------|----------|----------|
| <u>SIT UPS</u>           |              |          |        |          |          |
| JR. HIGH                 | 2543         | 1742     | 68.3   | 456 14.0 | 185 7.2  |
| A. H. HILL               | 351          | 239      | 67.8   | 67 19.0  | 17 5.3   |
| VARSITY                  | 38           | 32       | 84.2   | 5 13.1   | 1 2.7    |
| NON-VARSITY              | 313          | 207      | 66.1   | 62 19.5  | 16 5.1   |
| <u>PULL UPS</u>          |              |          |        |          |          |
| JR. HIGH                 | 2511         | 1555     | 61.9   | 301 11.9 | 209 8.3  |
| A. H. HILL               | 351          | 285      | 81.2   | 27 7.6   | 21 5.9   |
| VARSITY                  | 38           | 36       | 94.7   | 2 5.3    | 0 .0     |
| NON-VARSITY              | 313          | 249      | 79.5   | 25 8.0   | 21 6.7   |
| <u>BROAD JUMP</u>        |              |          |        |          |          |
| JR. HIGH                 | 2525         | 780      | 30.8   | 594 23.9 | 534 21.1 |
| A. H. HILL               | 351          | 131      | 37.3   | 73 20.8  | 74 21.1  |
| VARSITY                  | 38           | 20       | 52.4   | 9 23.8   | 3 7.7    |
| NON-VARSITY              | 313          | 111      | 35.4   | 64 20.4  | 71 22.6  |
| <u>50 YARD DASH</u>      |              |          |        |          |          |
| JR. HIGH                 | 2535         | 716      | 28.2   | 733 28.1 | 466 18.3 |
| A. H. HILL               | 351          | 145      | 41.3   | 63 17.9  | 59 16.8  |
| VARSITY                  | 38           | 20       | 52.4   | 6 16.6   | 5 13.1   |
| NON-VARSITY              | 313          | 125      | 39.9   | 57 18.2  | 54 17.2  |
| <u>SHUTTLE RUN</u>       |              |          |        |          |          |
| JR. HIGH                 | 2532         | 741      | 29.2   | 690 27.5 | 485 19.1 |
| A. H. HILL               | 351          | 143      | 40.7   | 84 24.0  | 49 13.9  |
| VARSITY                  | 38           | 19       | 50.0   | 7 17.9   | 6 16.1   |
| NON-VARSITY              | 313          | 124      | 39.6   | 77 24.7  | 43 14.1  |
| <u>SOFTBALL THROW</u>    |              |          |        |          |          |
| JR. HIGH                 | 2534         | 439      | 17.3   | 543 21.4 | 578 22.8 |
| A. H. HILL               | 351          | 114      | 32.4   | 41 11.6  | 59 16.8  |
| VARSITY                  | 38           | 16       | 42.1   | 6 16.1   | 6 16.1   |
| NON-VARSITY              | 313          | 98       | 31.3   | 35 11.1  | 53 16.9  |
| <u>600 YARD RUN-WALK</u> |              |          |        |          |          |
| JR. HIGH                 | 2526         | 884      | 35.0   | 747 29.5 | 497 19.6 |
| A. H. HILL               | 351          | 150      | 42.7   | 84 24.0  | 66 18.5  |
| VARSITY                  | 38           | 22       | 57.9   | 9 23.8   | 2 5.2    |
| NON-VARSITY              | 313          | 128      | 40.8   | 75 23.9  | 64 20.4  |

<sup>3</sup>See TABLES VIII through XIV on pages 64 - 69 for the National Physical Fitness Tests averages for each test.

