

AN HISTORICAL, MENTAL, AND EDUCATIONAL SURVEY OF  
THE ELEMENTARY LABORATORY SCHOOL OF  
KANSAS STATE TEACHERS COLLEGE  
OF EMPORIA

A THESIS

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MASTER OF SCIENCE

By

MOLLIE E. CERNY

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N. S. T. C.

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Approved for the Major Department

Brian Lamberson

Approved for the Graduate Council

[Signature]

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CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM

The principle objective in this study was to make an historical, educational, and mental survey of the Elementary Laboratory School of the Kansas State Teachers College of Emporia. The purpose of the historical sketch was to present a bird's-eye view of the history of the Laboratory School as a foundation for the study. The educational phase of the survey gives the achievement of the pupils in the more fundamental school functions. The mental section of the study attempts to show the mental abilities or native capacities of the pupils. The educational and mental conditions of the pupils may be of much value to the educator in the classification and in the instruction of the pupils.

TYPES AND SOURCES OF MATERIALS

Two types of materials were used as sources of information for the study. The first source of data was the published materials. These data were secured from the following publications; annual general catalogues of the school; bulletins and curriculum numbers of the school; biennial reports of the board of regents and faculty; year-book numbers; annual reports of the superintendent of public instruction; annual catalogues of the officers and students of the school; fiftieth anniversary number of the school; and a history of the school for the first twenty-five years.

The second source of data was the results of the achievement tests given to the pupils in the grades 1A to 6A inclusive; and the intelligence tests given to the pupils in all the grades from the kindergarten to the sixth inclusive.

#### MATERIALS AND METHODS USED

The survey of the Elementary Laboratory School was accomplished by means of a testing program which was carried on in all of the grades from the kindergarten to the sixth grade inclusive. Both the intelligence tests and achievement tests used were group tests. In the intermediate department, 4B to 6A, the tests were administered by the principal and the supervisors. The writer gave the tests to the pupils in the primary department, including the grades from 1B to 3A inclusive. The tests in the kindergarten were administered by Dr. B. E. Tomlinson of the Department of Psychology. The tests were standardized tests with adequate norms.

In the mental testing program, three tests were used.<sup>1</sup> For the intermediate grades the Otis Self-Administering Tests of Mental Ability, Intermediate Examination Form B, devised by Arthur S. Otis, was used. In the primary department, the test used was the Haggerty Intelligence Examination, Delta 1, devised by M. E. Haggerty. The kindergarten pupils were given the Pintner-Cunningham Primary Mental Test, for the kindergarten and first and second grades, devised by Rudolph Pintner and Bess V. Cunningham.

Six tests were used in the achievement testing program.<sup>2</sup> The 1A grade group was given the Every Pupil Primary Achievement Test, Form A, constructed by Kathryn Kayser and H. E. Schrammel. No achievement test was given to the

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<sup>1</sup> Samples of tests may be obtained from the Bureau of Educational Measurements, Kansas State Teachers College of Emporia.

<sup>2</sup> Ibid.

1B and the kindergarten groups. The primary grades, 2B and 3A, were given the Stanford Achievement Test, Primary Examination Form B, devised by Truman L. Kelley, Giles M. Ruch, and Lewis M. Terman. A series of tests were used for the testing in the intermediate grades. The tests used were: New Stanford Achievement Test, Advanced Examination Form V, by Truman L. Kelley, Giles M. Ruch, and Lewis M. Terman; Thorndike Test of Word knowledge, Form C, by E. L. Thorndike; Ayres' Handwriting Scale, Gettysburg Edition, devised by Leonard P. Ayres; and Beach Music Test constructed by Frank A. Beach.

#### DESCRIPTION OF TESTS

The New Stanford Achievement Test is a survey test. It was first published in 1923 in two forms, A and B. The norms were thoroughly revised in 1925 on the basis of a large sampling of cases. In 1929, a thorough revision of the test was made and five forms, V, W, X, Y, and Z, were provided in this revision. The battery of tests for the Advanced Examination contains ten separate sub-tests for subjects usually taught in the grades 4 to 9. These sub-tests are as follows: Paragraph Meaning, Word Meaning, Dictation, Language Usage, Literature, History and Civics, Geography, Physiology and Hygiene, Arithmetic Reasoning, and Arithmetic Computation. The Primary Examination includes the parts of the Advanced Examination which are designed for the grades 2 to 3. This battery contains six sub-tests: Paragraph Meaning, Sentence Meaning, Word Meaning, Arithmetic Computation, Arithmetic Reasoning, and Dictation. These batteries of tests are published in booklet forms, a booklet for each division.

The tests are designed in such a manner that the scores in any sub-test may be compared with the scores of the other sub-test, and an average

or composite achievement score can be obtained readily. The scores may be interpreted into the educational age, chronological age, and the school grade. The norms for the sub-tests have been equated so that the score norm for a given age or grade is the same for all the tests.

These tests are devised to reduce the administrative inconvenience to a minimum. A constant form of response technique is maintained wherever possible, and sample exercises, properly marked, are given whenever the type of response changes. The time limits are adequate and permit the pupils to work at their normal rates. The tests are tests of power rather than of speed. Another feature of this test is the cumulative profile chart. This chart gives a graphical representation of the standing of the pupil in each sub-test as well as the comparison with the norms for all of the tests.

The Thorndike Test of Word Knowledge consists of 100 words, graded according to importance, followed by five response words of an equal or higher importance level. Four alternative forms of the test have been prepared. The forms are A, B, C, and D. The test is used for grades 4 to 9. This is a test of the extent of word knowledge rather than of the speed in using it. The test is very slightly influenced by practice with it. The gain between the first and the second trial is only two-thirds of a word. There does not seem to be any observable tendency for this to be larger or smaller in accordance with high or low scoring individuals.<sup>3</sup>

The Ayres' Handwriting Scale, Gettysburg Edition, is a scale for measuring the quality of handwriting. The scale was first published in 1912 and was reprinted 12 times with several minor revisions. The present scale is referred to as the "Gettysburg Edition" in order to distinguish it from the

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<sup>3</sup> Edward L. Thorndike, and Percival M. Symonds, "Difficulty, Reliability, and Grade Achievements in a Test of English Vocabulary," in TEACHERS COLLEGE RECORD, pp. 441-42, November, 1923. New York City: Teachers College, Columbia University.

other editions. The rate of writing as well as the quality may be measured by this scale. The scale contains samples of handwriting which are evaluated from 20 to 90. These samples are used as basis for scoring or evaluating the individual's handwriting for quality. To determine the rate a copy with the count of the letters is given.

The Beach Music Test was carefully revised and improved in 1930. The test consists of eleven parts, each of which measures ability and achievement in a basic music function. The parts of the test are: Knowledge of Music Symbols, Recognition of Measure, Tone Directions and Similarity, Pitch Discrimination, Application of Symbols, Time Values, Terms and Symbols, Correction of Notation, Symbols and Pitch Names, Representation of Pitches, and Composer and Artists. The test is thoroughly objective, and reliable norms are available. There is only one form, and the test is suitable for grades 4 to 12 and college. This test should be given by the music supervisor or teacher as the majority of the parts of the test are to be played or sung by the examiner.

The Every Pupil Primary Achievement Test consists of six parts, namely: Arithmetic Computation, Reading Computation, Sentence Spelling, Word Reading, Sentence Reading, and Paragraph Meaning. Each part applies to some important function of the primary grades in the school system. There are two forms, A and B, and the test is designed for grades 1 to 3. The scoring is done with ease and rapidity as a printed key exactly fits each part of the test. Grade norms for each part of the test and norms for the whole test are available for the interpretation of the test results. The quartile norms are given for each part of the test, and percentile norms are given for the whole test. These norms facilitate a somewhat more detailed interpretation of the test.

The Otis Self-Administering Tests of Mental Ability are modeled after a group test designed in 1918. The tests cover a range from the 4th grade to the college. The Intermediate Examination is designed for grades 4 to 9, and the Higher Examination for high school students and college freshmen. Each examination is published in four alternative forms, A, B, C, and D. The test is self-administering in that the examiner has merely to distribute blanks, see that all understand the printed directions, and give the signal to begin. The 75 items constituting the examination are in a single list and are answered without interruption. The scoring may be done with ease and rapidity. A chart is provided by which the I.Q. may be found directly from the age in years and months and the score. Arithmetical calculation or reference to tables is not necessary. Binet Mental Age equivalents are given to scores in both examination so that the scores may be compared with scores of other tests or to find I.Q.'s comparable with those obtained from other group tests. Age norms are supplied for both the Intermediate and Higher Examinations.

The Haggerty Intelligence Examination offers two separate group examinations, Delta 1 and Delta 2. The Delta 2 is an adaptation of the army intelligence examinations. Delta 1 was devised and used as a group intelligence test for primary children. Delta 1 examination consists of 6 tests with a "fore-exercise" for each test. The fore-exercise is intended to serve two purposes: (1) to give preliminary instruction in the method of performing the real test, and (2) to give the pupils practice in test so that the preliminary experiences of the children with the test will be equalized. The tests are as follows: Oral Directions, Copying Designs, Picture Completion, Picture Comparison, Symbol-digit, and Word Comparison.

Grade and age norms are given for the Delta 1 tests. These norms may be used in the interpretation of the results of the tests.

The Pintner-Cunningham Primary Mental Test is a group test of mental ability. The test has only one form and is adapted for the kindergarten, first and second grades. Grade norms are available for the test. Mental ages may be readily derived from the scores. The test has been revised, and norms and mental ages corresponding to scores were derived from a large sampling of cases. The test consists entirely of pictures and requires no reading on the part of the subjects tested. The test is divided into seven parts: Common Observation, Aesthetic Differences, Associated Objects, Discrimination of Size, Picture Parts, Picture Completion, and Dot Drawing.



CHAPTER II  
HISTORICAL SURVEY  
HISTORICAL SKETCH

Preparation and training of those who desire to have a broader knowledge of the profession of teaching has been one of the purposes of the Kansas State Teachers College, Emporia, from its beginning. The institution early realized that knowledge of theory and the application of it have a common understanding but that they are far apart in the schoolroom.

Laboratory schools and supervised teaching in the preparation of teachers are as vital as the hospital and interne work are for the preparation of the physician. The Elementary Laboratory School of the Kansas State Teachers College provides opportunity for the teachers preparing to teach in the elementary grades to have practice work in teaching under experienced supervisors and also to observe teaching conducted by these expert teachers.

The Model School, as the Laboratory School was originally called, was opened Monday, September 16, 1867, in a room on the second story of the Normal School building.<sup>1</sup> Miss Hattie M. Case was selected as the first principal, but she resigned before entering the work. Mrs. J. W. Gorham was put in charge of the school. The number of pupils was limited to thirty. The first enrollment consisted of fifteen girls and twelve boys. The enrollment was increased to thirty-six pupils the next year.

This Model Department was organized with two objects in view: first, to provide a school in which the pupils were to be taught the branches of

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<sup>1</sup> "Annual Report of the State Normal School for the Year 1867," in Report of Superintendent of Public Instruction. Topeka: 1867, pp. 61-65.

English education; and second, to provide an experimental or training school where the students preparing for teaching could test, in a practical way, the theories of teaching presented in the Normal School.<sup>2</sup> Two grades constituted the plan in this Model School. The first grade was for those pupils not quite sufficiently prepared to be admitted into the Normal Department, and the second grade for pupils usually classed as "intermediate" in our grade schools today. A primary grade was added to the Model School in the spring of 1868.

Almost from the very beginning, lack of room was the problem confronting the Model School. At the close of his administration in 1871, President L. B. Kellogg advised the discontinuance of the Model School because of inadequate room. The Model School was reorganized and opened September, 1873, under the administration of President C. R. Pomeroy.

At their annual meeting the following June, the Board of Regents made provisions for establishing a high school and grammar school as a part of the work of the Normal. They also provided for a training school to consist of the grades below the grammar grades. The training school was to be the place for the Normal students to do their practice teaching.

On October 26, 1878, a fire completely destroyed the buildings of the school. In 1880, under the administration of President R. B. Welch, the Model School was reorganized and placed under the supervision of B. T. Davis who was also the superintendent of the city schools of Emporia.<sup>3</sup> With the consent of the Board of Education of the city of Emporia, the public schools were made the training schools in which the Normal students did their super-

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Op. Cit. pp. 61-65.

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A History of the State Normal School of Kansas for the First Twenty-five Years. Topeka: Kansas Publishing House, 1889, p. 28.

vised work. This was not found satisfactory as much valuable time was lost in going to and from the schools. This plan was discontinued and a training school was established with competent instructors in the Normal building.<sup>4</sup>

The kindergarten was organized in April, 1882, by B. T. Davis, principal of training, but without expense to the institution. Although expenses were met entirely by tuition, thirty-five children, five boys and thirty girls, enrolled in the new department. The Model department was a complete graded school consisting of the kindergarten, primary, intermediate and grammar grades. The department received children at three years of age, and offered a course of study for admission to the Normal Department.<sup>5</sup>

Prior to the year 1905, the training school occupied a room or rooms in the Normal building, and the accommodations were poor. The growth in enrollment made the conditions undesirable and unsatisfactory. A new training school building was completed in 1905 at the cost of approximately \$30,000. It was arranged especially for practice teaching and contained sufficient space for the kindergarten and the eight grades of the common school. There were good light and ample ventilation as well as good equipment. The school building also contained a play-room, manual training room, and kindergarten kitchen. Provisions were made for adequate playgrounds.<sup>6</sup>

The work in the intermediate grades, including the fourth, fifth, and sixth grades, was partially departmentalized in 1911, and five supervisors

<sup>4</sup> Department of Public Instruction. Report of the State Superintendent for the School Years Ending July 31, 1879 and 1880. Topeka: Kansas Publishing House, 1881, pp. 314-15.

<sup>5</sup> State Normal School, Third Biennial Report of the Regents and Faculty. Topeka: Kansas Publishing House, 1883, p. 12-13.

<sup>6</sup> Forty-Fourth Annual Catalogue of the Kansas State Normal School, Emporia. Topeka: State Printing Office, 1908, p. 19.

were added to the faculty. The primary department is departmentalized only to the extent that there is a special supervisor for music and one for the gymnasium work. This departmentalization took place about the same time as that of the intermediate department.

The legislature appropriated \$150,000 in its session of 1927 for the erection of a new training school building and equipment. This building was completed in 1929. It is situated on the east side of the front campus. The junior high school was removed from the administration building to the building vacated by the Elementary Training school.<sup>7</sup> This new building is one of the most up-to-date elementary school buildings in this part of the state. It includes kindergarten rooms with fireplaces, sets of double classrooms equipped with stages, a library, a science laboratory, a clinic room for medical, mental, and physical testing, an auditorium-gymnasium, and offices for the director, principals, and the clinic.<sup>8</sup> The equipment is new and adequate, and the lighting, heating, and ventilation are good.

The names, Model School, Training School, and Laboratory School, have been used interchangeably in speaking of the Laboratory School. The school was called the Model School originally. In 1874, the school was reorganized, and the Model School was to include the High School, while the school for the grades below the Grammar School was to be the Training School. The name, Training School, was not used in the general catalogues until about 1908. In 1931 the school was named the Elementary Laboratory School, by which it is known today. This name seems appropriate for the institution as it is in

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<sup>7</sup> Thirty-Second Biennial Report of the Kansas State Teachers College of Emporia. Topeka: Kansas State Printing Plant, 1928. p. 23.

<sup>8</sup> Kansas State Teachers College of Emporia, General Catalogue, 1933, Part 1. Topeka: Kansas State Printing Plant, 1932, p. 20.

reality a laboratory for the students in which to do their supervised teaching.

The present enrollment is 263 with 44 pupils in the kindergarten, 103 in the primary, and 116 in the intermediate departments.

#### ADMINISTRATION

The administrative duties of the Elementary Laboratory Department are vested in the president of the school, the director of teacher-training, the principal of the intermediate grades, and the principal and supervisor of the primary grades. Like other organizations and institutions, the school has had a president with administrative powers from its very beginning. It is his duty to be the administrator of the entire institution.

The director of the teacher training comes next in authority over the Laboratory School. The first position of the director in teacher training was established about 1880. This new officer was the principal of the Model School and of gymnastics. He also had charge of several classes. From 1908 to 1910, the director also served as the vice-president of the school. In 1912, the director became a director of the Training School and was relieved of his former duties as principal and director of gymnastics. At the present time, Dr. Herbert G. Lull, the director of teacher training directs the work of the Laboratory School, teaches undergraduate and graduate classes, and also serves as the head of the department of education.

The office of the principal has been in existence from the time the department was established. In the beginning, the principal served as the principal of the Model School. In 1880, the principal was given the

work of the director of training and director of gymnastics. The principalship of the intermediate grades was recognized in 1920. Until 1929, the principal of the primary department was the head supervisor of the department. At the present time, the principals of the primary and of the intermediate grades have the direction of the management and discipline in their respective departments and also carry a teaching load.

