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A battery of tests to compare the ability in basketball of selected boys in a junior high school and a boys' club.

BOSTON UNIVERSITY

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Thesis

A BATTERY OF TESTS TO COMPARE THE ABILITY IN BASKETBALL OF SELECTED BOYS IN A JUNIOR HIGH SCHOOL AND A BOYS' CLUB

Submitted by

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TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

CHAPTER I

INTRODUCTION

1. Purpose of the Study

The purpose of this study is to examine a group of boys (a) from a local junior high school, and (b) from a local boys' club by means of a series of four individual tests devised to measure basketball ability, and to determine whether there is a difference in basketball ability between the two groups. Robert Knox[1/] developed a skills test in basketball which is the one selected for use.

Basketball is a recognized unit of the physical education program of both junior high schools and boys' clubs, as well as in the intramural, interscholastic, and interclub phases. Since basketball is recognized as a unit in both school and boys' clubs, an attempt is made to determine the difference, if any, in the basketball ability of boys in the respective groups.

It is felt that a comparison between the two groups might point out comparative weaknesses and strengths in the programs, the knowledge of which might be utilized to re-evaluate the basketball teaching and coaching methods used in the junior high schools and in the boys' clubs.

1/Robert D. Knox, A Test in Basketball Ability, Unpublished Paper, University of Idaho, Moscow, Idaho.

2. Scope of the Problem

There has been an increase in research projects on ability tests in physical education with a considerable degree of success. These will be mentioned further under the review of the literature.

A series of four objective tests measuring various phases of basketball ability were given to a group of boys (a) from the Joseph E. Barnes Junior High School in East Boston, Massachusetts, and (b) from the South End Boys' Club in Boston, Massachusetts. The tests were given to 150 boys selected at random from the entire student enrollment of 307 boys in the seventh, eighth, and ninth grades at the Barnes School. Fifty boys were selected from each grade. These tests were also given to 150 members of the South End Boys' Club (50 each from the seventh, eighth, and ninth grade levels; these boys attend different junior high schools throughout Boston).

An attempt is made to determine what, if any, differences there are between the two groups and to consider possible reasons for same.

3. Justification of the Problem

Comparative data on the relative basketball abilities of junior high school boys and boys' club members may give the physical education instructor material by which he may set up new standards in basketball programming.

If the results of the tests do show a marked difference in the basketball abilities of the two groups, then a careful consideration of possible causes of these differences could lead to a re-evaluation of present methods of basketball presentation in physical education, and possible reorganization of same.

4. Limitations of the Problem

The sampling totals 300 boys, each tested once, and the outcome must be considered in the light of these facts until such time as the battery of tests can be given three or four times to each boy tested.

The test material and equipment were set up during free activity periods at the boys' club. This caused many limitations in these basketball tests. Most club members attending the gymnasium during free activity periods desire to pursue their choice of activity, whether it be weightlifting, basketball, boxing, or track. A halting of most of these activities created a difficult problem for testing the club members, and meant the curtailing of many free activity periods.

In the school situation, sufficient time was not available to test the boys within a desired period of time. Absenteeism also was a delaying factor.

CHAPTER II

REVIEW OF THE LITERATURE

There has been an increase in objective tests which attempt to help coaches select their squads and teams in many other sports. These objective tests are used not only to select but to measure improvement. John Gartner[1/] claims that his battery of tests has been highly successful in selecting his high school football teams over the past seven years. Brace[2/] also showed some success in working on football ability tests.

In reviewing the literature on the subject, the author found that the majority of tests devised are used merely as achievement or skill tests to measure the individual's progress in an activity, and not as a basis for his all-round ability in a sport. But Robert D. Knox[3/] developed a skills test in basketball for high school boys that was able to predict 80 per cent of the first team basketball players. Rodgers and Heath[4/] experimented with a battery of tests on fifth and sixth

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1/John Gartner, "A 'Screening' Device for Football Ability," Scholastic Coach (September, 1943).

2/D. K. Brace, "Validity of Football Achievement Tests as Measures of Motor Learning and as a Partial Basis for Selecting Players," Research Quarterly (December, 1943), 14:3.

3/Robert D. Knox, Prediction of Basketball Ability in Eight Class B High Schools, Master's Thesis, University of Oregon, 1938.

4/E. G. Rodgers and M. L. Heath, "An Experiment in the Use of Knowledge and Skill Tests in Playground Baseball," Research Quarterly (December, 1931), 11:4:113-131.

graders in baseball, and they felt that their experiment might give others a point of departure into the field of scientific investigation in skill and knowledge tests in physical education.

Other baseball skill tests have been published by such authors as Brophy,[1/] Wardlaw,[2/] Palmer,[3/] and Mosbek,[4/] but none of the above-mentioned has attempted to find out whether these or similar tests had any possibilities in the prediction of baseball ability.

John Gartner,[5/] the head football coach at W. Wilson High School, Long Beach, California, used his battery of five tests on his football squads and proved the good players will score high consistently and the poor players low consistently.

Wettstone[6/] made a study of gymnasts and devised a test for predicting ability after testing, studying, and then rating the subjects for more than seven months.

1/K. Brophy, A New Target for Testing Accuracy in Throwing, Spalding's Athletic Library, American Sports Publishing Co., New York, 1934.

2/G. D. Wardlaw, Fundamentals of Baseball, C. Scribner's Sons, New York, 1929.

3/E. G. Palmer, Baseball for Girls and Women, A. S. Barnes Co., New York, 1929.

4/E. Mosbek, Baseball Skill Tests, Spalding's Athletic Library, American Sports Publishing Co., New York, 1934.

5/Gartner, op. cit.

6/E. Wettstone, "Tests for Predicting Potential Ability in Gymnasts and Tumbling," Research Quarterly (December, 1938), 9:4

Bovard and Cozens,[1] in their study of the Sargent Jump with certain track events, found a correlation of .55 between the Sargent Jump and the running high jump, standing broad jump, rope climb for speed, and 880-yard run. This finding is reported by McCloy[2] in his article on the Sargent Jump.

Scott and French[3] state that the throw for distance "appears to be the best single test yet devised for measuring softball playing ability."

The literature shows that skills tests in basketball are not new. Although his work is not the first, Edgren's[4] study was the first of consequence. In this study validities were established but no reliabilities. Edgren found that his side-stepping test is quite successful in predicting basketball ability and might possibly be used to predict game and skill potentialities in other sports.

Money,[5] Friermood,[6] and Brace[7] did work on basketball testing,

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1/J. L. Bovard and F. W. Cozens, The Leap Meter, Published, University of Oregon, Eugene, Oregon.

2/C. H. McCloy, "Recent Studies in the Sargent Jump," Research Quarterly (May, 1932), 111:2

3/M. G. Scott and E. French, Evaluation in Physical Education, C. V. Mosby Co., St. Louis, 1950.

4/H. D. Edgren, "An Experiment in the Testing of Ability and Progress in Basketball," Research Quarterly (March, 1932), 111:1:159-171.

5/C. V. Money, "Test for Evaluating the Abilities of Basketball Players," Athletic Journal (December, 1933), 15:4:18-19.

6/H. T. Friermood, "Basketball Progress Test Adaptable to Class Use," Journal of Health and Physical Education (January, 1934), 5:1:45-47.

7/D. K. Brace, "Testing Basketball Technique," American Physical Education Review (April, 1924), 29:159.

but what is probably the most extensive work on basketball tests is that done by Johnson 1/ at Iowa. Knox 2/ did develop a basketball ability test that consisted of four items. Three items were variations of other tests but his format proved that there was a high correlation, proving that 80 per cent of high school basketball players can be predicted.

To subject these basketball ability tests to a further situation, Dean 3/ claims, "It is an interesting study for the coach to analyze his players in his mind and then subject them to these tests. In this way, he may test the correlation of his judgment and the results of these tests. This shows that basketball ability can be measured in more than one way."

1/C. H. McCloy, Tests and Measurements in Health and Physical Education, Appleton-Century-Crofts, Inc., New York, 1942, p. 174.

2/Knox, op. cit.

3/E. S. Dean, Progressive Basketball, Stanford University Press, 1942, p. 34.

CHAPTER III

METHODS AND PROCEDURES

1. Determination of Tests Used

In order to make a valid comparison in basketball ability, a battery of tests for measuring same had to be selected. The author used observations as determined from viewing and reading theories of play and practices of basketball, and combined the advice given by educators recognized in the field of tests and measurement in health and physical education.

The following factors were considered necessary for measuring basketball ability:

1. Passing and receiving
2. Dribbling, speed, and agility
3. Shooting
4. Reaction.

These factors are not listed in any order of importance. However, it has been decided all are needed to be a good basketball player. Other possible factors, but not considered as important as the above-mentioned, were height, weight, intelligence, personality, motivation, temperament, team play, knowledge of rules, and strategy.

As McCall states in his book, "Test results are more comparable to life results, the more nearly the test approaches the character of the life process."[1]

Concerning tests for agility and large-muscle coordination, McCloy gives the following definition:

> "By agility is meant the ability to change the direction of the body or parts of the body in space very rapidly. To do this successfully, it is necessary that the subject be able to coordinate his movements readily in the relatively coarse forms of big muscle movements associated with this kind of physical education activity."[2]

1/W. A. McCall, How To Measure in Education, The Macmillan Company, New York, 1922, p. 196.

2/C. H. McCloy, Tests and Measurements, p. 84.

BASKETBALL ABILITY TEST (Knox)

These tests require no complicated equipment. All that is needed is a basketball, stopwatch, four chairs, and three cups. The tests are based on ability to execute four fundamental movements.

1) Wall Bounce--To determine passing and receiving ability. The ball is bounced against a wall 15 times from a distance of 5 feet.

   The boys with low times are usually the best passers.

2) Obstacle Dribble and Speed--To determine dribbling ability and speed.

   A course is laid 65 feet along the sidelines of a court; 4 objects are placed equidistant apart along the court, and the dribbling player is timed as he weaves around the object and back to the starting point.

3) Dribble and Lay-up Shot--
To determine Ball-handling and shooting ability.

Course laid out as the above but in line with a basket, which represents about 8 additional feet.

Player is timed as he dribbles around objects, shoots a lay-up shot, recovers the ball and returns around objects to starting point.

4) Cup Reaction Test--Tests ability to respond to commands. 3 different colored cups 2½" in height, 3" in diameter. The player is given a coin and stands with his back to the cups and the route of travel.

At a starting signal, he whirls around and starts for the cups 20 feet away. When he is 12 feet from the cups the examiner barks a command, designating the color cup in which to deposit the coin. Test is completed when a coin plunks in the cup. Multiply time by 4 to obtain equated score.

Take the times made in each test, add them together, to obtain player ratings. The scores, in most cases, indicate the potential basketball ability of the candidates.