TABLE XVII  
 PHYSICAL FITNESS TESTS-SUMMARY<sup>4</sup>  
 May, 1963

| ITEM                     | TOTAL<br>NO. | EXCEL. % | BOYS |     | SATIS. % | POOR | % <sup>4</sup> |     |      |
|--------------------------|--------------|----------|------|-----|----------|------|----------------|-----|------|
|                          |              |          | GOOD | %   |          |      |                |     |      |
| <u>SIT UPS</u>           |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2511         | 1283     | 51.1 | 512 | 20.4     | 310  | 12.3           | 406 | 16.1 |
| A. H. HILL               | 345          | 276      | 80.0 | 33  | 9.5      | 12   | 3.4            | 24  | 7.1  |
| VARSITY                  | 60           | 50       | 83.3 | 4   | 6.6      | 4    | 6.6            | 2   | 3.5  |
| NON-VARSITY              | 285          | 226      | 79.3 | 29  | 10.1     | 8    | 2.6            | 22  | 8.0  |
| <u>PULL UPS</u>          |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2500         | 529      | 21.2 | 639 | 25.6     | 459  | 18.3           | 873 | 34.9 |
| A. H. HILL               | 345          | 60       | 17.4 | 64  | 18.2     | 71   | 20.6           | 150 | 43.8 |
| VARSITY                  | 60           | 24       | 40.0 | 16  | 26.6     | 16   | 26.6           | 4   | 6.8  |
| NON-VARSITY              | 285          | 36       | 12.6 | 48  | 16.9     | 55   | 15.4           | 146 | 55.1 |
| <u>BROAD JUMP</u>        |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2508         | 505      | 20.1 | 679 | 27.1     | 557  | 22.2           | 767 | 30.5 |
| A. H. HILL               | 345          | 42       | 12.1 | 43  | 12.4     | 28   | 8.1            | 105 | 67.4 |
| VARSITY                  | 60           | 16       | 26.6 | 24  | 40.0     | 10   | 16.7           | 10  | 16.7 |
| NON-VARSITY              | 285          | 26       | 9.1  | 19  | 6.7      | 18   | 6.3            | 95  | 77.9 |
| <u>50 YARD DASH</u>      |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2510         | 449      | 17.9 | 901 | 35.9     | 538  | 21.4           | 622 | 24.7 |
| A. H. HILL               | 345          | 36       | 10.4 | 124 | 35.9     | 92   | 26.6           | 93  | 27.1 |
| VARSITY                  | 60           | 28       | 46.6 | 24  | 40.0     | 6    | 9.9            | 2   | 3.5  |
| NON-VARSITY              | 285          | 8        | 2.6  | 100 | 35.1     | 86   | 30.1           | 91  | 32.2 |
| <u>SHUTTLE RUN</u>       |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2506         | 654      | 26.1 | 769 | 30.7     | 520  | 20.7           | 563 | 22.0 |
| A. H. HILL               | 345          | 62       | 17.9 | 113 | 32.7     | 91   | 26.4           | 79  | 23.0 |
| VARSITY                  | 60           | 16       | 26.6 | 22  | 36.6     | 20   | 33.3           | 2   | 3.5  |
| NON-VARSITY              | 285          | 46       | 16.1 | 91  | 32.2     | 71   | 24.9           | 77  | 26.8 |
| <u>SOFTBALL THROW</u>    |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2507         | 556      | 22.1 | 642 | 25.6     | 564  | 22.5           | 745 | 29.7 |
| A. H. HILL               | 345          | 83       | 24.1 | 88  | 25.5     | 82   | 23.7           | 92  | 26.7 |
| VARSITY                  | 60           | 50       | 83.3 | 4   | 6.7      | 3    | 5.0            | 3   | 5.0  |
| NON-VARSITY              | 285          | 33       | 11.5 | 84  | 29.4     | 79   | 27.7           | 89  | 31.4 |
| <u>600 YARD RUN-WALK</u> |              |          |      |     |          |      |                |     |      |
| JR. HIGH                 | 2509         | 1054     | 42.0 | 695 | 27.7     | 324  | 12.9           | 436 | 17.3 |
| A. H. HILL               | 345          | 132      | 38.2 | 114 | 33.0     | 46   | 13.3           | 53  | 25.5 |
| VARSITY                  | 60           | 51       | 85.1 | 6   | 9.9      | 3    | 5.0            | 0   | .0   |
| NON-VARSITY              | 285          | 81       | 28.3 | 108 | 37.8     | 43   | 15.1           | 53  | 18.0 |

<sup>4</sup>See TABLES VIII through XIV on pages 64 - 69 for the National Physical Fitness Test averages for each test.