#### PERSONNEL

The administrative personnel of the Elementary Laboratory School consists of the president, director of teacher training, principal of the intermediate grades who also serves as supervisor of intermediate grade English, principal and supervisor of primary grades, supervisor of kindergarten, six supervisors of primary grades, supervisors of intermediate grade science, history, geography, art, mathematics, music, and English, supervisor of physical education for boys, and supervisor of physical education for girls.<sup>9</sup>

The Model School began with one instructor. Upon the organization of the primary and kindergarten, more instructors were added to the faculty. Students served as assistants to the faculty in the beginning, but later regular assistants were put in charge.

As a result of the departmentalization program in 1911, supervisors for music, manual training, gymnasium, domestic art and science were added.<sup>10</sup> As the departmentalization program progressed, it was necessary to increase the faculty. The supervisors of arithmetic, literature, English, and geog-

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<sup>9</sup> Kansas State Teachers College of Emporia, General Catalogue, 1933, Part 1.  
Topeka: Kansas State Printing Plant, 1932, pp. 9-18.

<sup>10</sup> Kansas State Normal School, General Catalogue, 1911-1912. Topeka: State Printing Office, 1912, p. 169.

raphy were elected in 1914.<sup>11</sup> The following year the supervisor in science was added. Home economics supervisor and industrial arts and drawing supervisors were elected about 1918.<sup>12</sup> Supervisors for history and civics came in the following year. It was not until in 1924 that the principal of the intermediate grades was recognized as such.<sup>13</sup>

Each year some instructors are granted a leave of absence to do advanced work or to do work to broaden their knowledge of their field of work.

### CURRICULA

The curriculum for the Model School was so constructed to satisfy the facilities needed and to train students going out in the teaching profession. It consisted of two grades at the beginning. These were the first grade for those not adequately advanced to enter the Normal School, and the second grade for those usually classed in the intermediate grades in our common schools. The curriculums for these grades contained the following courses:<sup>14</sup> reading, arithmetic, geography, mental arithmetic, music, spelling, drawing, gymnastics, and miscellaneous exercises. In 1880, the course of study was divided into eight grades, but practically the same courses were offered.

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<sup>11</sup> Kansas State Normal School, Emporia, General Catalogue, 1914-1915.  
Topeka: Kansas State Printing Office, 1915, pp. 5-13.

<sup>12</sup> Kansas State Normal School, Emporia, General Catalogue, 1918-1919.  
Topeka: Kansas State Printing Plant, 1918, pp. 5-12.

<sup>13</sup> Kansas State Teachers College of Emporia, General Catalogue, 1924,  
Part 1. Topeka: Kansas State Printing Plant, 1924, pp. 9-16.

<sup>14</sup> "Annual Report of the State Normal School for the Year 1867," in  
Report of Superintendent of Public Instruction 1863-1870, pp. 61-65.

The kindergarten was introduced into the Model School in 1882. In this department the children received instruction through the Froebel Method. The course offered instruction by means of block building, sticks and rings, drawing; and occupations as picture-sewing, weaving, perforating, and paper folding.<sup>15</sup>

Penmanship and general science were added in the early '80s, and manual training and history were added during the '90s. Other studies as civil government, physiology, domestic science and art were added on from time to time. The present curriculum offers the following courses: kindergarten--conversation, free period, manual activities, housekeeping and lunch, rest, music, games and literature; primary--first grade, reading, social studies, art, spelling, writing, music, language, numbers, supervised play; second grade, reading, number, language, literature, plans and appreciations, social studies and activities, music, spelling, writing, drills, and supervised play; third grade, reading, numbers, social studies and activities, plans and appreciations, language, literature, spelling, writing, art, drills, and supervised play.

Intermediate--fourth grade, reading, literature, arithmetic, music, practical arts, science, history, geography, spelling, writing, gymnasium, personal hygiene, and language; fifth grade, reading, literature, arithmetic, spelling, writing, geography, history, language, music, practical arts, science, gymnasium, and personal hygiene; sixth grade, reading and

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<sup>15</sup> Sixteenth Annual Catalogue of the Officers and Students of the State Normal School, Emporia, 1882-1883. Topeka; Kansas State Publishing House, 1883, p. 34.



literature, arithmetic, spelling, writing, language, music, geography,  
history, practical arts, science, personal hygiene, and gymnasium.

## CHAPTER III

### EDUCATIONAL SURVEY

The purpose of the educational survey was to show the educational achievement of the pupils in the fundamental school functions. The survey was made by means of a testing program. The measuring instruments used were standardized achievement tests with adequate norms. These tests rank high in reliability and validity.

An explanation of each test and a comparison of the class medians with the norms for the test are given. The third quartile, first quartile, and the quartile deviation are shown in the tables. The third and first quartiles are shown in the graphs in addition to the class medians and the norms. In considering the results of the tests, it is necessary to note the various measures. The range gives the extremes of the scores. The quartile deviations show the degree of compactness of the class around the median. These measures may or may not affect the median. The measures are of vital importance to the teacher in that they mark of the limits within which the middle 50 per cent of the scores fall and they also show the degree of compactness of the class.

#### INTERMEDIATE GRADES

In the present organization of the Elementary Laboratory School, the Intermediate Grades consist of six half grades, namely: 4B, 4A, 5B, 5A, 6B, and 6A.

The results of the New Stanford Achievement Test, Intermediate Examination, Form V, given February, 1934 will be discussed first.

## Paragraph Meaning--Test No. 1

This test is a sub-test in the New Stanford Achievement Test, which is a composite battery of tests. It is a completion type test and necessitates real comprehension of the material to fill the blanks. The directions given to the pupils before starting on the test are: "Write JUST ONE WORD on each line." A sample of the material in the test is given here:

Steel is made from iron and is therefore a manufactured product. Similarly brass is commonly made from copper and zinc. This explains why we never hear of ----- and -----mines.

Much of the material used in the paragraphs of this test contains useful information for the pupil taking the test. This test contains 80 possible points with the maximum derived score of 137. The derived scores are values obtained in making the norms for educational age, chronological age, and school grade for each test comparable.

The results of the test are shown in Table I and Figure 1.

TABLE I

Showing the Comparison of the Results of Paragraph Meaning, Test No. 1, in the Intermediate Grades

|                    | GRADE |       |       |       |       |        |
|--------------------|-------|-------|-------|-------|-------|--------|
|                    | 4B    | 4A-   | 5B    | 5A    | 6B    | 6A     |
| Third Quartile     | 59.17 | 73.33 | 80.06 | 92.5  | 81.75 | 100.42 |
| Class Median       | 50    | 68.75 | 75.75 | 79.17 | 77.06 | 84.38  |
| First Quartile     | 36.25 | 62.5  | 66.75 | 74.38 | 75.28 | 77.92  |
| Quartile Deviation | 11.26 | 5.42  | 6.66  | 9.06  | 3.24  | 11.25  |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78     |
| High Score         | 82    | 84    | 94    | 106   | 91    | 110    |
| Low Score          | 29    | 39    | 59    | 62    | 58    | 44     |

Read table thus: In the Grade 4B, the third quartile is 59.17; class median, 50; first quartile, 36.25; the quartile deviation, 11.26; norm, 50; the high score, 82; and the low score is 29. Read the remaining items in the same manner.

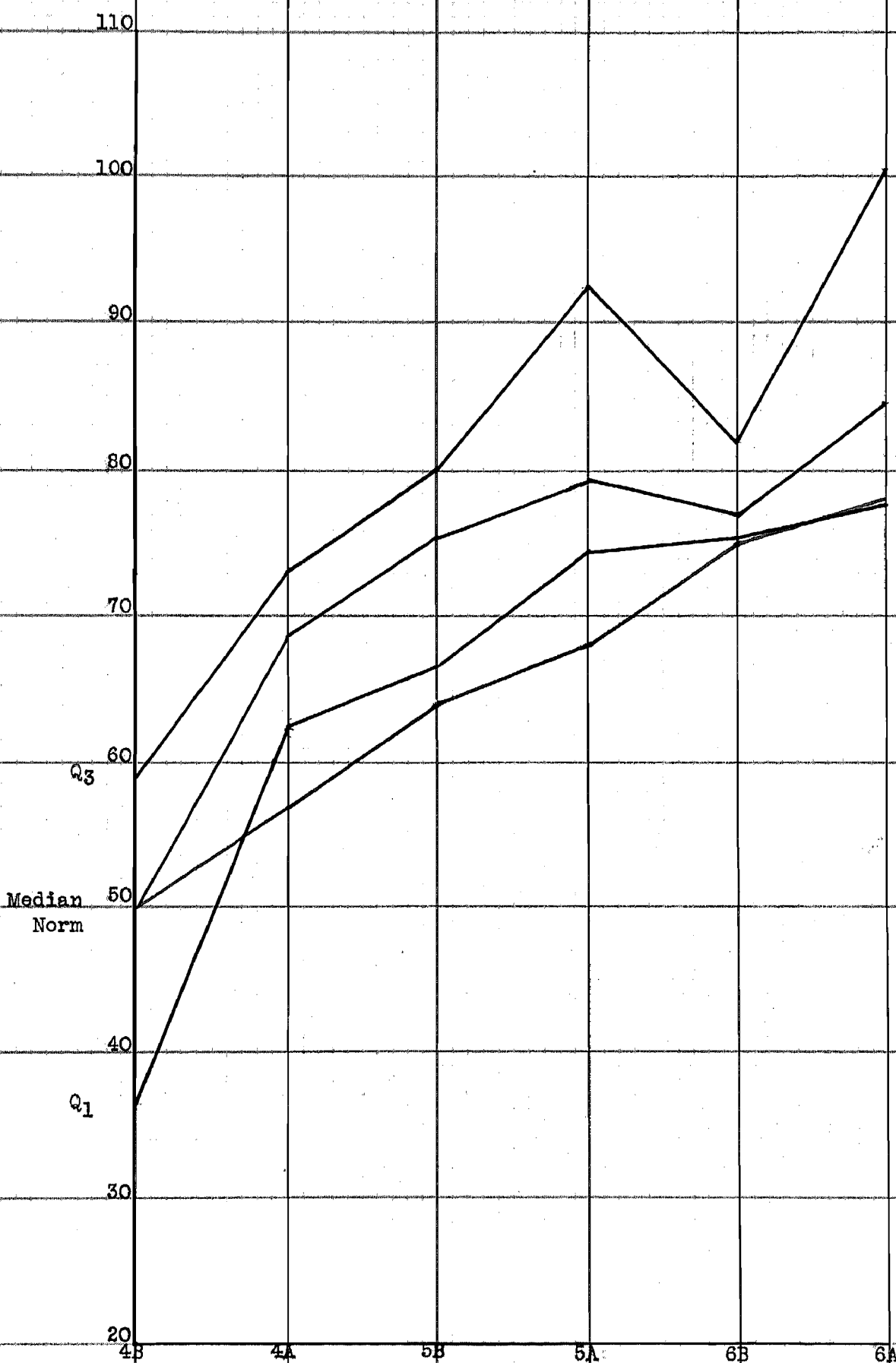


Fig. 1. Showing the Comparison of the Results of Paragraph Meaning, Test No. 1, in the Intermediate Grades.

In the comparison of the class medians with the test norms, it was found the class median and the norm for the 4B were the same; for 4A, the median was 11.75 points above the norm; for 5B, 11.75; for 5A, 11.17; for 6B, 2.06; and 6.38 for 6A. The smallest range of scores was found in 6B and the greatest in 6A. The narrower range of scores as well as the smaller quartile deviation indicates that the pupils of grade 6B are much more alike than are the pupils in any other grades.

#### Word Meaning--Test No. 2

This is a test of the vocabulary of the pupil. It is a multiple choice type. There is a choice of one of five words for every item. The test contains two types of items--those in which the critical word is harder than the response words, and those in which it is easier. The difficulties of critical and response words were determined by the Thorndike Word Book. A reasonable sampling of the parts of speech was used in selecting the words. In this test the directions are: "Draw a line under the word that makes the sentence true." An example of the test follows:

To despise is to  
 BIND      EFFECT      HATE      OBEY      OBSERVE

In this test there are 80 possible responses with the maximum derived score of 123.

The results of the test are shown in Table II and Figure 2. In comparing the medians with the test norms for the test, it was found that the median of 4B exceeded the norm by 10.83 points; 4A by 8 points; 5B by 11.5; 5A by 9; 6B by 2.63; and 6A by 12.83 points. The widest range of scores was 63 in 4B and the narrowest 34 in the 5A grades.

TABLE II

Showing the Comparisons of the Results of Word Meaning,  
Test No. 2, in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 63.75 | 73.75 | 84.75 | 80.41 | 87.75 | 98.75 |
| Class Median       | 60.83 | 65    | 75.5  | 77    | 77.63 | 90.83 |
| First Quartile     | 51.25 | 57.5  | 65.63 | 72.08 | 73.13 | 73.75 |
| Quartile Deviation | 6.25  | 7.63  | 9.51  | 4.17  | 7.31  | 12.5  |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78    |
| High Score         | 66    | 88    | 95    | 109   | 97    | 110   |
| Low Score          | 3     | 39    | 52    | 61    | 63    | 62    |

Read table thus: The third quartile in 4B is 63.75; the class median is 60.83; first quartile, 51.25; quartile deviation, 6.25; norm, 50; high score, 66; and the low score, 3. Read the remaining items in the same manner.

#### Dictation--Test No. 3

The test is a measure for the spelling ability of the pupil. Almost every word written by the pupil counts toward his spelling score. The test is called a "dictation exercise" instead of "spelling test" to avoid the confusion or excitement which commonly takes place when the pupil is aware that he is taking a spelling test. The words in this exercise were taken from the Ayres, Buckingham, Horn-Ashbaugh, and "78" spelling lists with the exception of a few words in the upper grade levels. The formula for arriving at the score is the number right in the sentences dictated plus full score for easier sentences not dictated. The maximum derived score is 127 points. The pupils are to write every word in the sentences read by the examiner. An example of the items in the test is:

He DOES have ABILITY and COURAGE.

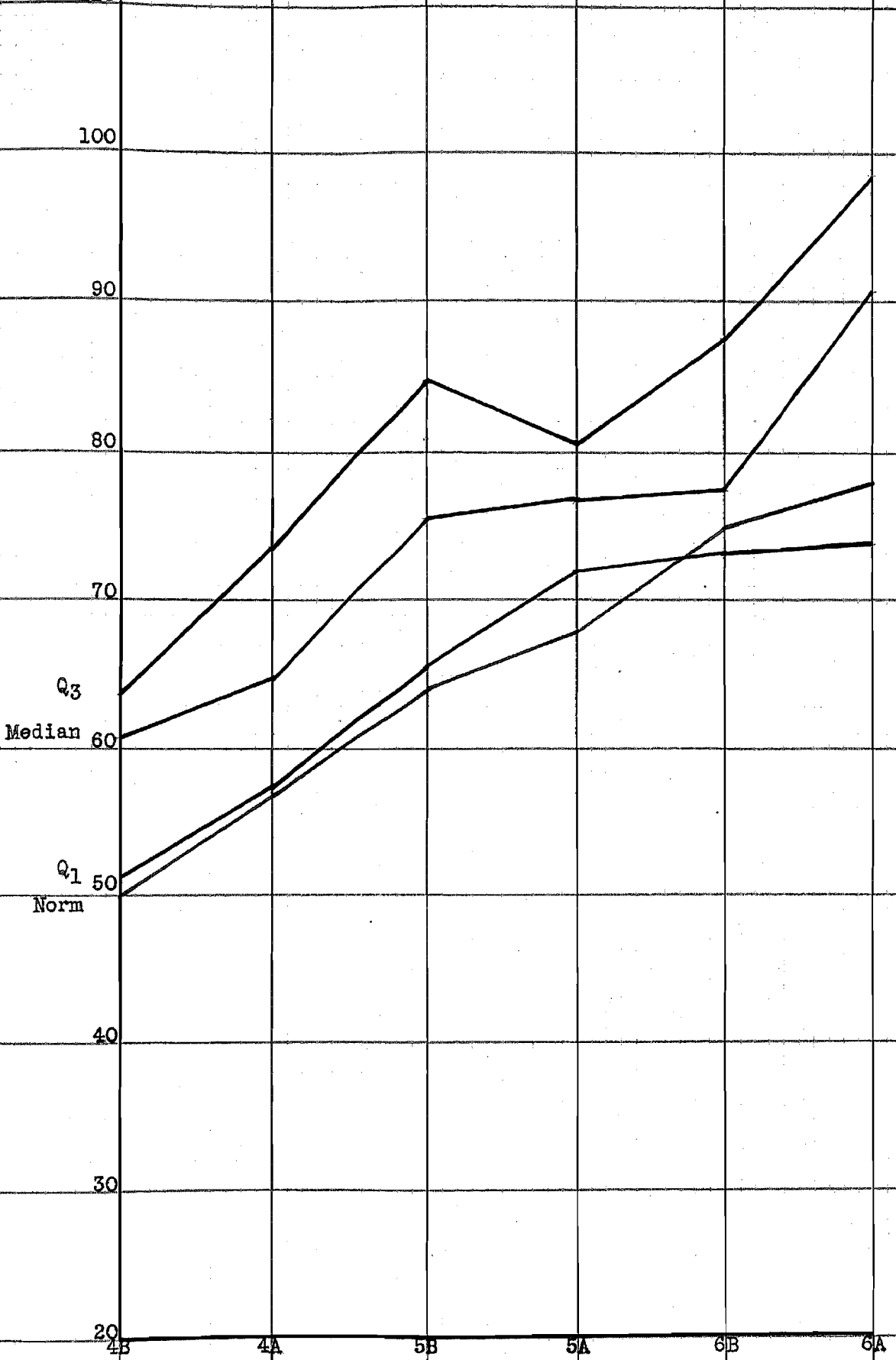


Fig. 2. Showing the Comparisons of the Results of Word Meaning, Test No. 2, in the Intermediate Grades.