Names	Wall Bounce (15)	Obstacle Dribble	Dribble and Lay-Up Shot	Cup Reaction X 4	Score

2. Sampling and Administrative Procedure

After permission had been granted by the school principal of the Barnes Junior High School in East Boston, which has an enrollment of 307 boys (92 seventh graders, 99 eighth graders, 116 ninth graders), the tests were given to 150 boys selected at random. In East Boston there are two public junior high schools, the Barnes being one of these. Both of these schools have gymnasiums. The boys required to attend the Barnes School live within an area of one square mile. In this area there are two gyms: one, a settlement house gym, and the other a municipal gym. In the same area, the East Boston High School gym is open certain evenings. There are no outdoor basketball courts in the area.

The members of the South End Boys' Club, which is located in the South End of Boston, come from an area covering one and three quarters square miles. Five per cent of the total membership come from outer areas. Current membership at the Club is 1,117 boys. From this number, about 700 are active members (attend 3 or 4 days a week), 225 boys are frequent members (attend 1 or 2 days a week), and the others are occasional visitors (less than 1 day a week). From the 1,117 members, there are 328 who are in the seventh, eighth, and ninth grades in school.

This study presents the data in six groups, which show a comparison of basketball ability between the seventh grade boys in junior high school and the seventh grade boys at the boys' club; the eighth grade boys in junior high school and the eighth grade boys at the boys' club; and the ninth grade boys in junior high school and the ninth grade boys at the boys' club.

In all the tests, the following procedure was used to record the performances of the individuals as closely as possible. All timing was done by the author. When a scorer was necessary, an older student or boys' club member was asked to assist. The students and the club members helped to set up the equipment for the tests to complete testing in a minimum of time.

CHAPTER IV

TREATMENT AND PRESENTATION OF THE DATA

Since time permitted only the conduct of a single test battery for each boy in the study, it was not possible to compute an average for the individual for a series of tests which would tend to eliminate such factors as lassitude, slight illness, etc. The data used are compiled from the single set of tests given.

In order to evaluate the basketball ability of the six groups (see Appendix A) tested, it was necessary to determine first the ability of each individual within his proper group. The raw data may be found in Appendix A. Each individual was rated according to the method utilized by Knox and described earlier in this paper. This score represents the total time computed in seconds for each of the four separate items tested. The times were secured by the use of a stopwatch and recorded to the nearest quarter second. The same procedure was followed for each of the six groups of fifty boys.

The individual scores were compiled in an array for each of the six groups. By utilizing this procedure it became possible to compute group abilities for each of the four test items and to determine a total score for each group. (See Appendix A.) This arrangement of the data made it possible to compute frequency distribution curves or graphs for each group. (See pages 26, 27, 28, 29.) The frequency distributions were made for the individual scores. The score in each instance is, of course, the total time consumed by the individual in completing the Wall Bounce, the Obstacle Dribble, and the Dribble and Lay-up Shot. To this was added the adjusted figure for the Cup Reaction Test. In order to arrive at this adjusted figure, to make it comparable to the time required for the other three tests, the original time was multiplied by four. This sum of the four tests is the individual's test score.

In order to make the desired comparisons between the various groups, graphs were made from the array to show total times and scores for each grade. (See pages 17-25.)

Average scores were computed from the group totals for all six subdivisions of the study. Those were then presented graphically. (See page 16.)

The results of the comparisons are presented in Chapter V, which deals with the findings, conclusions, and inferences drawn from these data.