## CHAPTER VII

## SUMMARY AND CONCLUSIONS

One purpose of this paper was to study the Health and Physical Education Program in order to see where weaknesses existed so that improvements could be made. Another purpose was to determine how students and parents felt about the program. These purposes were accomplished by using questionnaires, which were distributed to the students and parents. After compiling the results of the questionnaires, a careful study was made. Using the questionnaires as a basis for this study, parents, students, teachers and principals were interviewed for further study. Certain conclusions were reached concerning the program. Some of these conclusions have been presented to the administration and some changes within the program are being made for the coming school year. It is hoped that the administration and curriculum committees will give careful consideration to the suggestions which follow in planning for future health and physical education programs.

1. The physical education classes seem to be very desirable, as most parents and students felt that these classes were an important part of the school program. Approximately 95% of the students indicated that they generally enjoyed participating in physical education classes. With such a positive approach to the program by students and parents it would seem that physical education is needed and definitely has a part within the educational offerings of Albert H. Hill School; therefore, the physical education classes should continue to satisfy the patrons by striving to reach the goals and objectives of the program.

2. Both parents (87.1%) and students (89.8%) appear to be more concerned with the importance of physical fitness, and they seem to feel that the Health and Physical Education Program is helping each individual student in becoming a better physically fit person. For this reason the time that is spent on daily class physical exercises and periodic physical tests seems to be desirable and necessary.

3. There appears to be an increase in the number of students who feel that children who achieve high scores on their physical fitness tests should receive

some form of recognition. For this reason a recommendation was made to honor these students in an assembly program by presenting these pupils to the student body. The program may also attempt to show the importance of physical fitness and the results of the most recent physical fitness tests given to the students of Albert H. Hill School and how they compared with other junior high schools of Richmond. Such a program is planned for the coming school year and the results will be studied for similar programs in the future.

4. There seems to be a weakness within the health program, as 59.9% of the students felt that the study of health was not beneficial to them. The answers were varied and included the following: "It's too boring", "It's repetition", "We've had the same things in science", and "It's uninteresting". Since the parents generally felt that their children were more aware of better health habits because of the health program, the program seems to be justifiable. For this reason a recommendation was made to the administration to attempt to eliminate the repetition which may exist within the health program and to continue the study next

year to see what can be done to improve the program further.

Approximately 89.6% of the parents and 82% of the students seem to feel that the intramural program generally benefits the entire school and community. For this reason the great amount of after school work needed seems to be justifiable and desirable. It would also seem desirable to extend the intramural program for longer periods in the afternoon in order to allow more time for supervised activities. Since the results of the questionnaires seem to indicate that such an additional service would be beneficial to the community as a whole, school authorities might wish to consider increasing the funds in the budget to provide for this additional service.

6. Many girls (72.6%) would like to place more emphasis on dancing within the program. However a large number of boys (51.3%) did not enjoy participating in this activity, particularly in the seventh grade, as only 37.5% of the seventh grade boys wanted dancing in the program. As the parents generally felt that they would like to see their children participate in dancing and instruction in this activity, it would

seem desirable to offer dancing for those who desire it and also have an additional scheduled activity for those who do not wish to dance.

7. Most of the parents (87.1%) and students (75.8%) seem pleased with the activities which are offered in the program. With more emphasis being placed on improving the health program in the coming school year, the program should further meet the needs of the school and community in the future.

8. The students suggested that a larger gymnasium be provided to allow all children to participate in some type of physical activity every day. In the planning of future buildings and additions school officials should give this suggestion careful consideration.

9. Approximately 81.4% of the parents indicated an interest in the Health and Physical Education Program but they felt that more information concerning what their children did in their classes should be sent home more often. It would seem that additional information sent to the home as well as Parent-Teacher Association meetings with programs centering around health and physical education activities would contribute to better school and community relations.