Table III and Figure 3 reveal the results of the test. In comparing the class medians with the norms, it was found that the median was 8.75

TABLE III

Showing the Comparison of the Results of Dictation,  
Test No. 3, in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 47.5  | 65    | 70.13 | 74.25 | 78.88 | 87.25 |
| Class Median       | 41.25 | 60.83 | 63.75 | 67    | 70.13 | 83.5  |
| First Quartile     | 32.5  | 48.75 | 58.88 | 62.63 | 66.25 | 73.13 |
| Quartile Deviation | 7.5   | 8.13  | 5.63  | 5.81  | 6.32  | 7.06  |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78    |
| High Score         | 77    | 80    | 77    | 89    | 88    | 92    |
| Low Score          | 15    | 35    | 40    | 57    | 55    | 57    |

Read table thus; In the grade 4B, the third quartile is 47.5; class median, 41.25; first quartile, 32.5; quartile deviation, 7.5; norm, 50; high score, 77; and the low score, 15. Read the remaining items in the same manner.

points below the norm in 4B; .25 in 5B; 1 in 5A; and 4.87 in 6B. The median in 4A was 3.83 points above the norm and 5.5 in 6A. The greatest scattering of the scores was 62 in 4B and the smallest 32 in 5A.

#### Language Usage--Test No. 4

This test attempts to measure two phases of correct language usage, that is, the choice of grammatical construction and the selection of correct words for clearly expressing an idea. It is a multiple choice type test. The test contains 74 items. The formula for arriving at the score is the number of right responses minus the number of wrong responses. The highest derived score is 136. The directions for the test are such as, "Draw a line



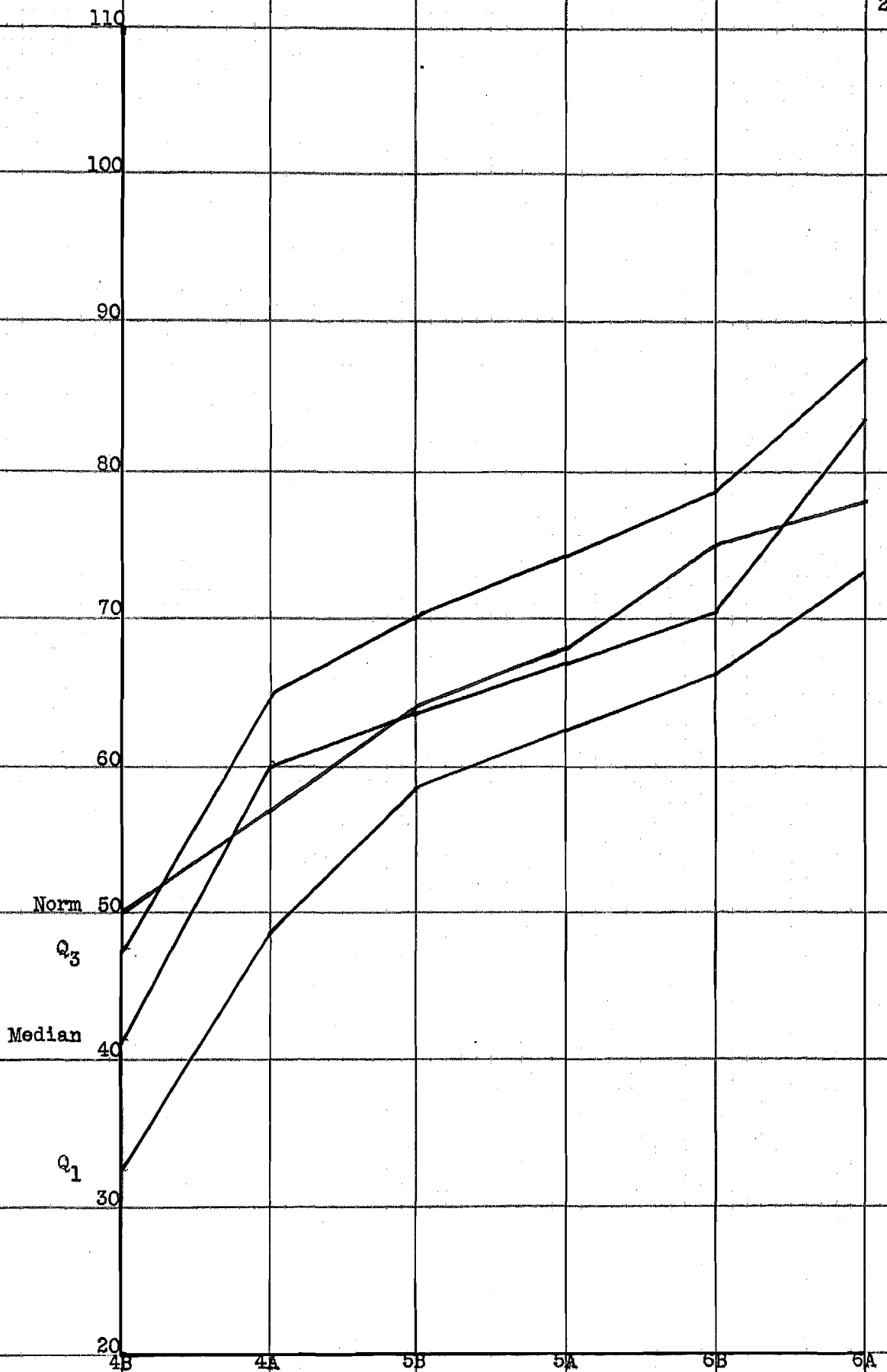


Fig. 3. Showing the Comparison of the Results of Dictation, Test No. 3, in the Intermediate Grades.

under the word or phrase that makes the better sentence." The following is a sample of the test:

I was there before you <sup>was</sup>  
were

Table IV and Figure 4 show the results of the test. These data show

TABLE IV

Showing the Comparison of the Results of Language Usage, Test No. 4, in the Intermediate Grades

|                    | GRADE |       |       |       |       |        |
|--------------------|-------|-------|-------|-------|-------|--------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A     |
| Third Quartile     | 67.5  | 83    | 86.88 | 102.5 | 90.42 | 103.25 |
| Class Median       | 45    | 75    | 73.75 | 87.5  | 76.25 | 98.5   |
| First Quartile     | 23.5  | 46.67 | 63.13 | 77.5  | 54.38 | 87.92  |
| Quartile Deviation | 22    | 18.17 | 11.88 | 12.5  | 18.02 | 7.67   |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78     |
| High Score         | 86    | 93    | 104   | 109   | 97    | 118    |
| Low Score          | 20    | 20    | 40    | 53    | 34    | 34     |

Read table thus: In the grade 4B, the third quartile is 67.5; class median, 45; first quartile, 23.5; quartile deviation, 22; norm, 50; high score, 86; and the low score, 20. Read the remaining items in the same manner.

that there is an acceleration of 18 points in 4A; 9.75 in 5B; 19.5 in 5A; 11.25 in 6B; and 20.5 points in 6A. The 4B shows a retardation of 5 points. The largest range of scores was 84 in 6A, and the smallest was 56 in 5A.

#### Literature--Test No. 5

The literature test attempts to measure the pupils' knowledge of literature. The test consists of 80 items with a choice of one answer out of three suggestions. This makes it a multiple choice type test. The score is a derived score, and the formula used is the number of right responses minus

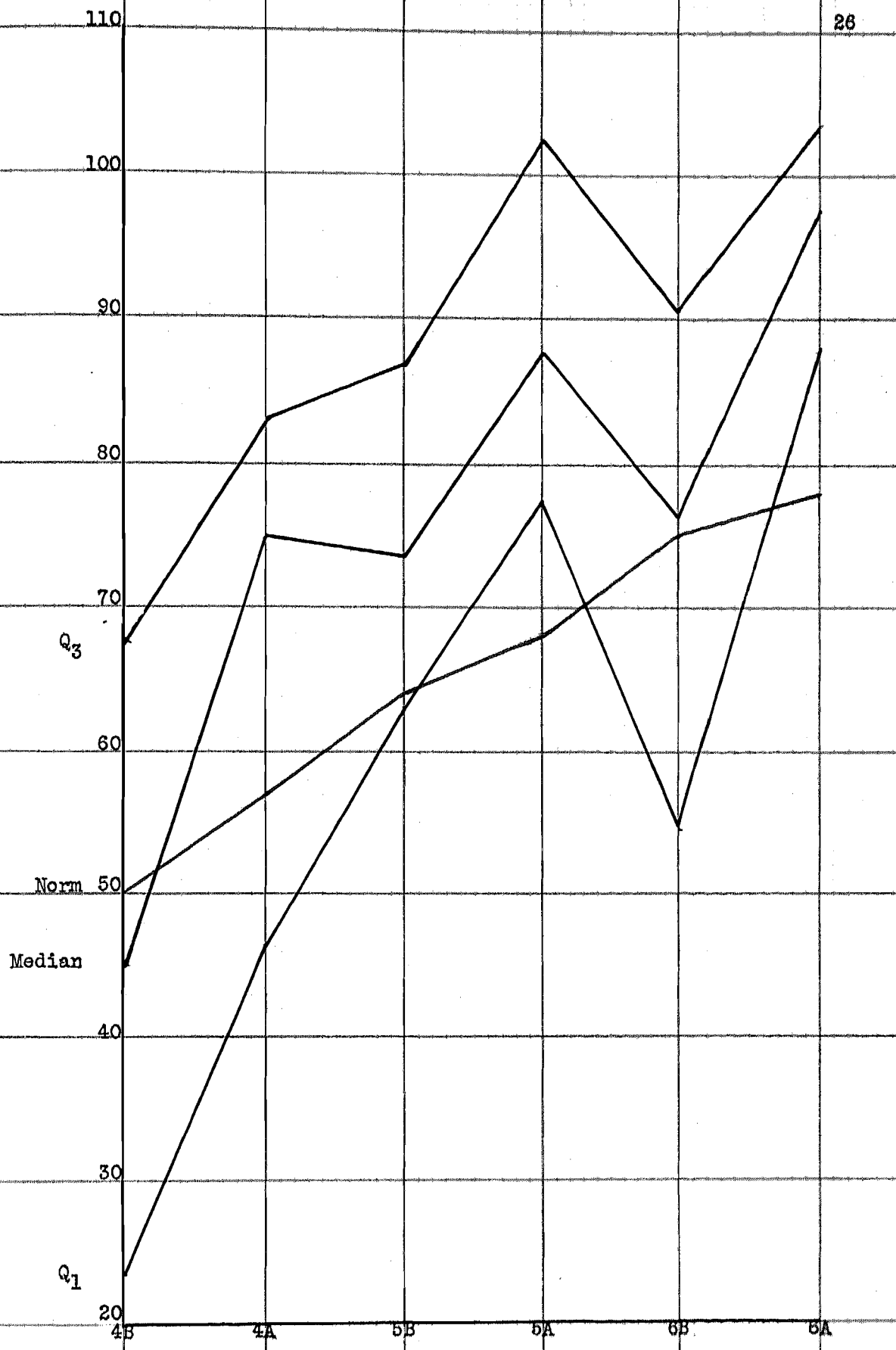


Fig. 4. Showing the Comparison of the Results of Language Usage, Test No. 4, in the Intermediate Grades.

the number of wrong responses divided by two. The highest possible derived score is 142. The materials used are suited to both boys and girls. The classes of literature used are such as fairy stories, travel, biography, popular science, fiction and poetry. The pupils are given such directions as "Draw a line under the word that makes the sentence true." The following is a sample taken from the test:

"Little Women" was written by  
ALCOTT      BROWN      SEDGWICK

The results of the test are shown in Table V and Figure 5. In comparing the class medians with the test norms, it was found that in 4B the median exceeded the norm by 5 points; in 4A by 1.33; 5B by 19.5; 5A by 12; 6B by

TABLE V

Showing the Comparison of the Results of Literature,  
Test No. 5, in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 71.25 | 72.5  | 89.55 | 87.5  | 89.38 | 99.25 |
| Class Median       | 55    | 58.33 | 83.5  | 80    | 85.42 | 90.42 |
| First Quartile     | 37.5  | 48    | 76.25 | 76.07 | 72.5  | 86.25 |
| Quartile Deviation | 16.88 | 12.25 | 6.65  | 5.72  | 8.44  | 6.5   |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78    |
| High Score         | 88    | 85    | 96    | 102   | 95    | 104   |
| Low Score          | 20    | 20    | 49    | 49    | 20    | 55    |

Read table thus: The third quartile for 4B is 71.25; class median, 55; first quartile, 37.5; quartile deviation, 16.88; norm, 50; high score, 88; and the low score, 20. Read the remainder of the table in the same manner.

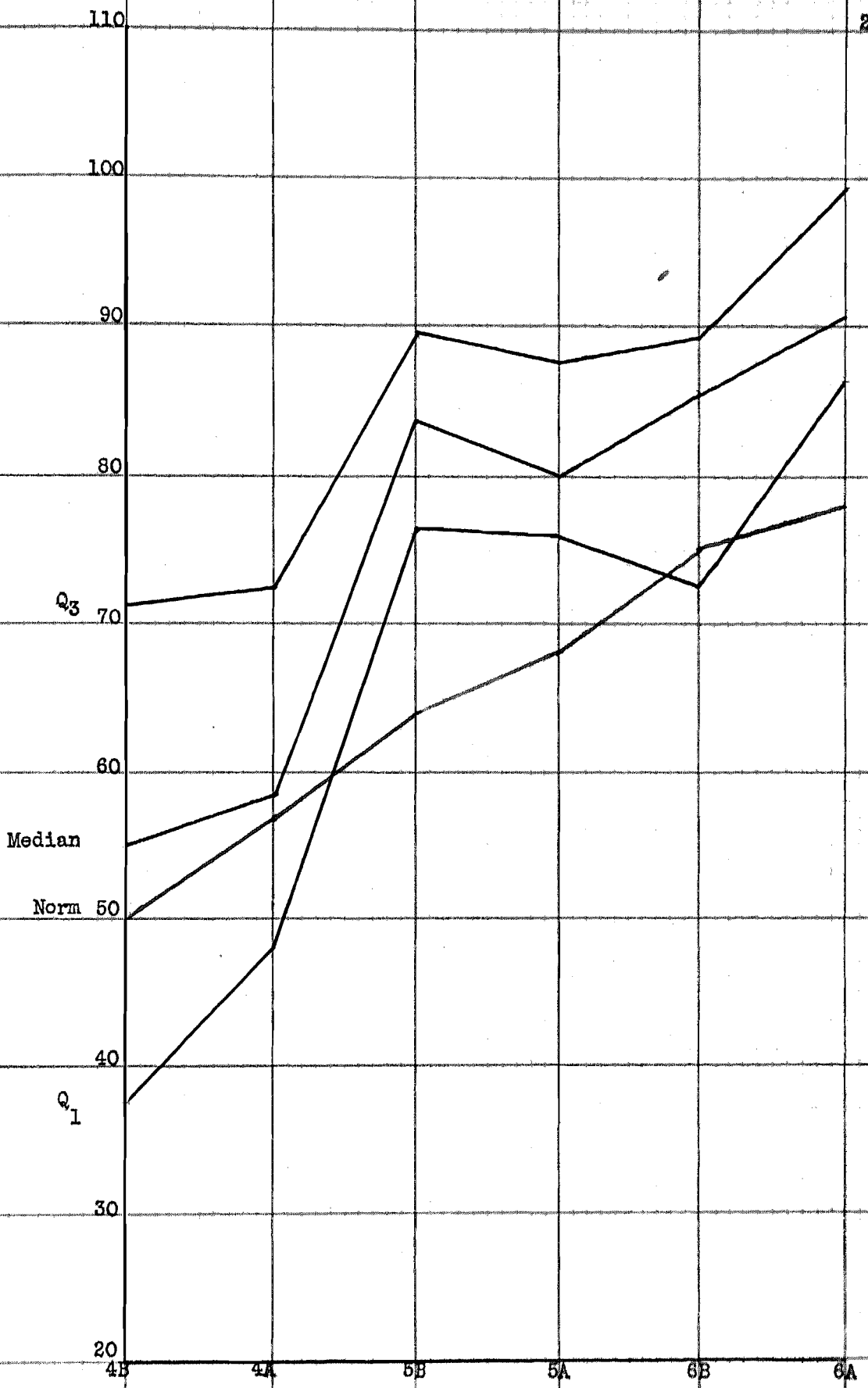


Fig. 5. Showing the Comparison of the Results of Literature, Test No. 5, in the Intermediate Grades.

10.42; and 6A by 12.42 points. The widest scatter of scores was 75 points in 6B and the smallest 47 in 5B.