FIGURE 1

AVERAGE SCORES FOR JUNIOR HIGH SCHOOL AND BOYS' CLUB - 7TH-8TH-9TH GRADES

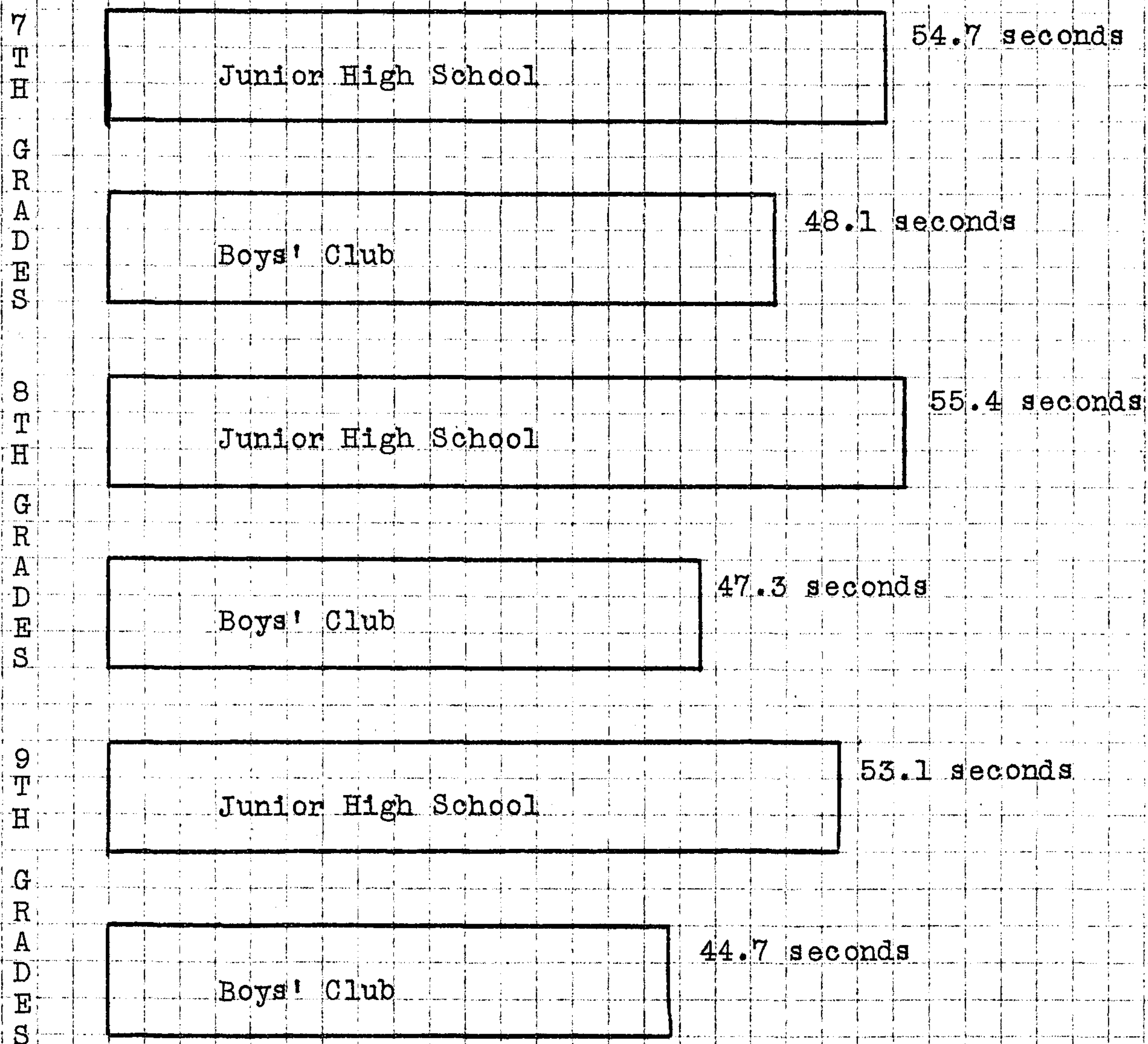


FIGURE 2

COMPOSITE TOTAL TIMES AND SCORES FOR JUNIOR HIGH SCHOOL AND BOYS' CLUB - 9TH GRADE

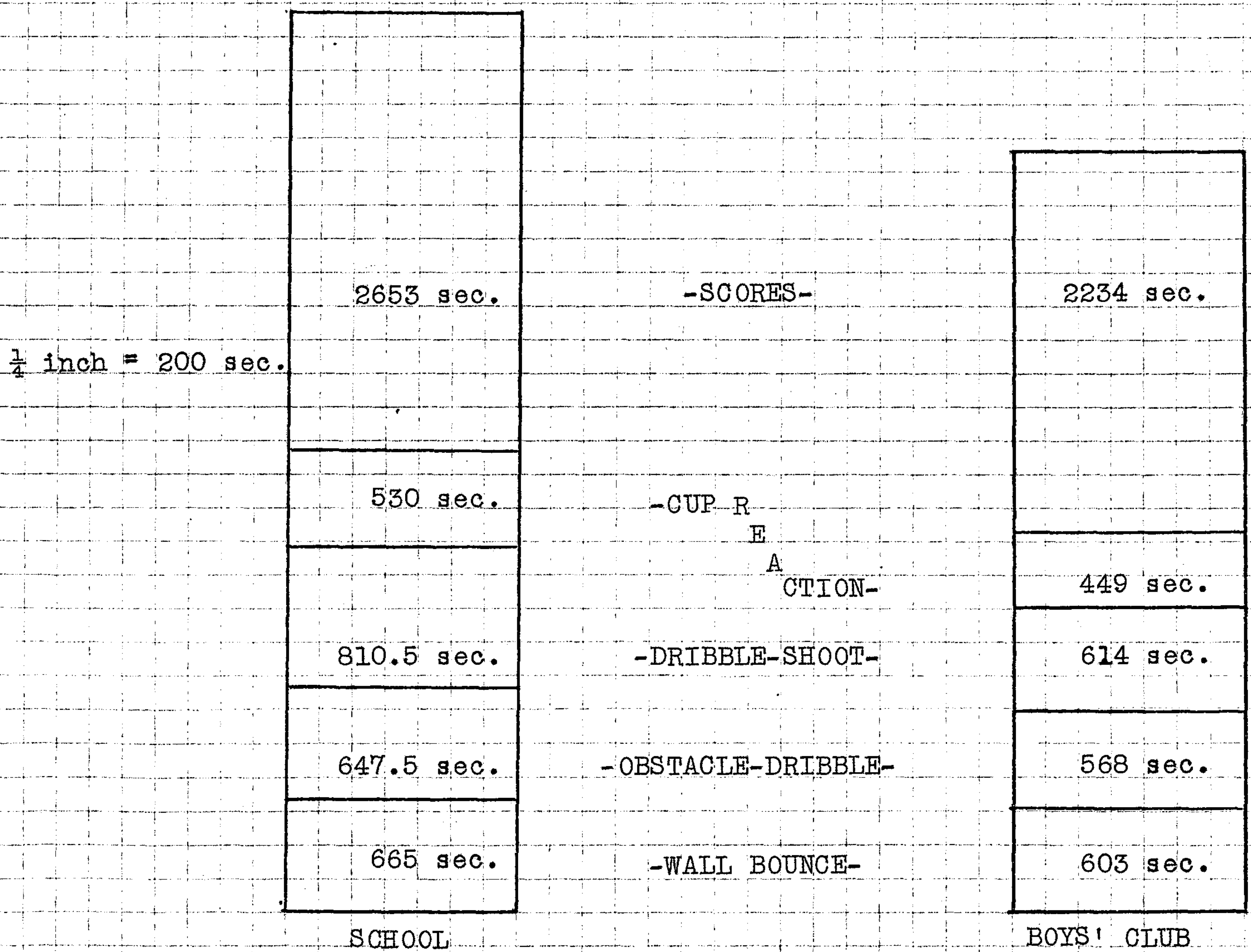


Figure 3. Total Times and Scores for Boys' Club--9th Grade

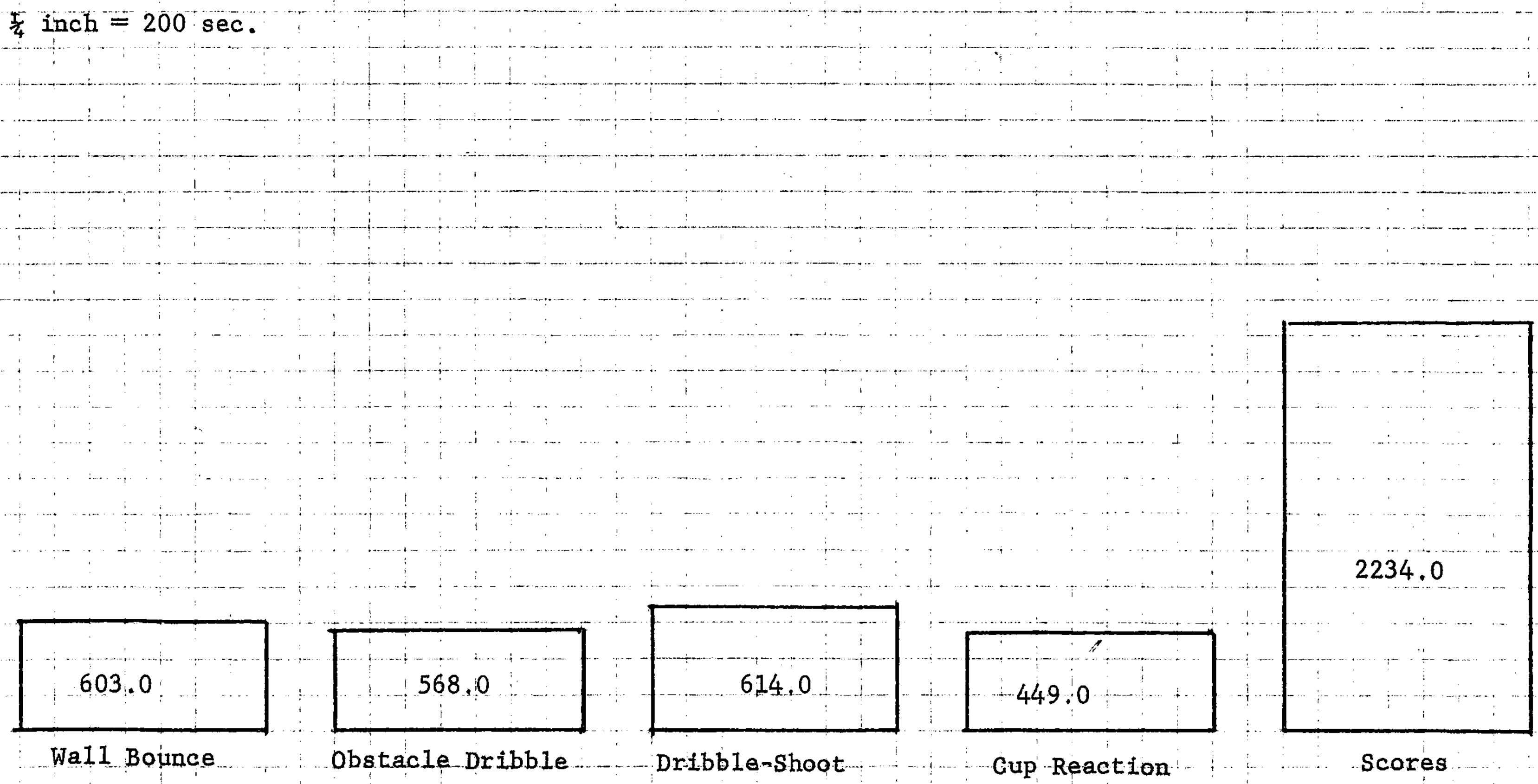


Figure 4. Total Times and Scores for Junior High School--9th Grade

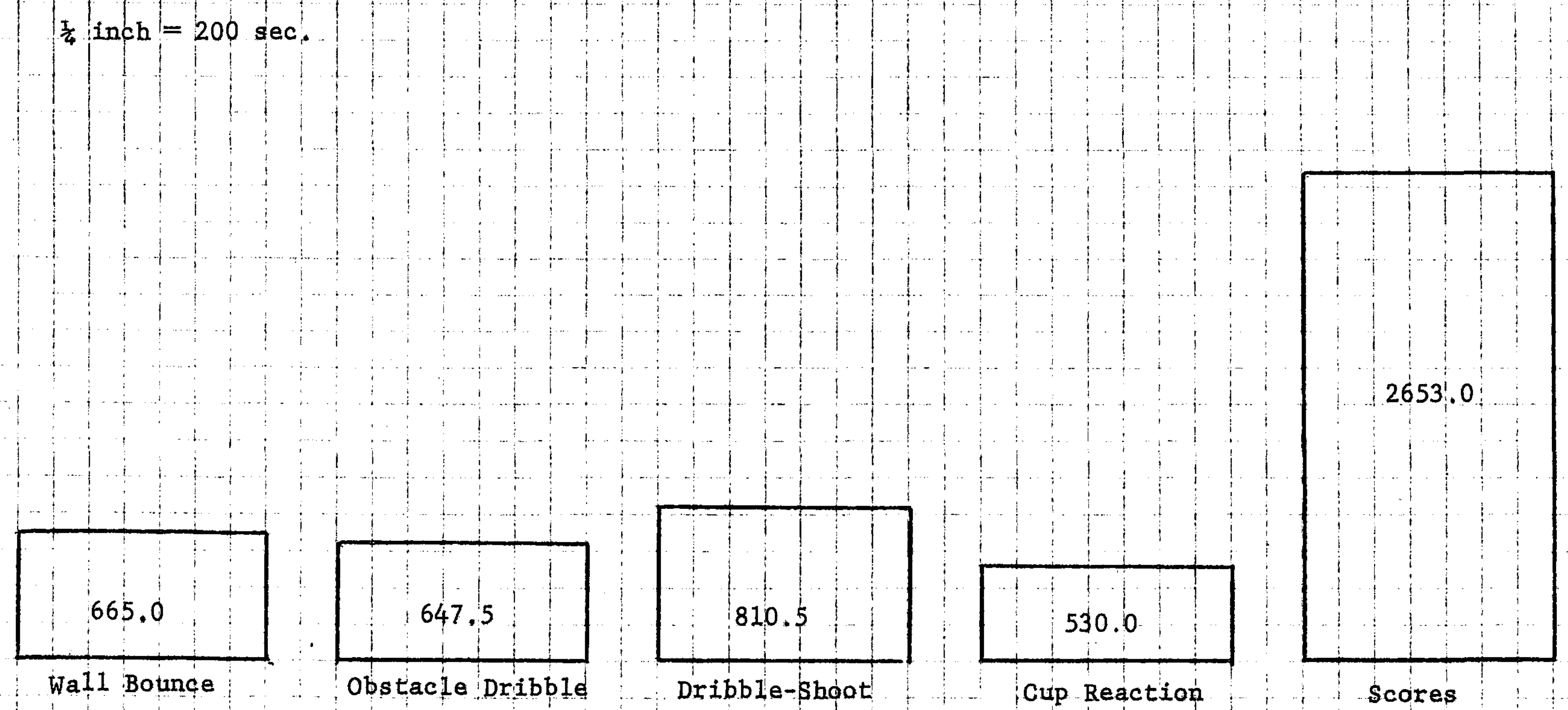


Figure 5. Composite Total Times and Scores for Junior High School and Boys' Club--8th Grade