10. Most of the seventh graders (74.9%) enjoyed the bowling program and expressed a desire to continue the program into the eighth and ninth grades. Since the bowling alley is controlled by a private business and since they offer transportation to and from school in the afternoons, it seems to be a problem of lack of time and a lack of transportation facilities. In the future it is hoped that additional facilities will allow additional students in the upper grades to participate.

11. About 90.7% of the ninth grade students indicated that driver education was beneficial to them and expressed a desire to add behind-the-wheel driving to the course. However since children of the junior high school are usually under the minimum age for such activities it does not warrant such action. Perhaps in future planning of the course of study actual behind-the-wheel driving can be added to the tenth grade course, as children in this grade are usually old enough to obtain a learner's permit. Since some children become of age while in the ninth grade, it is urged that driver education remain within the ninth grade course of study. This investigator feels that some knowledge of the

driving skills is necessary before an individual gets behind the wheel of an automobile.

12. The results of the National Physical Fitness Tests indicated that the students lack the skill needed in the activities which require the use of the arm and shoulder girdle muscles. This weakness may be improved by additional time being devoted to conditioning exercises and certain forms of gymnastics.

13. This study revealed that pupils who achieved an above average level of physical fitness had a higher academic average in school work, attended school more regularly, and liked school better than those pupils whose physical fitness was below average. While this did not prove that the academic performance of students, regularity of attendance, and feelings toward liking or disliking school was necessarily a result of their physical abilities, it may indicate that intellectual excellence and physical fitness are related and therefore compatible. From this comparison one may conclude that the relationship between physical fitness and academic performance is strong enough to justify a sound educational program as a definite asset in the education of children.

The Health and Physical Education Program at Albert H. Hill School has grown from the post World War I days, meeting successfully one crisis after another. In the present crisis of building a totally fit person--mentally, physically, emotionally and socially--the program strives to improve its services for a better community, country, and world.

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## D. UNPUBLISHED MATERIAL

Hudson, Grant. "A Comparison of the Intelligence of High School Athletes and Non-Athletes in Henrico County," Unpublished Master's Thesis, The University of Richmond, Virginia, 1961.

## E. INTERVIEWS

Miss Jessie Pollard Haynes, formerly a principal at Grace Arents School, an assistant principal at the Richmond Normal School, and an Assistant Professor of Education at the University of Richmond.

Miss Julia Cuthbert Pollard, formerly a student of the Richmond Normal School, at present a teacher at Albert H. Hill School, and author of Richmond's Story.

Mr. Ralph Pritchard, a senior member of the Department of Health and Physical Education at Albert H. Hill School.

Mr. Clayton H. Rechenbach, formerly an athletic coach at John Marshall High School, an assistant principal at Bainbridge and Albert H. Hill Schools, at present the principal of Albert H. Hill School.

Mr. Ludwell E. Sherman, Supervisor of Health and Physical Education, Richmond Public Schools.

## VITA

Thomas Costas Stavredes, son of Mr. and Mrs. Costas Stavredes, was born in Richmond, Virginia, July 11, 1937. He was educated in the Richmond Public Schools and received his diploma from Thomas Jefferson High School in June, 1955. Entering the University of Richmond in September, 1955, he graduated in June, 1959 with a Bachelor of Arts Degree and a Collegiate Professional Teaching Certificate.

After graduation he taught for two years in the elementary schools of Chesterfield County, taking leave briefly for a tour of active duty with the United States Army. In September, 1961 he joined the Richmond Public School System and was assigned to the Department of History at the Albert H. Hill School, a school which he attended as a student as well as a student teacher during his college training.

Mr. Stavredes is a member of Kappa Delta Pi, an honorary educational fraternity. Other professional organizations include the National Educational Association, Virginia Educational Association, and the League of Richmond Teachers.

He has been enrolled in the University of Richmond since the Summer of 1959 in the pursuit of the degree of Master of Science in Education.