#### History and Civics--Test No. 6

The test deals with facts pertaining to the social studies. It contains 80 items and is a multiple choice type test. The correct answer is to be selected from the three answers offered. The formula used for finding the score is the number of correct responses minus the number of wrong responses divided by two. The maximum derived score is 136. In this test, the pupils are instructed to "Draw a line under the word or phrase which makes the sentence true." The following sample is taken from the test:

The first French Settlers in America were  
 FARMERS          MINERS          TRADERS

TABLE VI

Showing the Comparison of the Results of History and Civics, Test No. 6, in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 62.5  | 66.25 | 71.75 | 83.75 | 85.31 | 91.88 |
| Class Median       | 52.5  | 50    | 57.5  | 70    | 71.25 | 85.63 |
| First Quartile     | 37.5  | 40    | 50.31 | 57.75 | 64.38 | 71.25 |
| Quartile Deviation | 12.5  | 13.13 | 10.72 | 13    | 10.46 | 10.32 |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78    |
| High Score         | 74    | 86    | 81    | 93    | 94    | 102   |
| Low Score          | 20    | 20    | 20    | 38    | 42    | 57    |

Read table thus: In the 4B, the third quartile is 62.5; class median, 52.5; first quartile, 37.5; quartile deviation, 12.5; norm, 50; high score, 74; and the low score, 20. Read the remainder of the table in the same manner.

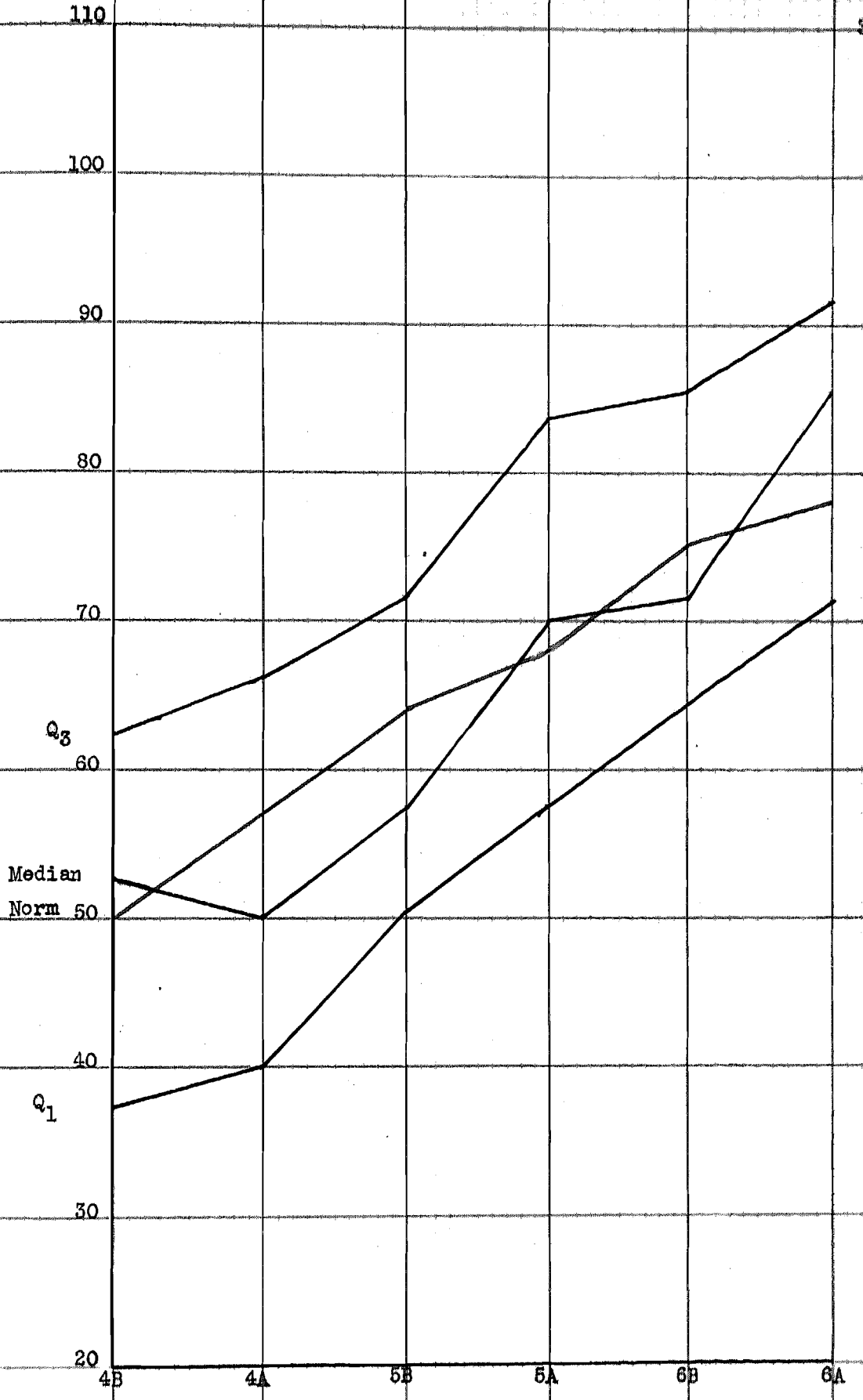


Fig. 6. Showing the Comparison of the Results of History and Civics, Test No. 6, in the Intermediate Grades.

Table VI and Figure 6 reveal the results of the test. By comparing the class medians and the test norms, it was found that 4B grade shows a retardation of 2.5 points; 4A, 7 points; 5B, 6.5; and 6B, 3.75 points. The grade 5A is 18 points above the norm and 6A, 6.37 points above. The largest range of scores was 61 in 5B and the smallest range 26 in 4A.

#### Geography--Test No. 7

This test contains a wide range of geographic information. The most important social aspects as well as the most important countries and continents are given the greatest number of items in the test. The material was selected from analyses of textbooks and tests in geography. The test is a multiple choice type, and the correct answer is selected from the three suggestions offered. The test contains 80 items, and the maximum derived score is 137. The formula for computing the score is the difference between the number of correct responses and the number of wrong responses divided by two. The instructions for this test are: "Draw a line under the word which makes the sentence true." The following sample is taken from the items of the test:

The largest river in the world is the  
 AMAZON      MISSISSIPPI      CONGO

The results of the test are shown in Table VII and Figure 7. The median exceeded the norm 10 points in 4B; 5 in 4A; 3.5 in 5B; 8 in 5A; 8.5 in 6B; and 15.75 in 6A. The widest range of the scores was 59 in 6A and the smallest 29 in 4A.



TABLE VII

Showing the Comparison of the Results of Geography,  
Test No. 7, in the Intermediate Grades

|                    | GRADE |     |       |      |       |        |
|--------------------|-------|-----|-------|------|-------|--------|
|                    | 4B    | 4A  | 5B    | 5A   | 6B    | 6A     |
| Third Quartile     | 64.38 | 68  | 77.13 | 87.5 | 91.25 | 100.31 |
| Class Median       | 60    | 62  | 67.5  | 79   | 83.5  | 93.75  |
| First Quartile     | 52.5  | 55  | 61.69 | 72.5 | 76.88 | 76.25  |
| Quartile Deviation | 5.94  | 6.5 | 7.72  | 7.5  | 7.19  | 12.03  |
| Norm               | 50    | 57  | 64    | 68   | 75    | 78     |
| High Score         | 78    | 73  | 91    | 118  | 115   | 123    |
| Low Score          | 20    | 44  | 56    | 64   | 69    | 64     |

Read table thus: The third quartile for the grade 4B is 64.38; class median, 60; first quartile, 52.5; quartile deviation, 5.94; grade norm, 50; high score, 78; and the low score made, 20. Read the remaining items in the same manner.

#### Physiology and Hygiene--Test No. 8

The test deals with the information in anatomy and physiology which is closely related to a genuine understanding of the facts and principles of hygiene. It deals with facts related to the hygiene of the body, to foods, to the prevention and treatment of disease, to first aid treatment, and to clothing. About a tenth of the items are devoted to chemistry, foodstuffs, and disease each. The test is a multiple choice type test and contains 80 items, each with three suggestions for an answer. The score is derived by finding the difference between the number right and the number wrong divided by two. The maximum derived scores is 156. The pupils are given instructions to "Draw a line under the word or phrase which makes the sentence true." An example of the test is:

The framework of the body is the  
SKELETON      BLOOD VESSELS      MUSCLES

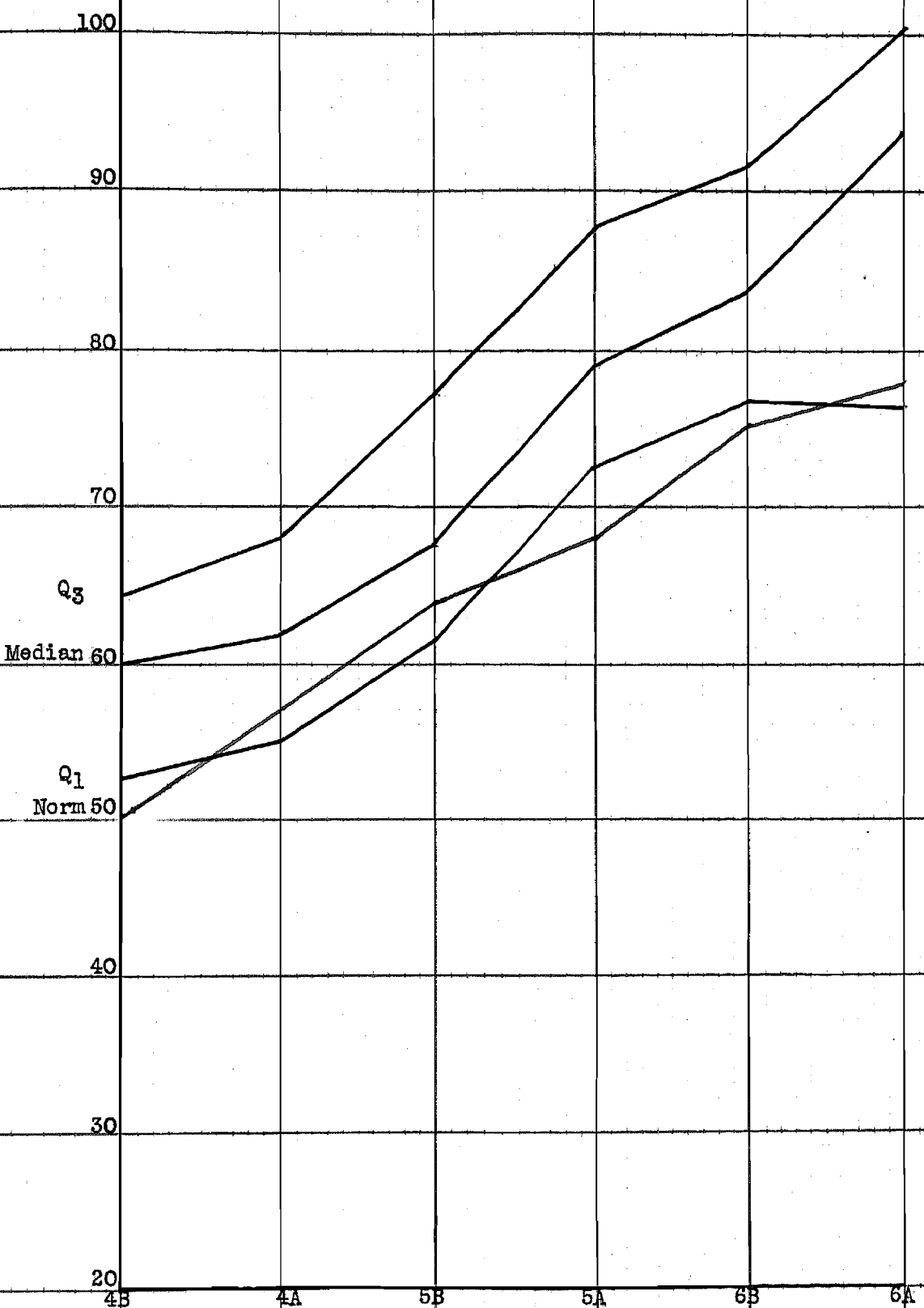


Fig. 7. Showing the Comparison of the Results of Geography, Test No. 7, in the Intermediate Grades.

TABLE VIII

Showing the Comparison of the Results of Physiology and Hygiene, Test No. 8, in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 64.38 | 71    | 87.92 | 83.75 | 87.25 | 92.81 |
| Class Median       | 60    | 60.75 | 80.83 | 79    | 80.83 | 82.5  |
| First Quartile     | 53.75 | 57    | 71.25 | 73.5  | 69.83 | 68.75 |
| Quartile Deviation | 5.32  | 7     | 8.34  | 5.13  | 8.94  | 12.03 |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78    |
| High Score         | 77    | 85    | 98    | 109   | 101   | 114   |
| Low Score          | 24    | 44    | 24    | 59    | 50    | 52    |

Read table thus: In the grade 4B, the third quartile is 64.38; class median, 60; first quartile, 53.75; quartile deviation, 5.32; grade norm, 50; high score made, 77; and the low score, 24. Read the remaining items in the same manner.

Table VIII and Figure 8 reveal the results of the test. In comparison of the medians and the test norms, it was found that the median for 4B exceeded the norm by 10 points; in 4A by 3.65; 5B by 16.83; 5A by 11; 6B by 5.83; and in 6A by 4.5 points. The largest range of scores was 74 in 5B and the smallest 41 in 4A.

#### Arithmetic Reasoning--Test No. 9

The test requires interpretative ability and measures ability to think in quantitative terms. The problems are not made difficult through mere computation and are arranged to go from problems involving simple arithmetic operation and single discrimination of methods by the pupil to those involving several successive steps in their solution. The test contains 40 problems, and the maximum derived score is 129. In this test the directions are: "Find all the answers as quickly as you can. Write the answers on the dotted lines."

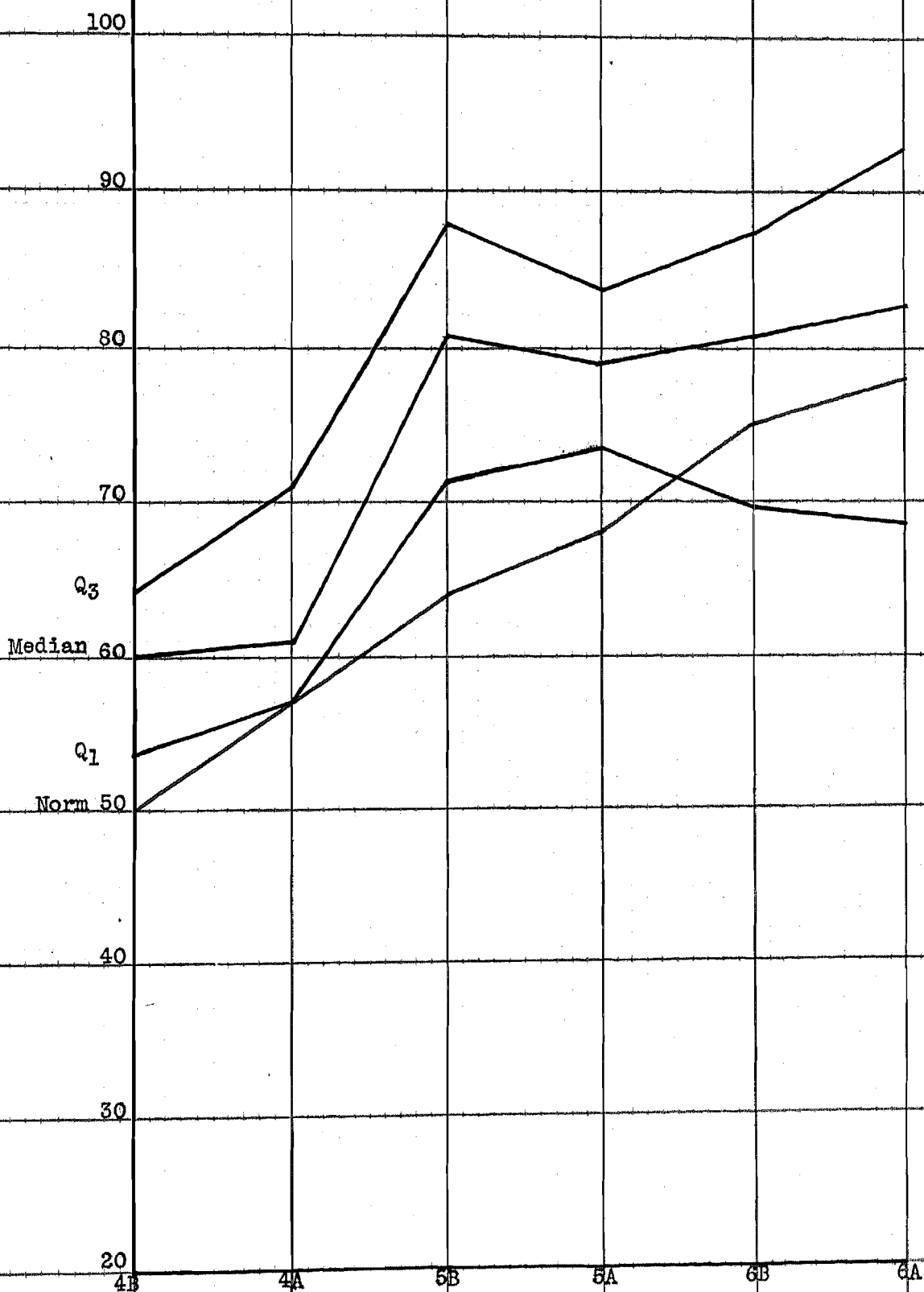


Fig. 8. Showing the Comparison of the Results of Physiology and Hygiene, Test No. 8, in the Intermediate Grades.