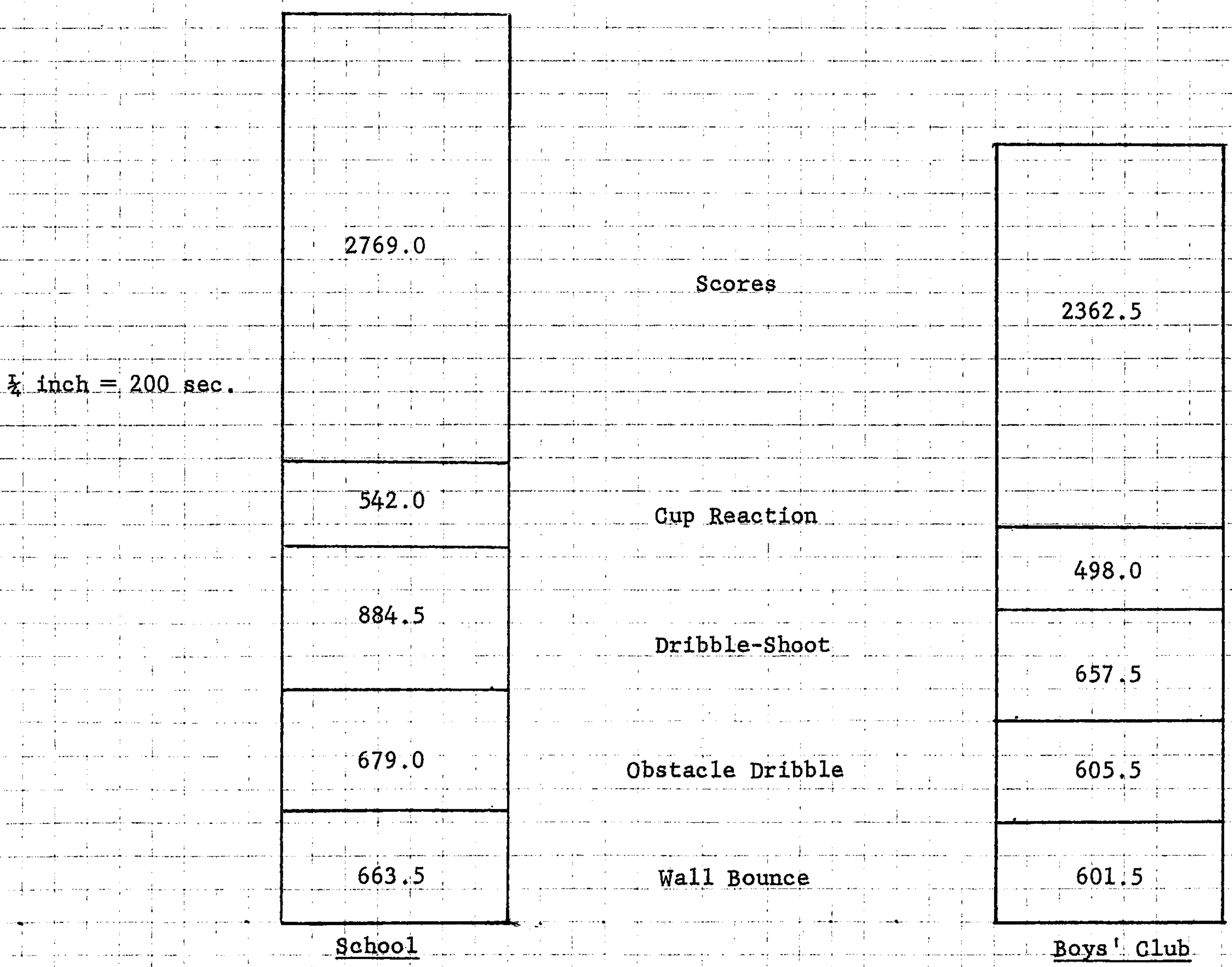


Figure 6. Total Times and Scores for Boys' Club--8th Grade

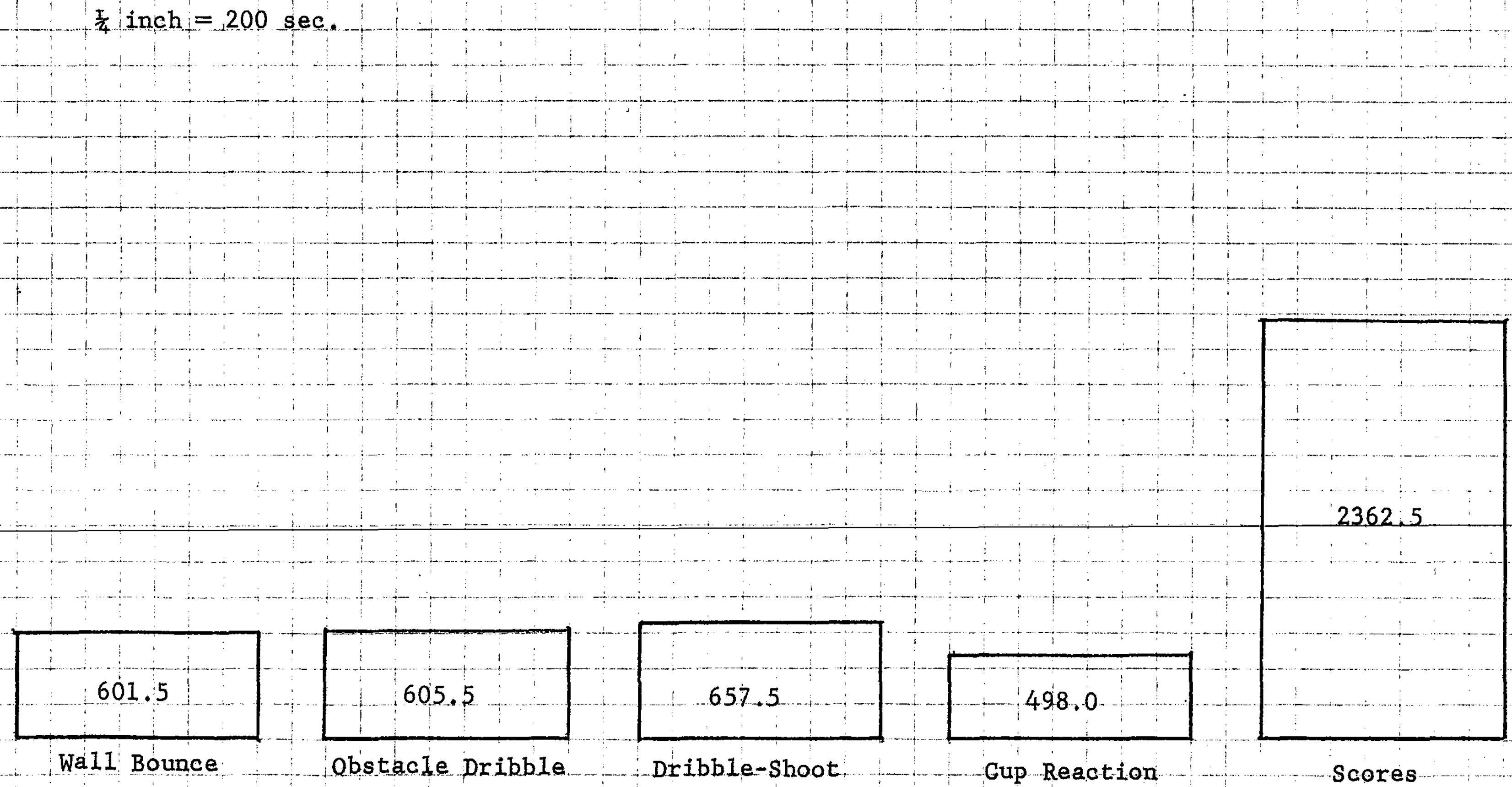


Figure 7. Total Times and Scores for Junior High School--8th Grade

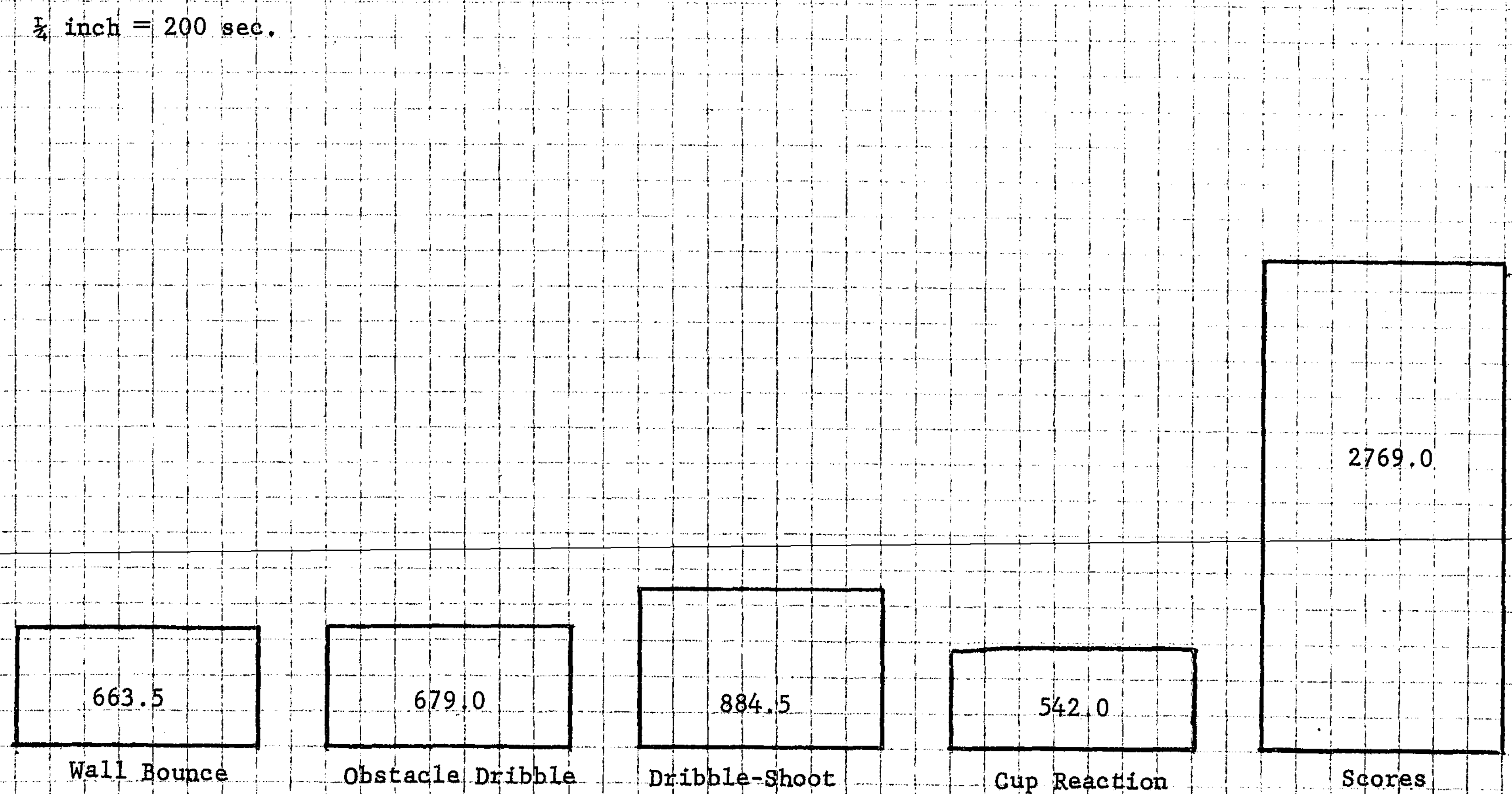


Figure 8. Composite of Total Times and Scores for Junior High School and Boys' Club--7th Grade