An example to the items in the test follows:

In each 21 pounds of milk there is a pound of milk sugar.  
How many pounds of milk sugar are there in 1806 lbs. of milk?

Answer -----

The results of the test are shown in Table IX and Figure 9. The median was found to be 11 points above the norm in 4B; 10 in 4A; 8.25 in 5B; 5.5

TABLE IX

Showing the Comparison of the Results of Arithmetic Reasoning, Test No. 9, in the Intermediate Grades

|                    | GRADE |      |       |      |       |       |
|--------------------|-------|------|-------|------|-------|-------|
|                    | 4B    | 4A   | 5B    | 5A   | 6B    | 6A    |
| Third Quartile     | 65.25 | 72   | 74.38 | 79.5 | 87.94 | 87.63 |
| Class Median       | 61    | 67   | 72.25 | 73.5 | 80.5  | 84.5  |
| First Quartile     | 49.5  | 61.5 | 63.75 | 66   | 72.25 | 72.83 |
| Quartile Deviation | 7.88  | 5.25 | 5.32  | 6.75 | 7.85  | 7.40  |
| Norm               | 50    | 57   | 64    | 68   | 75    | 78    |
| High Score         | 74    | 80   | 85    | 84   | 94    | 96    |
| Low Score          | 44    | 34   | 53    | 44   | 58    | 61    |

Read table thus: In the grade 4B, the third quartile is 65.25; class median, 61; first quartile, 49.5; quartile deviation, 7.88; norm, 50; high score made, 74; and the low score, 44. Read the remainder of the table in the same manner.

in 6B; and 6.5 in 6A. The widest range of scores was 46 in 4A, and the smallest range was 30 in 4B.

#### Arithmetic Computation--Test No. 10

This test ranges from the simple primary combinations through successive degrees of complexity. The selection of these items was based chiefly upon analyses of the leading textbooks and tests. The problems are arranged in order of difficulty. The test consists of 60 items. The score is the number

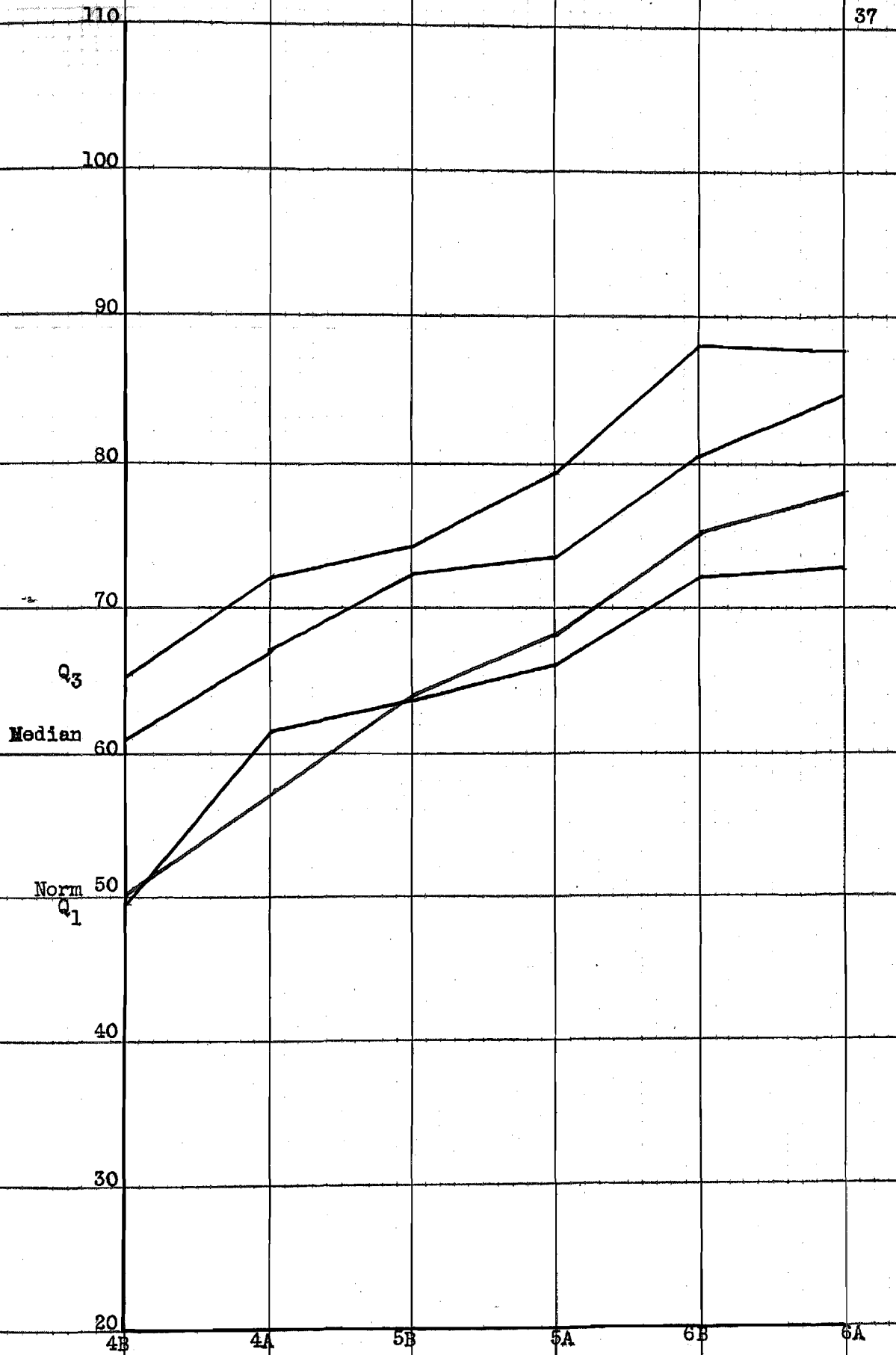


Fig. 9. Showing the Comparison of the Results of Arithmetic Reasoning, Test No. 9, in the Intermediate Grades.

right applied to the derived scale, and the highest possible score is 124.

Table X and Figure 10 reveal the results of the test.

TABLE X

Showing the Comparison of the Results of Arithmetic Computation, Test No. 10, in the Intermediate Grades

|                    | GRADE |       |       |       |       |        |
|--------------------|-------|-------|-------|-------|-------|--------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A     |
| Third Quartile     | 59.1  | 61.29 | 64.5  | 71.25 | 84.63 | 106.25 |
| Class Median       | 57    | 56.57 | 61.5  | 67.5  | 79.5  | 98.83  |
| First Quartile     | 42.75 | 54.43 | 60.08 | 63    | 71.63 | 89.5   |
| Quartile Deviation | 8.18  | 3.43  | 2.21  | 4.13  | 6.5   | 8.38   |
| Norm               | 50    | 57    | 64    | 68    | 75    | 78     |
| High Score         | 61    | 67    | 68    | 86    | 92    | 115    |
| Low Score          | 36    | 39    | 56    | 56    | 58    | 73     |

Read table thus: In the grade 4B, the third quartile is 59.1; class median, 57; first quartile, 42.75; quartile deviation, 8.18; norm, 50; high score, 61; and low score, 36. Read the remaining items in the same manner.

The median ranked 7 points above the norm in 4B; 4.5 in 6B; and 20.83 in 6A. The norm exceeded the median in 4A by .43 points; in 5B by 2.5; and in 5A by .5 points. The largest range of scores was 42 in 6A and the smallest 12 in 5B.

The following tests which will be discussed are individual tests and do not belong to the New Stanford Achievement Test. These tests are: Thorndike Test of Word Knowledge, Form C; Beach Music Test; and the Ayres Handwriting Scale. The tests were all given in the Intermediate Grades in February, 1934.

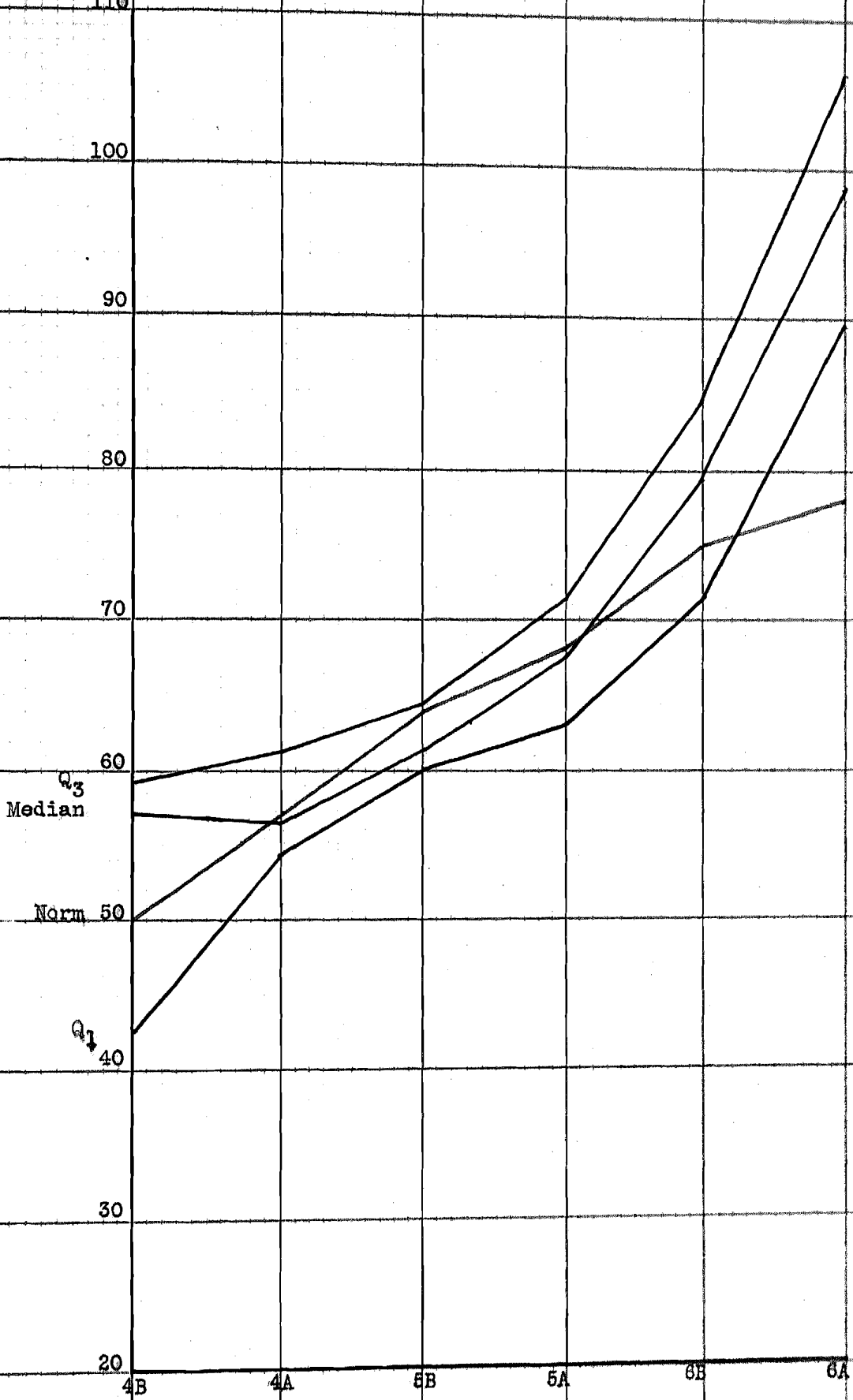


Fig. 10. Showing the Comparison of the Results of Arithmetic Computation, Test No. 10, in the Intermediate Grades.



### Thorndike Test of Word Knowledge

This test attempts to measure the vocabulary of the pupil. There are 100 words in the test, and each word has one correct synonym out of five suggested words. The words are carefully graded according to difficulty with respect to importance. The score is the number of items correct plus 3. The norms are given in reverse order for the half grades according to the system used in the Elementary Laboratory School, that is, the norm for the 4B on the test corresponds to the norm for the 4A in the Elementary Laboratory School. The pupils are given directions, such as "Look at the first word in line 1. Find the other word in the line which means the same or nearly the same. Write its number on the line at the right side of the page. Do the same in lines 2, 3, 4, etc." A sample of the items taken from the test is:

|        |                                     |
|--------|-------------------------------------|
| active | 1 joyful....2 excellent....3 lively |
|        | 4 actual....5 strong                |

Table XI and Figure 11 show the results of the test. These data show that the median exceeded the test norm by 3.5 points in 4B; 8 in 4A; .25 in 5B; and 2.63 in 5A. The medians in 6B and 6A are exceeded 1 point each by the norms of the respective grades. The largest range of scores was 43 in 6A and the smallest range 32 in 4B.

TABLE XI

Showing the Comparison of the Results of Thorndike Test of Word Knowledge in the Intermediate Grades

|                    | GRADE |      |       |       |       |      |
|--------------------|-------|------|-------|-------|-------|------|
|                    | 4B    | 4A   | 5B    | 5A    | 6B    | 6A   |
| Third Quartile     | 29.5  | 37.5 | 37.31 | 45.38 | 43.5  | 55.5 |
| Class Median       | 22.5  | 32   | 29.25 | 35.63 | 37    | 42   |
| First Quartile     | 16.5  | 28.5 | 23.25 | 31.31 | 30.38 | 39   |
| Quartile Deviation | 6.5   | 4.5  | 7.03  | 7.08  | 6.56  | 8.25 |
| Norm               | 19    | 24   | 29    | 33    | 38    | 43   |
| High Score         | 41    | 48   | 48    | 71    | 59    | 66   |
| Low Score          | 9     | 15   | 6     | 24    | 20    | 26   |

Read table thus: In the 4B, the third quartile is 29.5; class median, 22.5; first quartile, 16.5; quartile deviation, 6.5; norm, 19; high score, 41; and the low score, 9. Read the remainder of the table in the same manner.

#### Beach Music Test

The test was devised by Prof. Frank A. Beach, Head of the Department of Music at Kansas State Teachers College of Emporia. The test attempts to measure the ability and achievement in a basic musical function. It deals with such fundamentals as pitch, syllables, tones, terms and symbols, and recognition of composers and artists. With the exception of a few parts, the test is sung or played in the administering of the test. The maximum possible score is 187.

Table XII and Figure 12 reveal the results of the test. In comparing the class medians and the test norms, it was found that the median was 42.33 points above the norm in 4B; 51.5 in 4A; 59.5 in 5B; 65.75 in 5A; 43.75 in

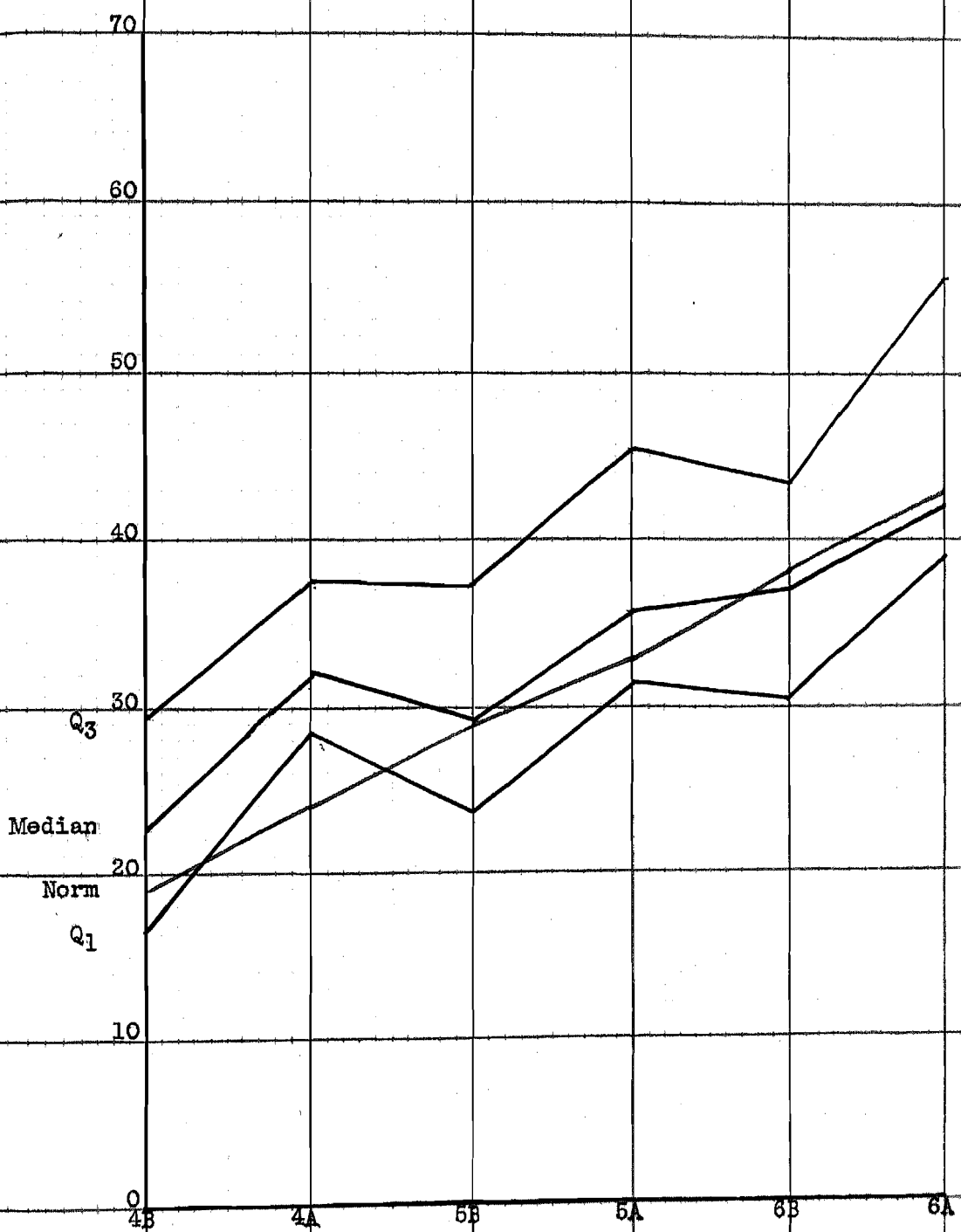


Fig. 11. Showing the Comparison of the Results of Thorndike Test of Word Knowledge in the Intermediate Grades.

6B; and 68.75 in 6A. The widest range in the scores was 91 in 5A and the smallest 57 in 4B.

TABLE XII

Showing the Comparison of the Results of Beach Music Test in the Intermediate Grades

|                    | GRADE |       |        |        |        |        |
|--------------------|-------|-------|--------|--------|--------|--------|
|                    | 4B    | 4A    | 5B     | 5A     | 6B     | 6A     |
| Third Quartile     | 90    | 93.33 | 109.38 | 116.88 | 123.75 | 127.5  |
| Class Median       | 73.33 | 82.5  | 97.5   | 103.75 | 88.75  | 113.75 |
| First Quartile     | 67.5  | 70    | 86.25  | 90.63  | 77.5   | 97.5   |
| Quartile Deviation | 11.25 | 11.67 | 11.56  | 13.13  | 23.13  | 15     |
| Grade Norm         | 31    | 31    | 38     | 38     | 45     | 45     |
| High Score         | 113   | 120   | 117    | 155    | 144    | 154    |
| Low Score          | 56    | 61    | 44     | 64     | 64     | 70     |

Read table thus: The third quartile of the grade 4B is 90; class median, 73.33; first quartile, 67.5; quartile deviation, 11.25; norm, 31; high score, 113; and the low score, 56. Read the remaining items of the table in the same manner.

#### Ayres Handwriting Scale

This is a scale for measuring the quality of handwriting. The rate of writing may also be measured by this scale. In scoring the samples of the handwriting, the style is disregarded, and an attempt is made to find on the scale the quality corresponding to that of the sample being scored. The content of the samples is the first three sentences of Lincoln's Gettysburg Address. The rate is found by counting the number of letters written and dividing the number by the number of minutes that the pupils wrote.

The quality of handwriting is shown in Table XIII and Figure 13. In comparing the median and the test norms, it was found that 4B is retarded

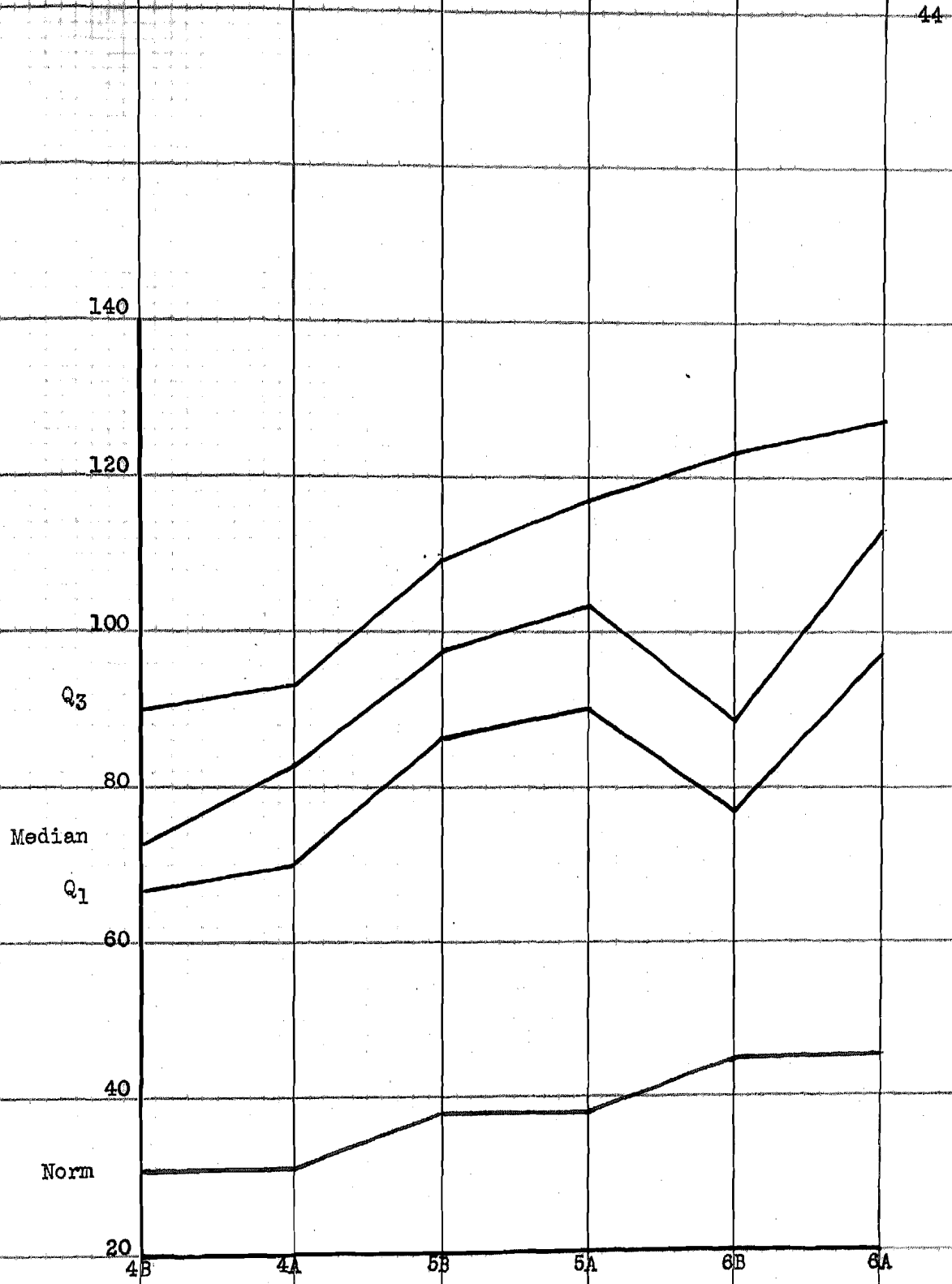


Fig. 12. Showing the Comparison of the Results of Beach Music Test in the Intermediate Grades.

TABLE XIII

Showing the Comparison of the Results of Quality of Handwriting  
by Ayres Handwriting Scale in the Intermediate Grades

|                    | GRADE |       |       |       |      |       |
|--------------------|-------|-------|-------|-------|------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B   | 6A    |
| Third Quartile     | 40.25 | 41    | 41.25 | 48.25 | 49.5 | 48    |
| Class Median       | 30.5  | 31.75 | 40.25 | 40.25 | 40.2 | 40.13 |
| First Quartile     | 21.75 | 30.5  | 22    | 31.65 | 31.5 | 32    |
| Quartile Deviation | 9.25  | 5.25  | 9.63  | 8.3   | 9    | 8     |
| Grade Norm         | 46    | 46    | 50    | 50    | 54   | 54    |
| High Score         | 40    | 50    | 45    | 60    | 60   | 60    |
| Low Score          | 20    | 20    | 20    | 20    | 20   | 20    |

Read table thus: In the grade 4B, the third quartile is 40.25; class median, 30.5; first quartile, 21.75; quartile deviation, 9.25; norm, 46; the high score made, 46; and the low score, 20. Read the remaining items in the same manner.

by 15.5 points; 4A by 14.75; 5B by 9.75; 5A by 9.75; 6B by 13.8; and 6A by 13.87. The greatest scattering of scores was in 5A and 6B and the least in 4B and 6A.

The rate of handwriting is shown in Table XIV and Figure 14. In comparison of the medians and the norms, it was found that the median was 20 points below the norm in 4B; 8.33 in 4A; 3.57 in 5B; 3.37 in 5A; 11 in 6B; and 4.33 in 6A. The widest range of scores was 61 in 6A and the narrowest 32 in 5B.

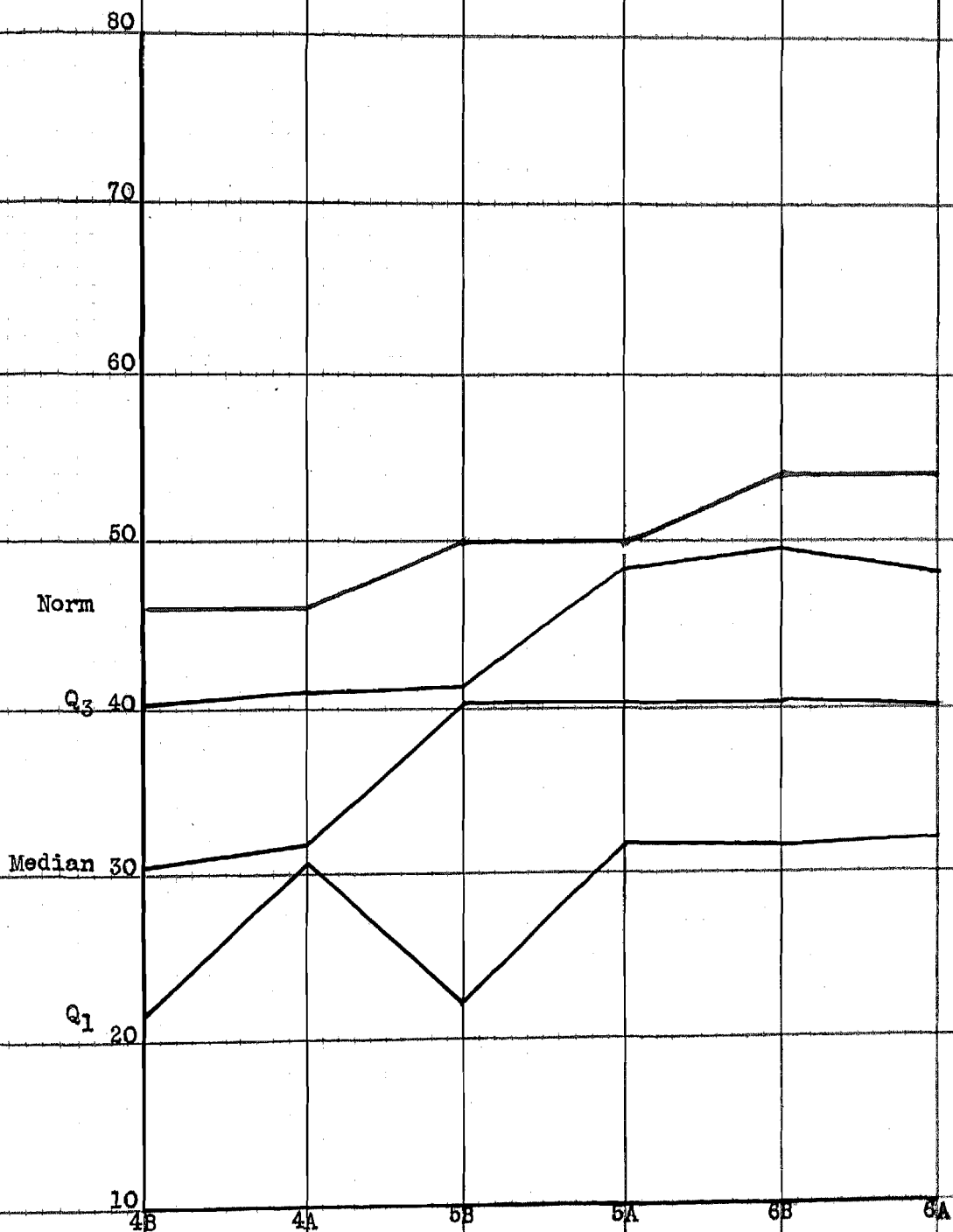


Fig. 13. Showing the Comparison of the Results of Quality of Handwriting by Ayres Handwriting Scale in the Intermediate Grades.

TABLE XIV

Showing the Comparison of the Results of Rate of Handwriting  
by Ayres Handwriting Scale in the Intermediate Grades

|                    | GRADE |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|-------|
|                    | 4B    | 4A    | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 46.5  | 58.75 | 62.4  | 68.75 | 69.17 | 73    |
| Class Median       | 35    | 46.67 | 60.43 | 60.63 | 60    | 66.67 |
| First Quartile     | 31.5  | 40    | 51    | 49.58 | 50.38 | 48.33 |
| Quartile Deviation | 7.5   | 9.38  | 5.57  | 9.59  | 9.40  | 12.34 |
| Norm               | 55    | 55    | 64    | 64    | 71    | 71    |
| High Score         | 56    | 73    | 74    | 88    | 78    | 92    |
| Low Score          | 21    | 28    | 42    | 37    | 34    | 31    |

Read table thus: The third quartile in grade 4B is 46.5; class median, 35; first quartile, 31.5; quartile deviation, 7.5; norm, 55; high score, 56; and the low score, 21. Read the remaining items in the table in the same manner.

#### PRIMARY GRADES

The Primary Grades of the Elementary Laboratory School consist of the following grades: 1B, 1A, 2B, 2A, 3B, and 3A. The kindergarten also comes under the supervision of the principal of the primary grades.

The Stanford Achievement Test, Primary Examination, Form B, was given to the 2B, 2A, 3B, and 3A in the primary grades in February, 1934. The discussion of the results follows.

#### Paragraph Meaning--Test 1

This test is a selection of paragraphs of such a nature that complete reading of the paragraphs is necessary in order that the blanks may be filled correctly. This process involves real comprehension of thought and not mere selection of words. The test contains 20 paragraphs with 38



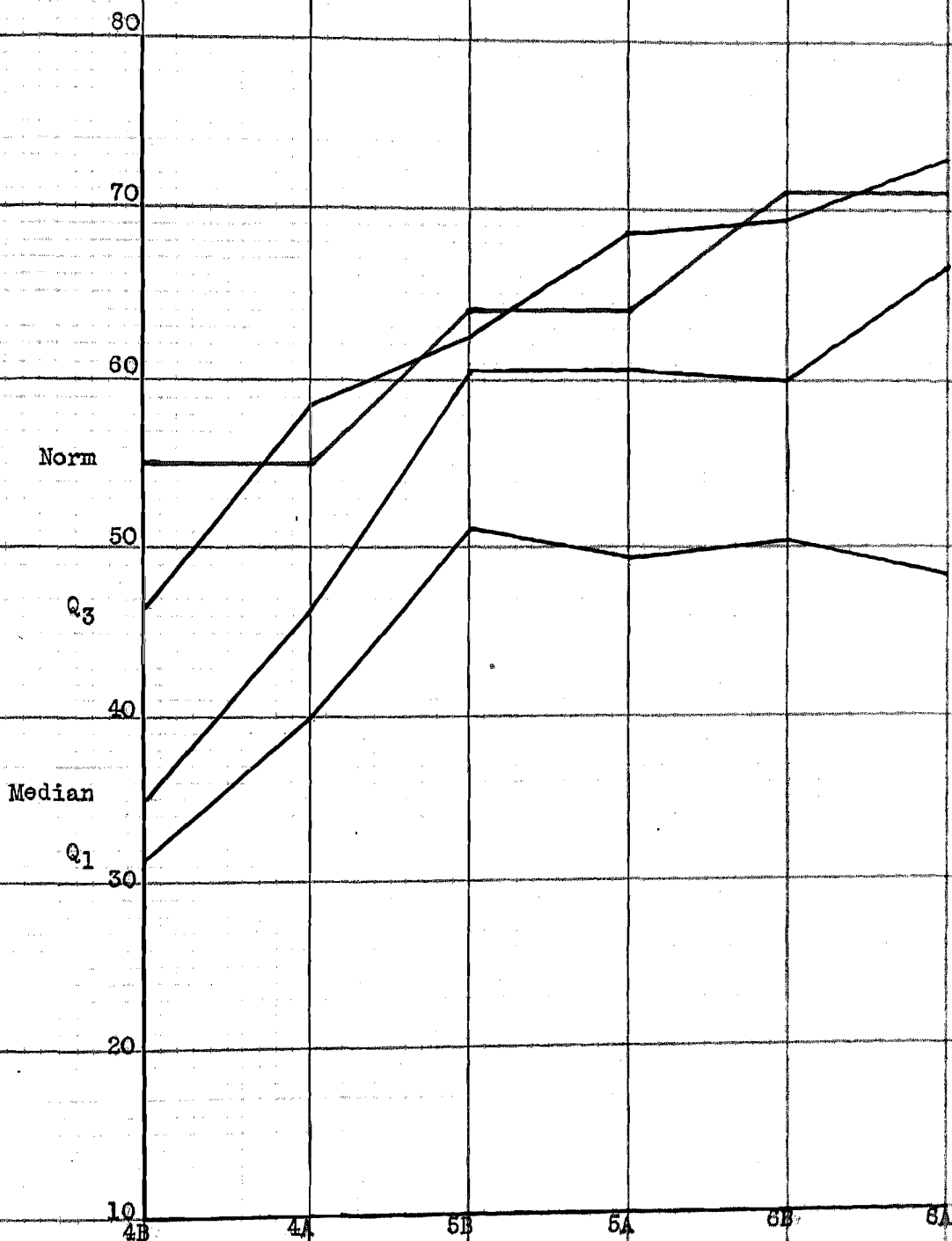


Fig. 14. Showing the Comparison of the Results of Rate of Handwriting by Ayres Handwriting Scale in the Intermediate Grades.

possible responses and a maximum score of 76. Such directions as these are given to the pupils: "Write JUST ONE WORD on each dotted line to show what has been left out." A sample of the test is given here:

A pretty squirrel once lived in a hollow tree near the window of a farmhouse. In the room where the window was, a little girl, named Nellie, lay sick. Every day the ----- came to the window and chattered as though to keep -----from getting lonesome.