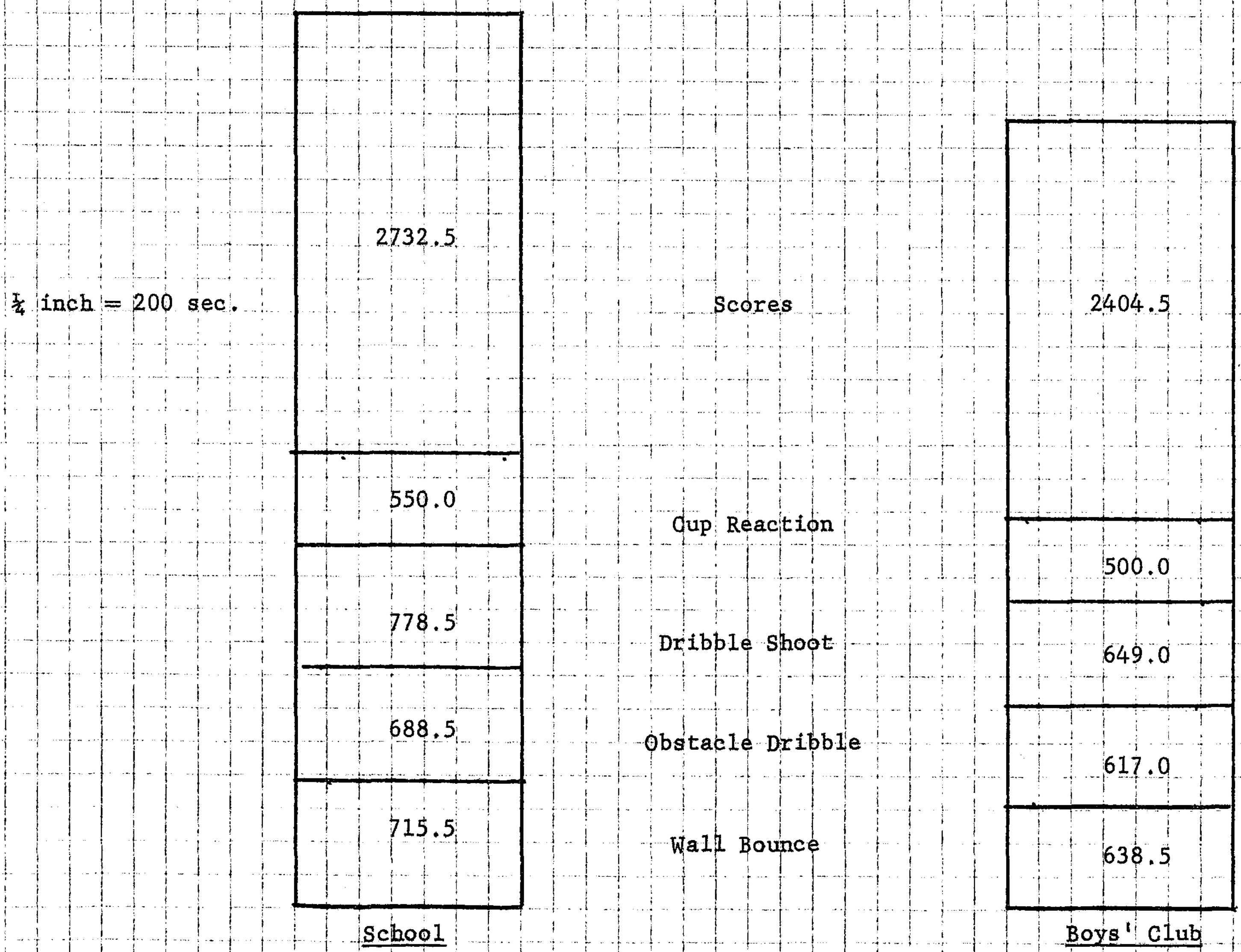


Figure 9. Total Times and Scores for Boys' Club--7th Grade

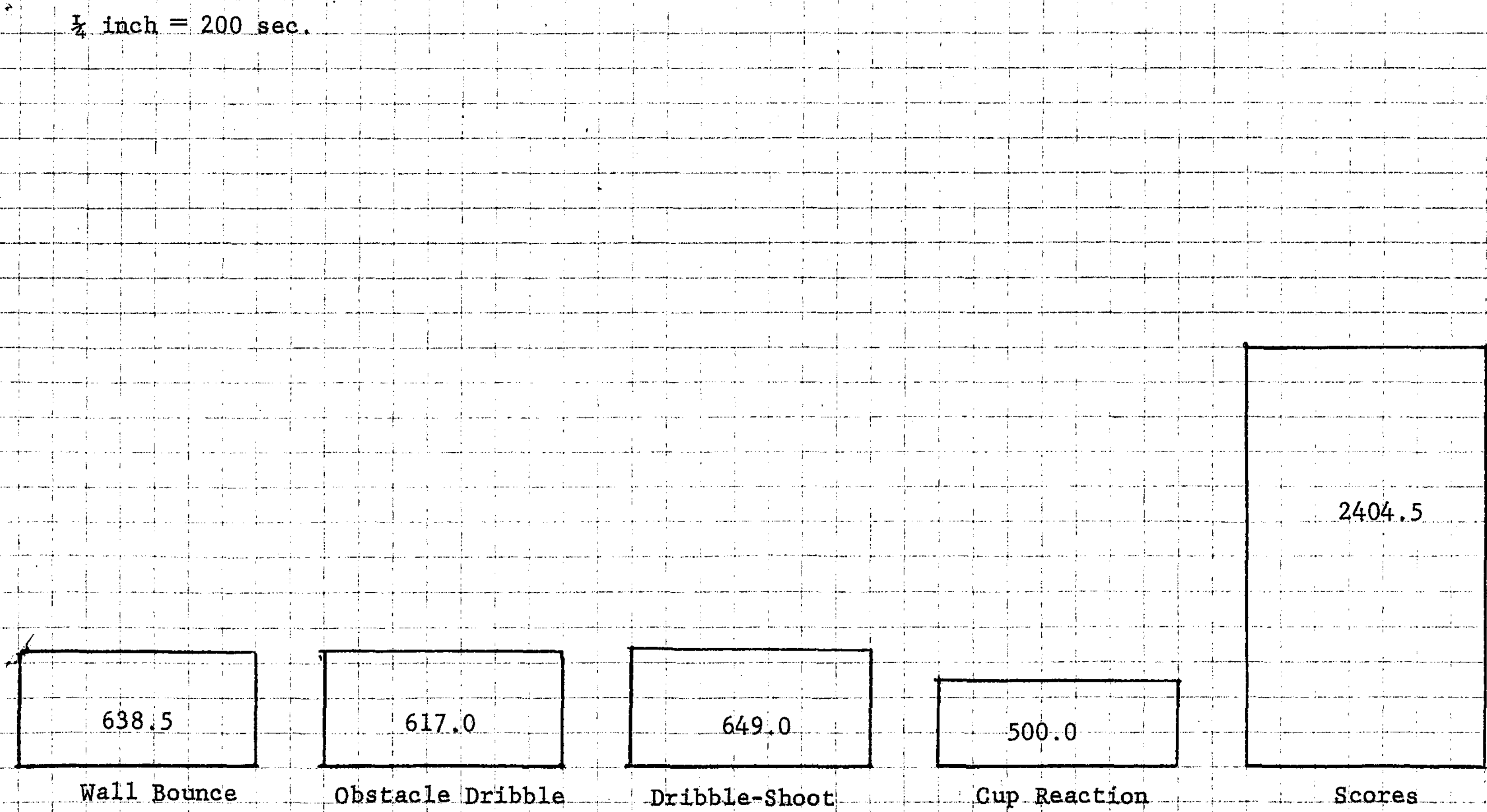


Figure 10. Total Times and Scores for Junior High School--7th Grade

¼ inch = 200 sec.

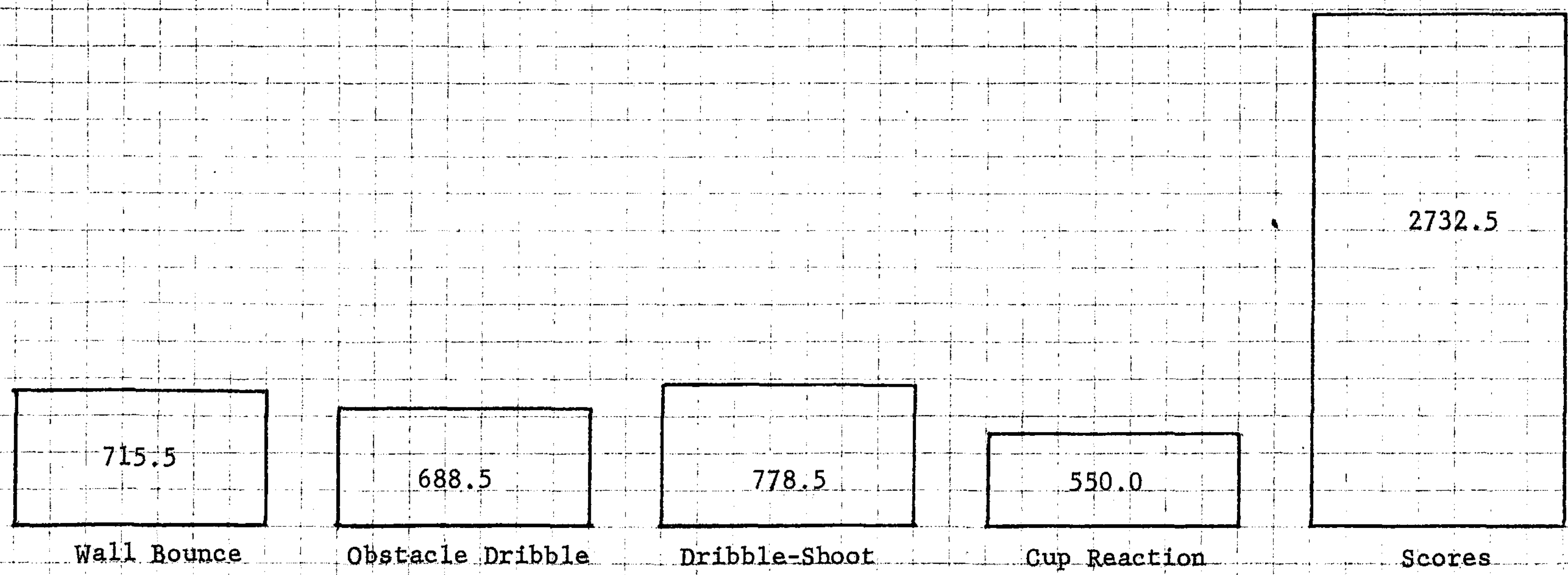
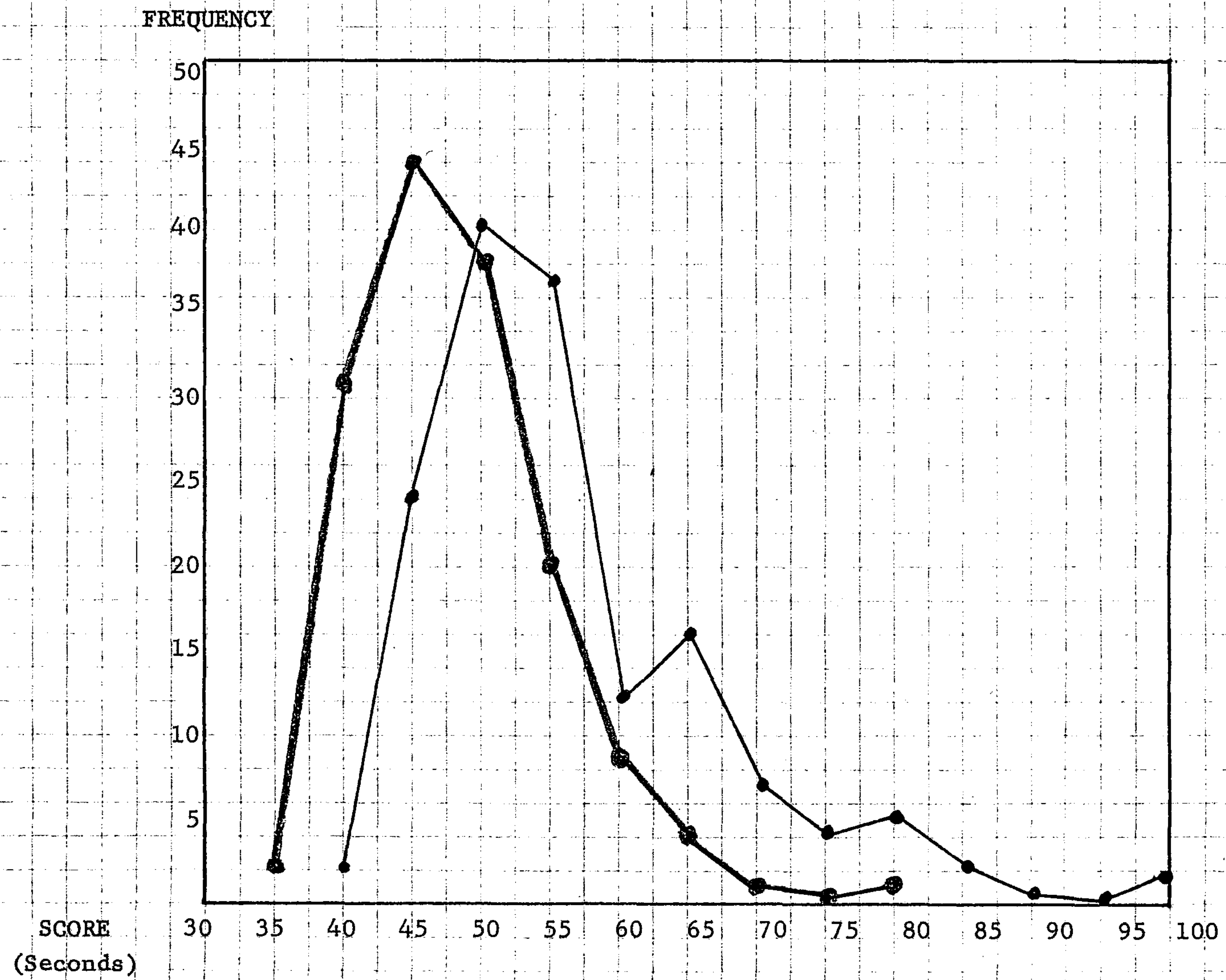


Figure 11

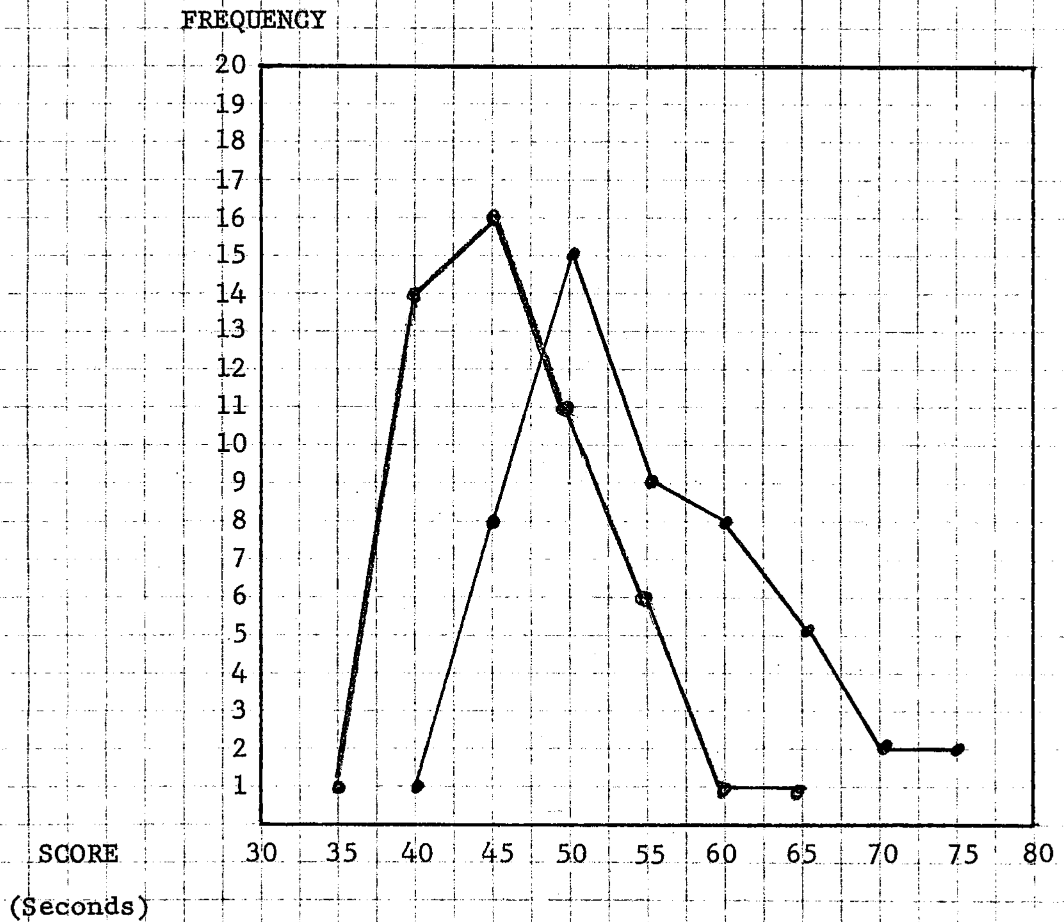
Polygraph of Frequency Distribution
Comparison of Scores for Basketball Ability Tests
(Total Junior High School and Boys' Club Groups)



School - Blue
Club - Red

Figure 12

Polygraph of Frequency Distribution
Comparison of Scores for Basketball Ability Test
(Junior High School and Boys' Club--9th Grade)



School - Blue
Club - Red

Figure 13
Polygraph of Frequency Distribution
Comparison of Scores for Basketball Ability Test
(Junior High School and Boys' Club--8th Grade)

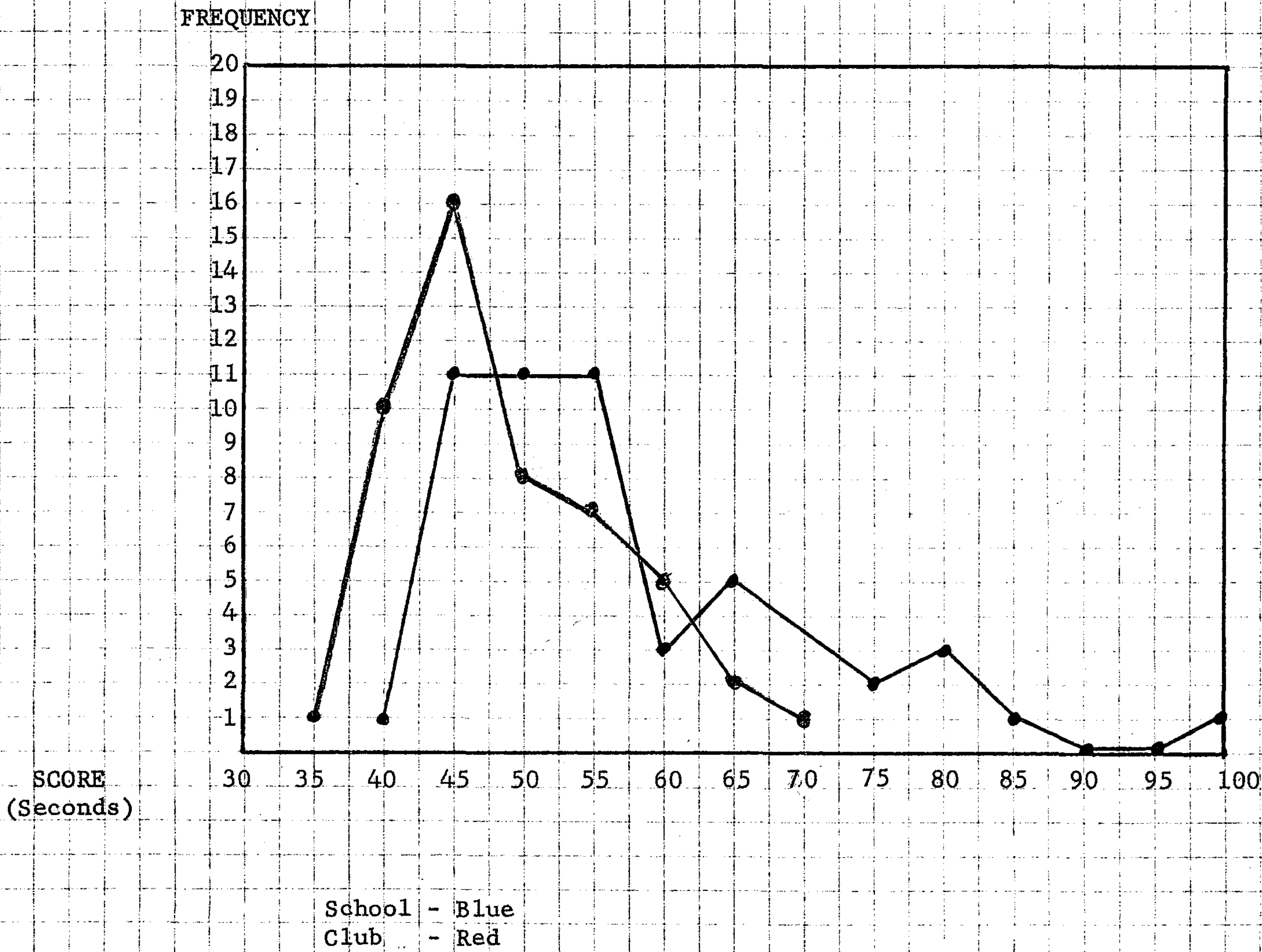
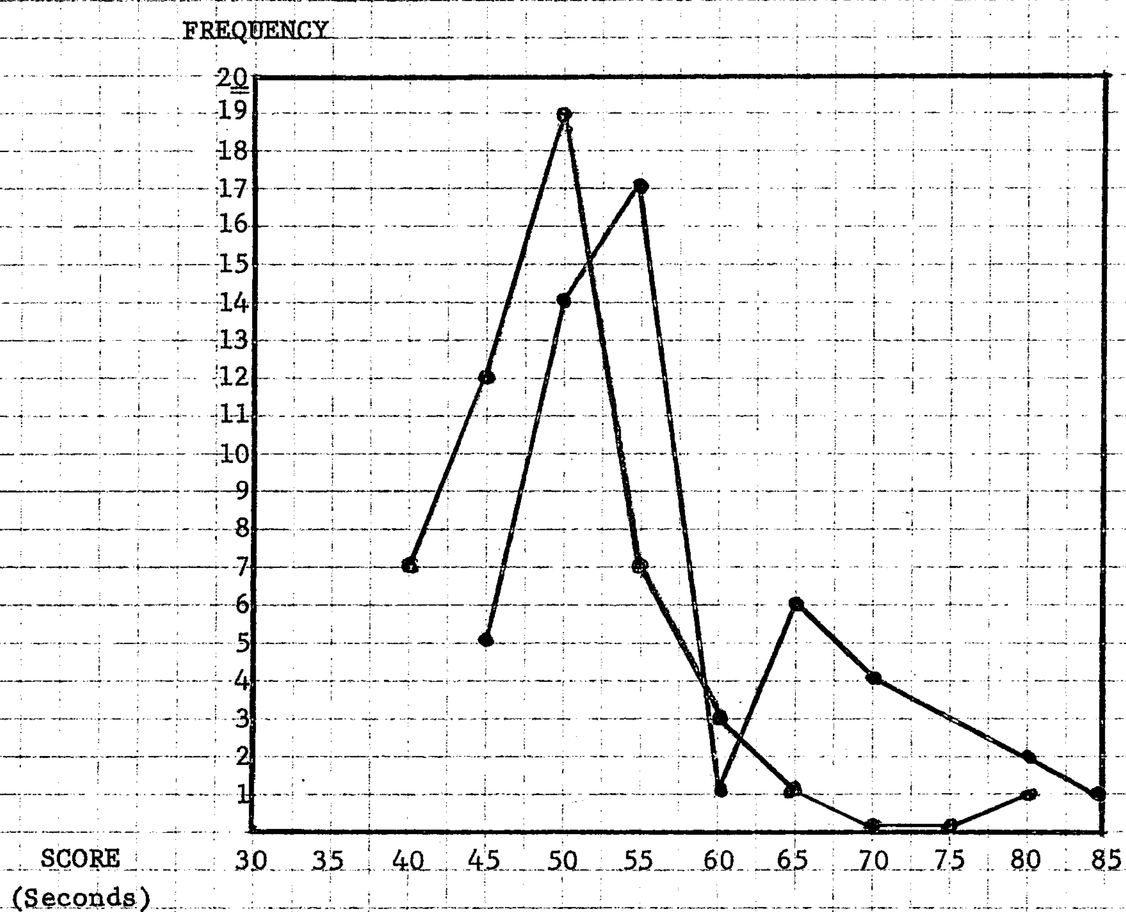


Figure 14

Polygraph of Frequency Distribution
Comparison of Scores for Basketball Ability Test
(Junior High School and Boys' Club--7th Grade)



School - Blue
Club - Red

CHAPTER V

SUMMARY AND CONCLUSIONS

1. Summary

The basic purpose of the study was to determine whether there was a significant difference in basketball skills of boys attending a junior high school (seventh, eighth, and ninth grades), and boys attending a boys' club (seventh, eighth, and ninth grades).