Table XV and Figure 15 show the results of the test.

TABLE XV

Showing the Comparison of the Results of Paragraph Meaning, Test 1, in the Primary Grades

|                    | GRADE |      |       |       |
|--------------------|-------|------|-------|-------|
|                    | 2B    | 2A   | 3B    | 3A    |
| Third Quartile     | 10.5  | 19.5 | 45.42 | 52.5  |
| Class Median       | 7.5   | 9    | 33.75 | 41.25 |
| First Quartile     | 4.5   | 4.5  | 9.37  | 30    |
| Quartile Deviation | 3     | 7.6  | 18.02 | 11.25 |
| Norm               | 1     | 7    | 20    | 30    |
| High Score         | 26    | 34   | 48    | 72    |
| Low Score          | 0     | 0    | 0     | 12    |

Read table thus: In the grade 2B, the third quartile is 10.5; class median, 7.5; first quartile, 4.5; quartile deviation, 3; the norm, 1; high score, 26; and the low score, 0; Read the remaining items in the same manner.

From these data, it may be seen that the median for 2B was 6.5 above the norm; 2 above in 2A; 13.75 in 3B; and 11.25 in 3A. The greatest range of scores was 60 in 3A and the smallest 26 in 2B.

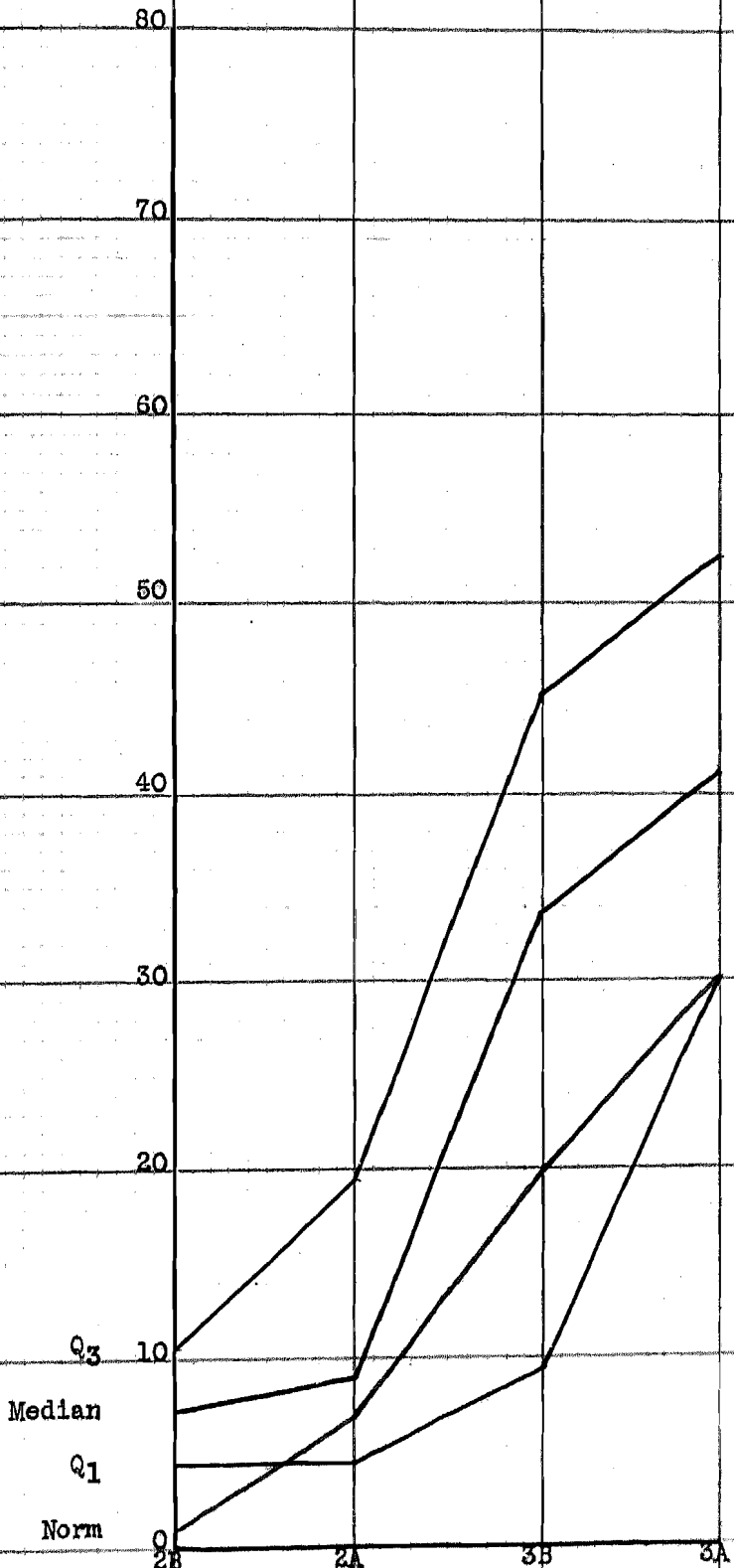


Fig. 15. Showing the Comparison of Paragraph Meaning, Test 1, in the Primary Grades.

## Sentence Meaning--Test 2

Each sentence used in this test was built up by combining several words of known difficulty and was planned in such a way that the meaning of the sentence as a whole must be comprehended in order that the correct may be given. There are 40 items in the test, and the score is the number of wrong responses subtracted from the number of right responses. The directions given to the pupils are such as, "Draw a line under the right answer."

A sample of the test items is:

Does grass grow on ice-----YES NO

Table XVI and Figure 16 reveal the results of the test.

TABLE XVI

Showing the Comparison of the Results of Sentence Meaning, Test 2, in the Primary Grades

|                    | GRADE |      |       |     |
|--------------------|-------|------|-------|-----|
|                    | 2B    | 2A   | 3B    | 3A  |
| Third Quartile     | 9.17  | 12.5 | 28.88 | 24  |
| Class Median       | 5.25  | 8    | 18.02 | 17  |
| First Quartile     | 2.5   | 2.25 | 13.12 | 13  |
| Quartile Deviation | 3.33  | 4.63 | 7.88  | 5.5 |
| Norm               | 0     | 3    | 12    | 16  |
| High Score         | 17    | 18   | 30    | 36  |
| Low Score          | 0     | 0    | 0     | 3   |

Read table thus: In grade 2B, the third quartile is 9.17; class median, 5.25; first quartile, 2.5; quartile deviation, 3.33; norm, 0; high score, 17; and the low score, 0. Read the remaining items in the same manner.

In comparing the medians and the norms, it was found that in 2B the median was 5.25 points above the norm; 5 in 2A; 6.02 in 3B; and 1 in 3A. The largest range of scores was 33 in 3A and the smallest 17 in 2B.

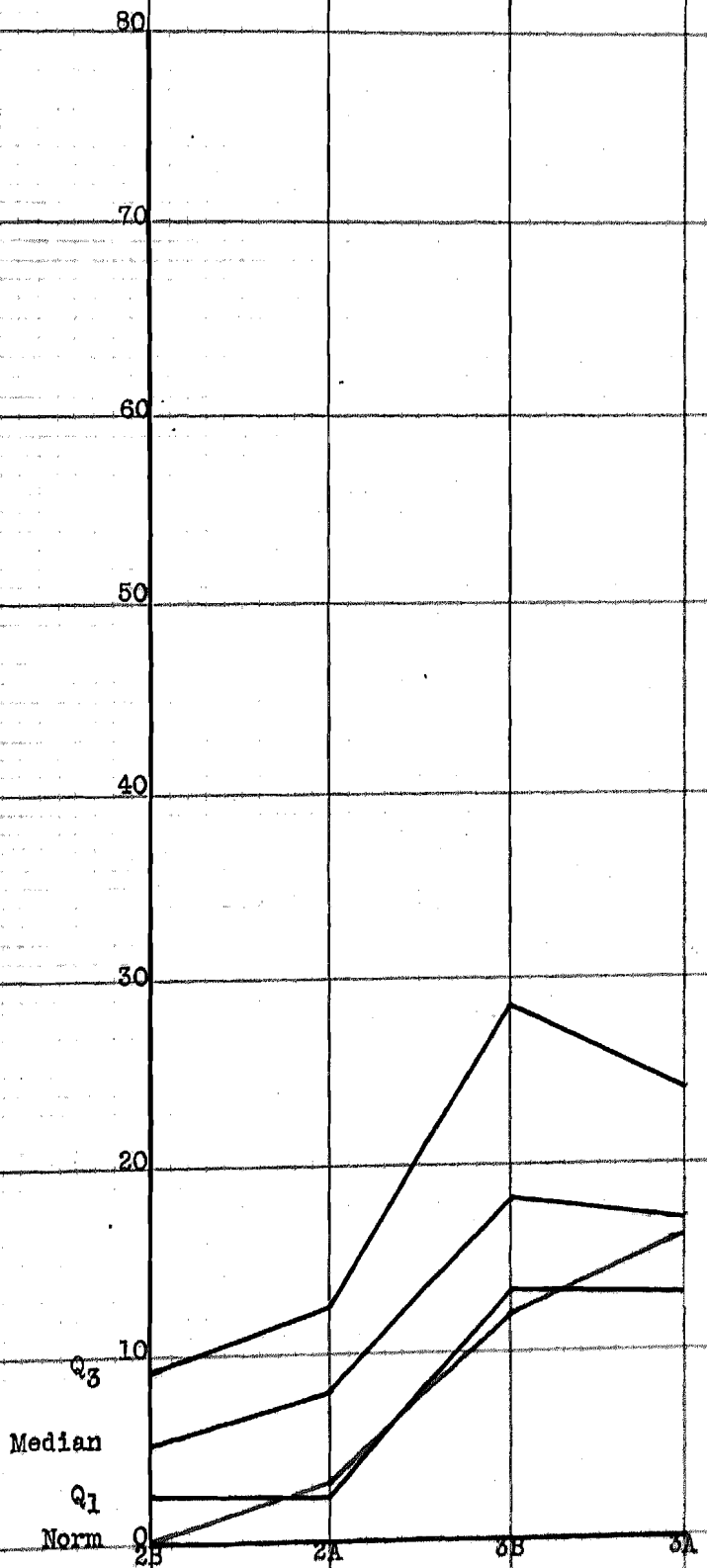


Fig. 16. Showing the Comparison of the Results of Sentence Meaning, Test 2, in the Primary Grades.

## Word Meaning--Test 3

This is a vocabulary test and contains two types of words--critical words and response words. The difficulty of the words was determined by the Thorndike Word Book. The words chosen represent a reasonable variety of the parts of speech. The directions for this test are: "In each sentence draw a line under the word that makes the sentence true." A sample of the test is:

An oak is a kind of      BOX      CORN      EGG      MONEY      TREE

Table XVII and Figure 17 show the results of the test.

TABLE XVII

Showing the Comparison of the Results of Word Meaning, Test 3, in the Primary Grades

|                    | GRADE |       |       |      |
|--------------------|-------|-------|-------|------|
|                    | 2B    | 2A    | 3B    | 3A   |
| Third Quartile     | 8.25  | 10.25 | 24.5  | 27   |
| Class Median       | 3.83  | 8     | 13.25 | 18   |
| First Quartile     | 1.88  | 5     | 7.5   | 10.5 |
| Quartile Deviation | 3.69  | 2.63  | 8.5   | 8.25 |
| Norm               | 0     | 2     | 10    | 16   |
| High Score         | 14    | 18    | 30    | 37   |
| Low Score          | 0     | 0     | 3     | 2    |

Read table thus: In the grade 2B, the third quartile is 8.25; class median, 3.83; first quartile, 1.88; quartile deviation, 3.69; norm, 0; high score, 14; and low score, 0. Read the remaining items in the same manner.

These data show that the median in 2B exceeded the norm by 3.83 points; 2A by 6; 3B by 3.25; and 3A by 2 points. The largest range of scores was 35 in 3A and the smallest 14 in 2B.

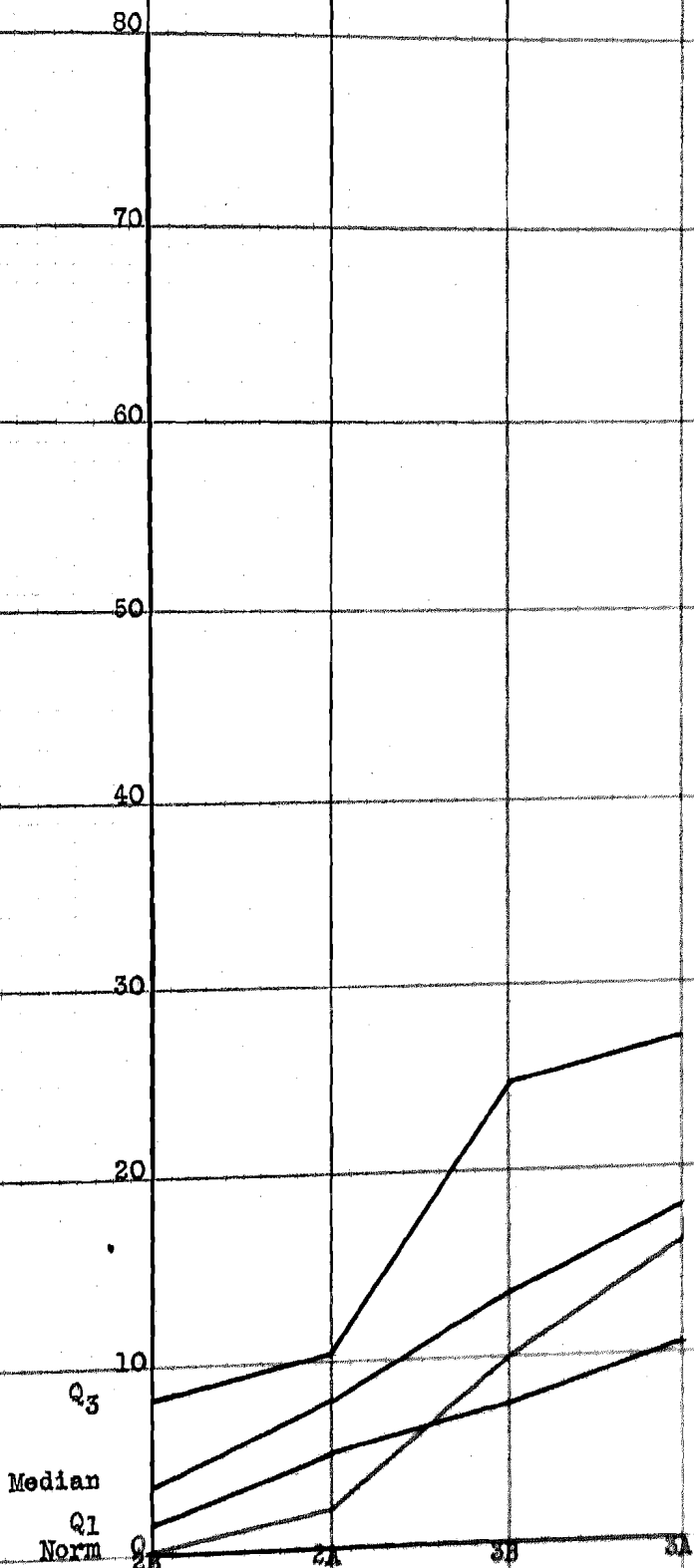


Fig. 17. Showing the Comparison of the Results of Word Meaning, Test 3, in the Primary Grades.

### Arithmetic Computation--Test 4

The selection of the problems for this test was based upon an analysis of textbooks in arithmetic. The problems are arranged in the order of their difficulty. The test contains 25 items, and the score is the number of correct responses multiplied by four.

Table XVIII and Figure 18 reveal the results of the test.