The testing of seventh, eighth, and ninth grade groups in each setting showed a difference existed in favor of the boys attending the boys' club. The testing of seventh grade groups in each setting showed that a difference existed in favor of the boys attending the boys' club, while the tests for eighth and ninth grade groups showed that this difference becomes greater and still in favor of the boys from the boys' club.

2. Findings

The most significant finding of this study is the fact that in this test situation the difference in the average scores for the junior high school and the boys' club groups becomes greater as the boys get older. The one difference in the total battery scores for boys at the seventh grade level was 6.6 seconds in favor of boys from the boys' club. The eighth graders' differences in average scores amounted to 8.1 seconds, and at the ninth grade level the difference was 8.4 seconds. The lower score, or shorter time period, in each instance was in favor of the boys' club group. This indicates greater basketball skill for boys in the boys' club than for boys in a selected junior high school without boys' club experience.

3. Conclusions

It may be noted that there are other uses for tests to determine basketball playing ability other than to select a team. The purpose of this paper, while using a standard test, was to compare two groups rather than select teams. The groups tested consisted of 150 seventh, eighth, and ninth grade boys from the Barnes Junior High School in East Boston, and 150 seventh, eighth, and ninth grade boys from other junior high schools throughout Boston who attend the South End Boys' Club. By using the same test for each group, it became possible to test with some degree of objectivity the efficiency of the two teaching methods employed by a single person in two different settings. Since the physical age level in each group progresses at the same rate and the instructor or coach has been the same, the cause for the difference must be in some other area. It would appear that the cause for the difference in performance can be attributed to other than measurable physical properties or qualities. The author is inclined to believe that there are two or three major factors responsible for the difference in the performance of the two groups.

First, at the boys' club, only those wishing to take part in gym activities were available for testing. It is obvious that motivation was present in the boys' club groups to a much greater degree than in the school groups. Thus, motivation is an unmeasured factor affecting the results of the tests.

Another factor which, due to time limitations, was not measured was the amount of participation of individuals in athletic programs, especially basketball. The boys at the boys' club participate not only in their respective school physical education programs but also in the boys' club program. The boys from the boys' club practice the necessary basketball skills to a greater extent and thus become more proficient. This, of course, will have an influence on the scores compiled.

A third factor is the difference in teaching methods employed in the school setting and that of the boys' club. The school physical education program stresses the formal aspects of sports, such as instruction of skills through set group patterns, knowledge of rules, and with little game competition. The boys' club physical education program stresses the informal approach to sports, such as free selection of skill practices, individual instruction, and a great amount of game situations that involve the factor of competition.

4. Recommendations

It is recommended that further study be given to this situation. The present study allowed for only a single testing of each of 300 boys. It is felt that the sample may be sufficient but that at least three completed tests be given each boy and the average score used to determine the final results. It is recommended that further studies make an effort to correlate the test scores with the amount of basketball participation by each boy.

It would be advisable to devise a weighing technique to offset the improved ability gained through practice. The battery of tests should be administered three times during the year: at the beginning, middle, and end of the physical education program. Improvement can then be measured to a greater extent. In this way, motivation and teaching techniques would remain as the two variables. Voluntary participation and careful explanation to those tested in each group would tend to equalize the motivation factor and make it possible to evaluate teaching techniques.

APPENDIX A

KEY TO ABBREVIATIONS
USED IN TABLES OF SCORES

ABBREVIATION	EXPLANATION
N	Number
W.B.	Wall Bounce
O.D.	Obstacle Dribble
D.S.	Dribble and Shoot
C.R.	Cup Reaction
S	Score

Table 1. Comparison of Basketball Ability Scores Between Seventh Grade Boys in School and Boys' Club

School--7th Graders						Boys' Club--7th Graders					
N	W.B.	O.E.	D.S.	C.R.	S	N	W.B.	O.D.	D.S.	C.R.	S
1	13.0	13.0	16.0	11.0	53.0	1	13.0	13.0	16.0	11.0	53.0
2	15.0	22.0	18.0	13.0	68.0	2	12.5	9.5	11.0	8.0	41.0
3	19.0	13.0	17.0	12.0	61.0	3	13.0	11.5	12.5	10.0	47.0
4	21.0	17.0	20.0	18.0	76.0	4	14.0	13.0	13.0	10.0	50.0
5	13.0	12.5	15.0	9.0	49.5	5	15.0	14.0	15.5	12.0	56.5
6	15.0	12.0	14.0	11.0	52.0	6	13.0	13.5	12.5	11.0	50.0
7	19.0	16.0	15.0	12.0	62.0	7	12.0	12.5	13.0	10.0	47.5
8	12.0	13.0	13.5	11.0	49.5	8	11.5	9.5	11.5	10.0	42.5
9	15.0	13.0	16.0	13.0	57.0	9	14.0	13.0	14.0	12.0	53.0
10	17.5	12.5	14.0	10.0	54.0	10	13.0	12.5	12.5	10.0	48.0
11	12.0	12.5	13.0	11.0	48.5	11	11.0	10.0	11.0	8.0	40.0
12	17.0	12.5	15.0	10.0	54.5	12	12.5	14.0	13.5	10.0	50.0
13	12.5	13.0	13.0	10.0	48.5	13	18.0	21.0	24.0	14.0	77.0
14	14.0	13.0	13.5	12.0	52.5	14	14.0	13.5	13.0	10.0	50.5
15	14.0	14.5	19.0	14.0	61.5	15	11.0	9.5	10.5	8.0	39.0
16	14.0	13.5	18.0	10.0	55.5	16	13.0	12.0	13.0	11.0	49.0
17	15.0	12.5	16.0	12.0	55.5	17	14.0	13.0	13.5	12.0	52.5
18	12.0	10.0	11.5	9.0	42.5	18	11.0	10.0	11.0	8.0	40.0
19	17.0	16.5	18.0	12.0	63.5	19	12.0	11.5	12.5	12.0	48.0
20	17.5	13.0	12.5	10.0	53.0	20	14.0	13.0	14.5	9.0	50.5
21	16.0	17.0	19.0	15.0	67.0	21	12.0	11.5	12.0	10.0	45.5
22	15.0	12.5	13.0	11.0	51.5	22	13.0	13.0	14.0	9.0	49.0
23	14.0	12.0	12.5	10.0	48.5	23	10.5	10.0	11.0	8.0	39.5
24	14.0	11.5	12.5	9.0	47.0	24	11.0	10.5	13.0	10.0	44.5
25	12.5	11.5	13.0	9.0	46.0	25	13.0	11.5	11.5	12.0	48.0
26	14.0	11.5	13.5	11.0	50.0	26	12.5	11.0	12.0	9.0	44.5
27	12.5	11.5	11.5	10.0	45.5	27	13.0	14.0	17.0	12.0	56.0
28	14.0	11.0	13.5	8.0	46.5	28	13.0	11.0	12.0	8.0	44.0
29	11.5	12.5	12.0	10.0	46.0	29	12.5	10.5	11.0	8.0	42.0
30	12.0	11.5	12.0	10.0	45.5	30	17.0	13.0	14.0	9.0	53.0
31	16.0	20.0	27.0	15.0	78.0	31	11.0	10.5	11.0	8.0	40.5
32	14.0	15.0	17.0	16.0	62.0	32	12.5	14.0	12.5	9.0	48.0
33	12.5	13.5	15.0	10.0	51.0	33	10.5	10.5	10.5	8.0	39.5
34	11.5	13.0	12.5	10.0	47.0	34	11.5	13.0	12.5	10.0	47.0
35	11.0	12.0	13.0	8.0	44.0	35	14.0	15.0	13.5	12.0	54.5
36	14.0	15.0	16.0	9.0	54.0	36	12.5	13.0	13.5	10.0	49.0
37	11.5	11.5	15.0	9.0	47.0	37	12.5	12.5	13.0	11.0	49.0
38	18.0	21.0	29.0	14.0	82.0	38	14.0	12.0	13.0	12.0	51.0
39	12.0	14.0	15.5	10.0	51.5	39	12.5	13.0	13.5	11.0	50.0
40	17.0	15.0	19.0	11.0	62.0	40	15.0	17.0	18.5	13.0	63.5
41	12.5	13.5	18.0	10.0	54.0	41	12.0	12.0	11.0	8.0	43.0
42	16.0	12.5	14.0	12.0	54.5	42	10.0	10.5	10.5	7.0	38.0
43	13.0	11.5	11.5	8.0	44.0	43	14.0	15.0	14.0	12.0	55.0
44	13.5	14.0	15.5	11.0	54.0	44	18.0	14.0	14.5	13.0	59.5
45	16.5	16.5	21.0	12.0	66.0	45	12.0	11½0	11.5	8.0	42.5
46	12.5	15.0	15.5	10.0	53.0	46	12.5	13.0	13.0	10.0	48.5
47	17.0	19.0	24.0	10.0	70.0	47	10.5	11.0	11.5	8.0	41.0
48	11.5	12.0	13.0	10.0	46.5	48	11.0	11.0	13.0	9.0	44.0
49	13.0	15.0	14.0	12.0	54.0	49	11.5	12.0	11.0	8.0	42.5
50	12.5	12.0	12.5	10.0	47.0	50	12.0	11.5	12.0	12.0	47.5
Totals	715.5	688.5	778.5	550.0	2732.5		638.5	617.0	649.0	500.0	2404.5

Table 2. Comparison of Basketball Ability Scores Between Eighth Grade Boys in School and Boys' Club

School--8th Graders						Boys' Club--8th Graders					
N	W.B.	O.D.	D.S.	C.R.	S	N	W.B.	O.D.	D.S.	C.R.	S
51	21.0	19.0	42.0	14.0	96.0	51	13.0	13.0	16.0	10.0	52.0
52	13.0	11.5	16.0	10.0	50.5	52	13.5	14.0	17.0	12.0	56.5
53	11.5	13.5	14.0	8.0	47.0	53	12.5	9.5	11.0	10.0	43.0
54	11.0	11.5	13.0	10.0	45.5	54	12.0	10.0	11.5	9.0	42.5
55	14.0	12.5	15.5	10.0	52.0	55	11.5	10.0	13.0	10.0	44.5
56	13.0	12.5	19.0	14.0	58.5	56	12.0	12.0	12.5	10.0	46.5
57	20.0	13.0	31.0	16.0	80.0	57	11.0	10.0	15.0	12.0	48.0
58	11.5	11.5	12.5	9.0	44.5	58	15.0	17.0	19.0	14.0	65.0
59	13.0	11.0	16.0	11.0	51.0	59	10.5	10.0	10.5	10.0	41.0
60	16.0	12.5	24.0	12.0	64.5	60	12.0	11.5	12.0	10.0	45.5
61	15.0	18.0	19.0	12.0	64.0	61	15.5	12.5	13.5	10.0	51.5
62	12.0	12.0	27.0	10.0	61.0	62	9.5	9.0	11.0	8.0	37.5
63	11.0	12.0	12.5	8.0	43.5	63	10.0	10.0	11.0	8.0	39.0
64	10.5	11.0	19.5	12.0	53.0	64	10.0	9.0	9.5	7.0	35.5
65	13.0	12.0	12.5	7.0	44.5	65	10.5	10.0	11.5	10.0	42.0
66	10.5	18.0	13.0	10.0	51.5	66	11.0	11.5	13.0	7.0	42.5
67	10.0	12.0	20.0	10.0	52.0	67	10.5	9.5	12.0	10.0	42.0
68	11.0	10.5	17.0	10.0	48.5	68	10.0	11.0	11.5	7.0	39.5
69	12.0	10.5	11.5	11.0	45.0	69	10.5	12.0	11.5	9.0	43.0
70	13.0	10.5	13.5	10.0	47.0	70	14.0	14.5	16.0	11.0	55.5
71	16.0	11.0	13.0	11.0	51.0	71	12.0	11.5	12.0	11.0	46.5
72	18.0	14.0	34.0	14.0	80.0	72	14.0	13.5	14.5	14.0	56.0
73	19.0	16.0	27.0	14.0	76.0	73	10.0	10.5	11.0	7.0	38.5
74	14.0	17.0	28.0	15.0	74.0	74	9.5	10.0	10.5	10.0	40.0
75	13.0	11.5	14.0	8.0	46.5	75	11.5	12.0	13.0	11.0	47.5
76	12.0	10.5	13.5	7.0	43.0	76	12.0	13.5	16.0	13.0	54.5
77	14.0	18.0	23.0	15.0	70.0	77	15.0	13.0	13.5	12.0	53.5
78	12.0	10.5	12.5	10.0	45.0	78	18.0	15.0	17.5	14.0	64.5
79	14.0	11.0	11.0	10.0	46.0	79	12.0	12.0	12.5	8.0	44.5
80	13.0	15.0	16.0	14.0	58.0	80	16.0	14.0	15.5	15.0	60.5
81	15.0	17.0	19.0	14.0	65.0	81	12.0	11.5	12.5	9.0	45.0
82	13.0	14.0	14.5	9.0	50.5	82	16.0	19.0	18.0	13.0	66.0
83	16.0	19.0	25.0	14.0	74.0	83	12.0	12.0	12.0	8.0	44.0
84	11.5	12.0	12.5	11.0	47.0	84	10.5	13.5	13.0	8.0	45.0
85	13.5	14.0	15.0	9.0	51.5	85	11.5	11.5	13.0	9.0	45.0
86	11.5	12.0	12.5	9.0	45.0	86	12.0	13.0	13.5	10.0	48.5
87	14.0	12.5	14.0	14.0	54.5	87	9.5	9.0	9.5	9.0	37.0
88	10.0	12.0	11.5	11.0	44.5	88	12.0	12.0	12.0	10.0	46.0
89	13.0	16.0	19.0	12.0	60.0	89	14.0	13.0	14.5	10.0	51.5
90	11.0	14.0	15.5	9.0	49.5	90	12.0	12.5	13.0	8.0	45.5
91	12.0	16.0	16.5	10.0	54.5	91	10.0	11.5	12.0	7.0	40.5
92	11.5	12.0	13.0	9.0	45.5	92	12.0	13.5	13.5	10.0	49.0
93	11.0	11.5	16.0	8.0	46.5	93	14.0	15.5	16.5	13.0	59.0
94	12.0	14.0	14.5	10.0	50.5	94	13.0	12.5	17.0	12.0	54.5
95	10.5	11.0	11.5	7.0	40.0	95	9.5	9.0	10.5	7.0	36.0
96	13.0	17.0	19.5	12.0	61.5	96	10.0	10.5	12.0	8.0	40.5
97	18.0	24.0	28.0	14.0	84.0	97	9.5	14.0	11.5	9.0	44.0
98	12.0	13.0	14.0	8.0	47.0	98	10.0	11.0	11.5	8.0	40.5
99	13.5	14.5	15.5	10.0	53.5	99	15.0	17.0	14.0	12.0	58.0
100	14.5	14.0	17.0	10.0	55.5	100	12.5	13.0	14.0	9.0	48.5
Totals	663.5	679.0	884.5	542.0	2769.0		601.5	605.5	657.5	498.0	2362.5

Table 3. Comparison of Basketball Ability Scores Between Ninth Grade Boys in School and Boys' Club

School--9th Graders						Boys' Club--9th Graders					
N	W.B.	O.D.	D.S.	C.R.	S	N	W.B.	O.D.	D.S.	C.R.	S
101	13.0	12.5	13.5	10.0	49.0	101	10.5	10.0	10.5	12.0	43.0
102	12.0	14.0	14.5	10.0	50.5	102	10.0	9.0	10.0	7.0	36.0
103	14.0	11.0	14.5	8.0	47.5	103	11.5	11.0	11.5	7.0	41.0
104	14.0	12.5	31.0	12.0	69.5	104	13.0	11.5	12.5	8.0	45.0
105	13.5	11.0	15.0	9.0	48.5	105	13.5	11.5	11.5	10.0	46.5
106	12.0	13.5	28.5	11.0	65.0	106	11.5	10.5	11.5	8.0	41.5
107	10.0	14.0	12.0	9.0	45.0	107	14.0	13.0	13.5	10.0	50.5
108	14.0	13.5	14.0	12.0	53.5	108	12.5	11.0	12.0	10.0	45.5
109	10.0	13.0	11.0	8.0	42.0	109	12.0	12.0	12.0	12.0	48.0
110	9.5	9.0	11.0	9.0	38.5	110	9.5	9.0	11.0	9.0	38.5
111	11.0	12.0	11.5	7.0	41.5	111	9.5	10.0	10.5	7.0	37.0
112	16.0	14.0	14.5	12.0	56.5	112	13.0	14.0	13.5	10.0	50.5
113	12.0	11.0	17.0	10.0	50.0	113	15.0	14.0	15.0	11.0	55.0
114	11.0	9.5	16.0	8.0	44.5	114	12.0	11.0	11.5	7.0	41.5
115	13.5	14.0	14.0	10.0	51.5	115	13.0	12.0	13.0	9.0	47.0
116	12.5	12.0	13.0	18.0	55.5	116	13.5	12.0	13.5	8.0	47.0
117	13.5	14.0	18.0	12.0	57.5	117	9.5	10.0	10.5	7.0	37.0
118	14.5	12.0	11.5	9.0	47.0	118	9.5	9.0	10.0	8.0	36.5
119	17.0	14.0	18.0	14.0	63.0	119	10.0	9.0	9.0	8.0	36.0
120	13.0	13.0	12.5	12.0	50.5	120	12.5	11.0	12.0	8.0	43.5
121	18.0	16.0	17.0	13.0	64.0	121	13.0	14.0	17.0	11.0	55.0
122	13.0	12.0	12.5	11.0	48.5	122	12.0	12.0	12.5	8.0	44.5
123	11.0	12.0	13.0	10.0	46.0	123	12.5	11.0	12.5	9.0	45.0
124	11.0	11.5	19.5	10.0	52.0	124	16.0	12.5	14.0	12.0	54.5
125	16.0	16.0	18.5	12.0	62.5	125	13.0	12.0	12.5	11.0	48.5
126	12.0	10.5	11.0	8.0	41.5	126	15.0	13.0	16.0	10.0	54.0
127	20.0	18.0	20.0	12.0	70.0	127	18.0	15.0	17.0	14.0	64.0
128	10.0	13.5	18.0	12.0	53.5	128	14.0	11.5	12.5	10.0	48.0
129	11.0	11.5	11.0	10.0	43.5	129	15.0	14.0	15.0	11.0	55.0
130	14.0	13.5	14.0	8.0	49.5	130	11.0	10.0	10.5	8.0	39.5
131	13.0	13.0	24.0	9.0	59.0	131	12.5	11.0	12.0	8.0	43.5
132	12.0	14.0	16.0	9.0	51.0	132	10.0	10.5	11.0	8.0	39.5
133	15.0	12.0	13.0	12.0	52.0	133	9.5	10.0	10.5	7.0	37.0
134	13.0	13.0	13.5	10.0	49.5	134	10.0	9.5	10.0	8.0	37.5
135	17.5	13.0	34.0	10.0	74.5	135	11.0	11.0	12.0	8.0	42.0
136	14.0	14.5	14.5	14.0	57.0	136	10.0	10.5	11.0	8.0	39.5
137	13.5	13.0	17.0	14.0	57.5	137	9.5	9.0	11.0	8.0	37.5
138	14.0	13.0	16.0	10.0	53.0	138	12.0	11.0	12.0	8.0	43.0
139	17.0	16.0	21.0	10.0	64.0	139	13.0	12.0	12.5	9.0	46.5
140	14.0	12.0	18.0	14.0	58.0	140	10.0	9.5	10.0	9.0	38.5
141	11.5	10.5	13.0	8.0	43.0	141	12.0	13.0	12.0	7.0	44.0
142	13.0	14.0	14.5	9.0	50.5	142	14.0	12.5	17.0	8.0	51.5
143	12.0	10.5	14.0	12.0	48.5	143	15.0	16.0	18.0	12.0	61.0
144	14.0	14.0	15.0	8.0	51.0	144	12.0	11.0	12.0	10.0	45.0
145	15.0	16.0	26.0	14.0	71.0	145	13.0	12.0	13.0	9.0	47.0
146	13.5	14.0	17.5	11.0	56.0	146	11.0	10.0	11.0	8.0	40.0
147	12.0	13.5	14.0	10.0	49.5	147	12.0	10.0	12.0	7.0	41.0
148	10.0	12.0	14.0	8.0	44.0	148	9.5	9.0	10.0	7.0	35.5
149	13.0	10.5	14.0	10.0	47.5	149	10.0	14.0	10.5	8.0	42.5
150	16.0	15.0	16.0	12.0	59.0	150	12.0	11.0	12.5	12.0	47.5
Totals	665.0	647.5	810.5	530.0	2653.0		603.0	568.0	614.0	449.0	2234.0

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