TABLE XVIII

Showing the Comparison of the Results of Arithmetic Computation, Test 4, in the Primary Grades

|                    | GRADE |       |       |       |
|--------------------|-------|-------|-------|-------|
|                    | 2B    | 2A    | 3B    | 3A    |
| Third Quartile     | 37.88 | 39.5  | 54.75 | 75    |
| Class Median       | 29.62 | 29    | 48.5  | 60    |
| First Quartile     | 26.75 | 24.75 | 32.25 | 52.5  |
| Quartile Deviation | 5.57  | 7.38  | 11.25 | 11.25 |
| Norm               | 5     | 18    | 38    | 55    |
| High Score         | 48    | 44    | 60    | 80    |
| Low Score          | 16    | 8     | 28    | 20    |

Read table thus: In grade 2B, the third quartile is 37.88; class median, 29.62; first quartile, 26.75; quartile deviation, 5.57; norm, 5; high score, 48; and the low score 16. Read the remaining items in the same manner.

It is found that the median exceeded the norm by 24.62 points in 2B; 11 in 2A; 10.5 in 3B; and 5 in 3A. The largest scattering of the scores was 60 in 3A and the smallest 32 in 2B and 3B.

### Arithmetic Reasoning--Test 5

This test measures the ability to think in quantitative terms, and requires interpretative ability on the part of the pupil. The test contains



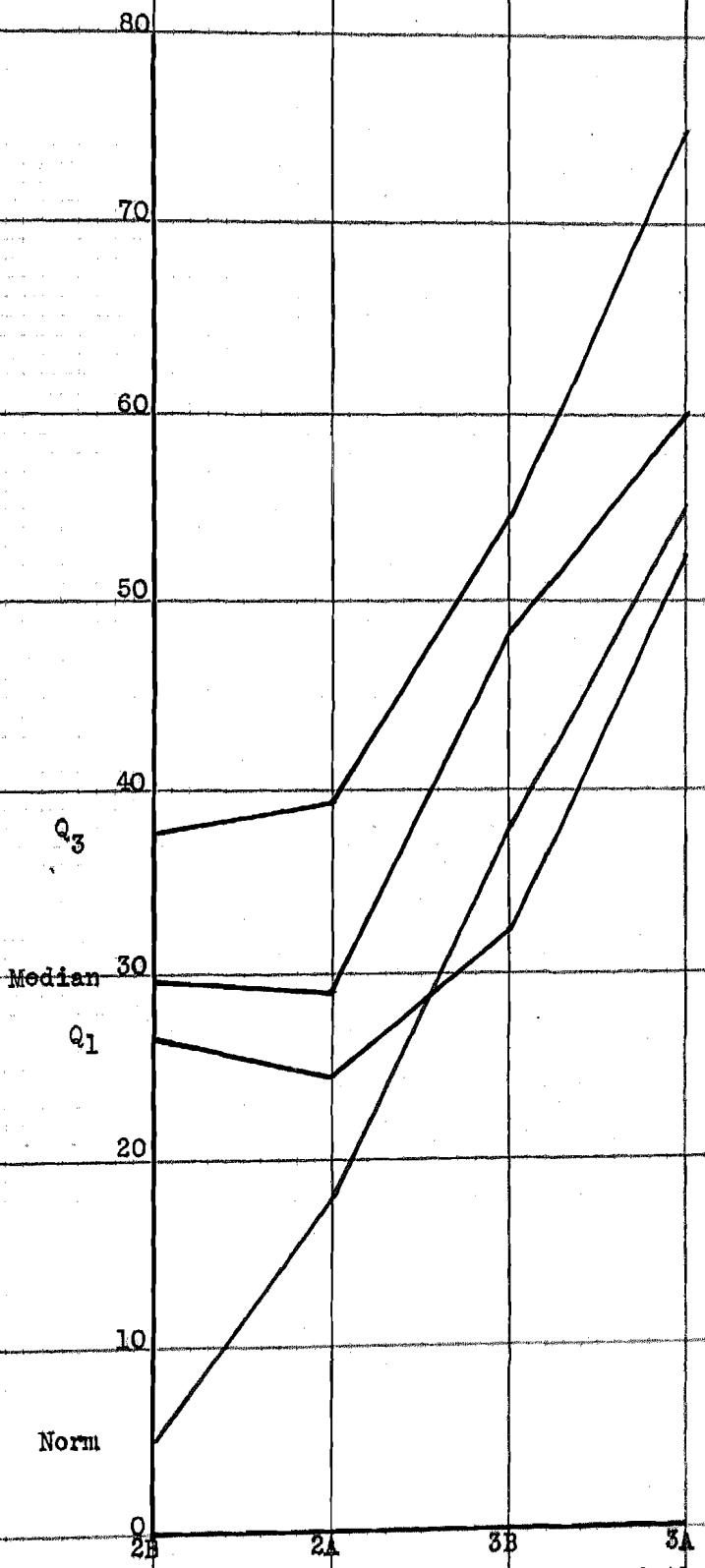


Fig. 18. Showing the Comparison of the Results of Arithmetic Computation, Test 4, in the Primary Grades.

20 items, and the score is the number of correct responses multiplied by four. An example of the items follows:

How many days are there in 2 weeks?      ANSWER-----

The results of the test are shown in Table XIX and Figure 19. In comparison of the medians and the norms, it was found that the median was

TABLE XIX  
Showing the Comparison of the Results of Arithmetic Reasoning, Test 5, in the Primary Grades

|                    | GRADE |       |       |     |
|--------------------|-------|-------|-------|-----|
|                    | 2B    | 2A    | 3B    | 3A  |
| Third Quartile     | 21.25 | 17.75 | 28.5  | 39  |
| Class Median       | 13.67 | 14    | 21    | 29  |
| First Quartile     | 6.75  | 12.6  | 13.75 | 24  |
| Quartile Deviation | 7.25  | 2.58  | 7.38  | 7.5 |
| Norm               | 2     | 10    | 20    | 29  |
| High Score         | 24    | 24    | 36    | 52  |
| Low Score          | 0     | 0     | 8     | 8   |

Read table thus: In the grade 2B, the third quartile is 21.25; class median, 13.67; first quartile, 6.75; quartile deviation, 7.25; norm, 2; high score, 24; and the low score, 0. Read the remaining items of the table in the same manner.

11.67 points above the norm in 2B; 4 in 2A; 1 in 3B; and the median and norm were equal in 3A. The widest range of scores was 44 in 3A and the smallest 24 in 2B and 2A.

#### Dictation--Test 6

In reality this test is a measure of the spelling ability of the pupil. The words were taken from the Ayres, Buckingham, and "78" spelling lists, and arranged in the order of the difficulty. Almost every word counts toward his spelling score. The score is the number of words spelled correctly. In

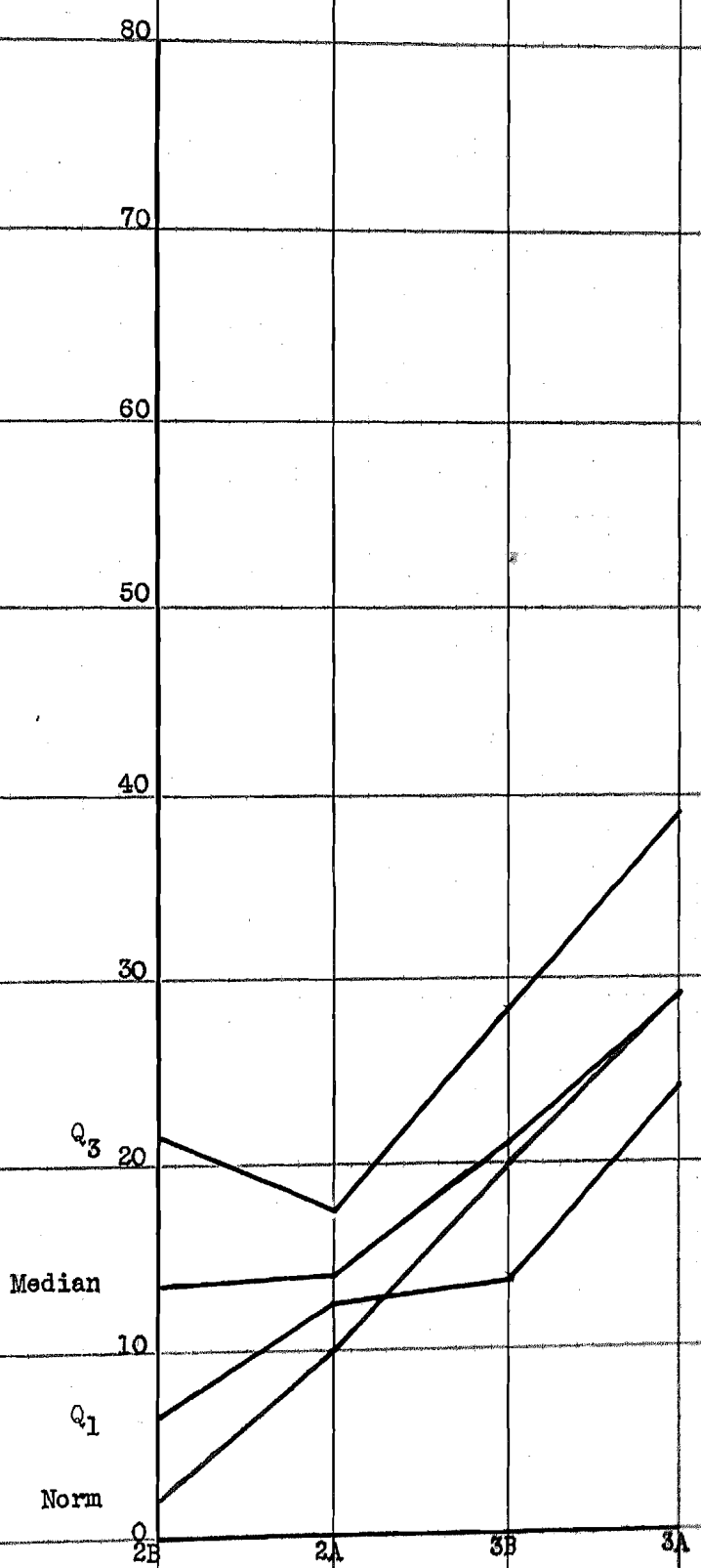


Fig. 19. Showing the Comparison of the Results of Arithmetic Reasoning, Test 5, in the Primary Grades.

this test the pupils write every word that is read by the examiner. The following example is taken from the test items:

SISTER will MISS a NICE BOAT RIDE.

The results of the test are shown in Table XX and Figure 20.

TABLE XX

Showing the Comparison of the Results of Dictation,  
Test 6, in the Primary Grades

|                    | GRADE |       |       |     |
|--------------------|-------|-------|-------|-----|
|                    | 2B    | 2A    | 3B    | 3A  |
| Third Quartile     | 21.75 | 41.25 | 51.26 | 55  |
| Class Median       | 18.38 | 26.25 | 33.75 | 45  |
| First Quartile     | 8.25  | 13.75 | 26.88 | 35  |
| Quartile Deviation | 6.75  | 13.75 | 12.19 | 10  |
| Norm               | 2     | 20    | 40    | 54  |
| High Score         | 34    | 60    | 68    | 102 |
| Low Score          | 2     | 2     | 10    | 26  |

Read table thus: In the grade 2B, the third quartile is 21.75; class median, 18.38; first quartile, 6.75; quartile deviation, 6.75; norm, 2; high score, 34; and the low score, 2. Read the remaining items in the same manner.

The medians for 2B and 2A were found to exceed the norms 16.38 and 6.25 points respectively. The 3B showed a retardation of 6.25 points and 3A, 9 points. The largest range of scores was 76 in 3A and the smallest 32 in 2B.

The 1A of the primary grades were given the Every Pupil Primary Achievement Test, February, 1934. A discussion of the results of the test follows.

#### Every Pupil Primary Achievement Test

The test attempts to measure the achievement in the significant school function of the primary grades. The test consists of six sub-tests, and

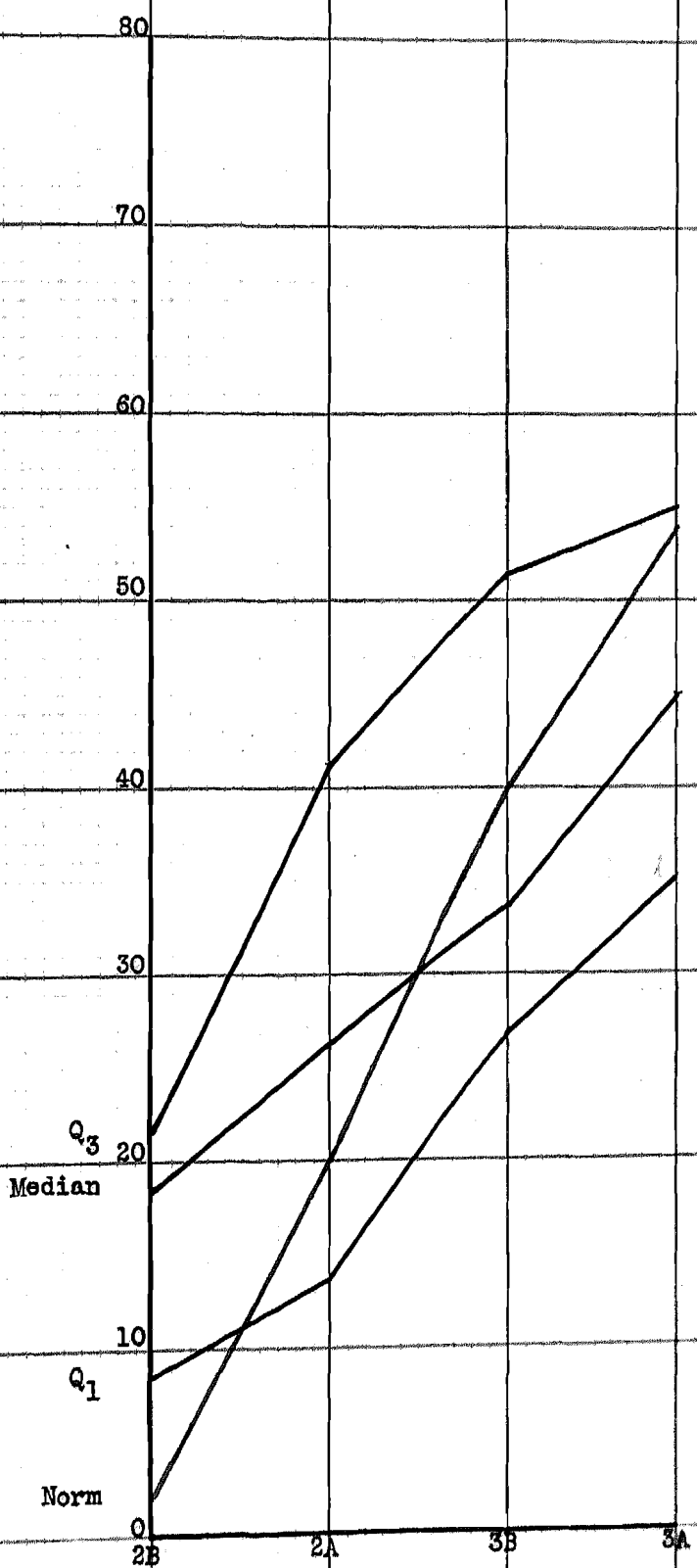


Fig. 20. Showing the Comparison of the Results of Dictation, Test 6, in the Primary Grades.

the maximum score on the whole test is 22.7 points based on April testing.

Table XXI and Figure 21 show the results of the test given in the 1A.

TABLE XXI

Showing the Comparison of the Results of the Every Pupil  
Primary Achievement Test in the Primary Grades

|                       | Arith.<br>Comp. | Read.<br>Arith. | Sent.<br>Spell. | Word<br>Read. | Sent.<br>Read. | Para.<br>Read. | Total |
|-----------------------|-----------------|-----------------|-----------------|---------------|----------------|----------------|-------|
| Third<br>Quartile     | 4.5             | 2.2             | 4.5             | 3.5           | 10.67          | 4              | 22    |
| Class<br>Median       | 2.5             | 1.3             | 1.5             | 2             | 9              | 1.7            | 18.4  |
| First<br>Quartile     | 1.2             | 0               | 0               | 0             | 4              | 1              | 13    |
| Quartile<br>Deviation | 1.65            | 1.1             | 2.25            | 1.75          | 3.34           | 1.5            | 4.5   |
| Theoretical<br>Norm   | 4               | 1.6             | 2.4             | 3.1           | 5.1            | 1.9            | 17    |
| High<br>Score         | 9               | 4               | 3               | 5             | 14             | 9              | 29    |
| Low<br>Score          | 0               | 0               | 0               | 0             | 0              | 0              | 1     |

Read table thus: In the test, Arithmetic Computation, the third quartile is 4.5; class median, 2.5; first quartile, 1.2; quartile deviation, 1.65; theoretical norm, 4; high score made 9; and the low score, 0. Read the remainder of the table in the same manner.

The norms for the test are based on April testing, and as a result the norms are too high for the test given in February. Theoretical norms were computed for use in comparisons of the results of the test. The theoretical norm for the test was estimated to be 17 for the total test. This would show that the class median is 1.4 points above the norm. The norm used for Arithmetic Computation is 4. This shows the class median to be 1.5 points below the norm. For Sentence Reading, the norm used is 5.1. In this test, the median is 4.1 points above the norm.

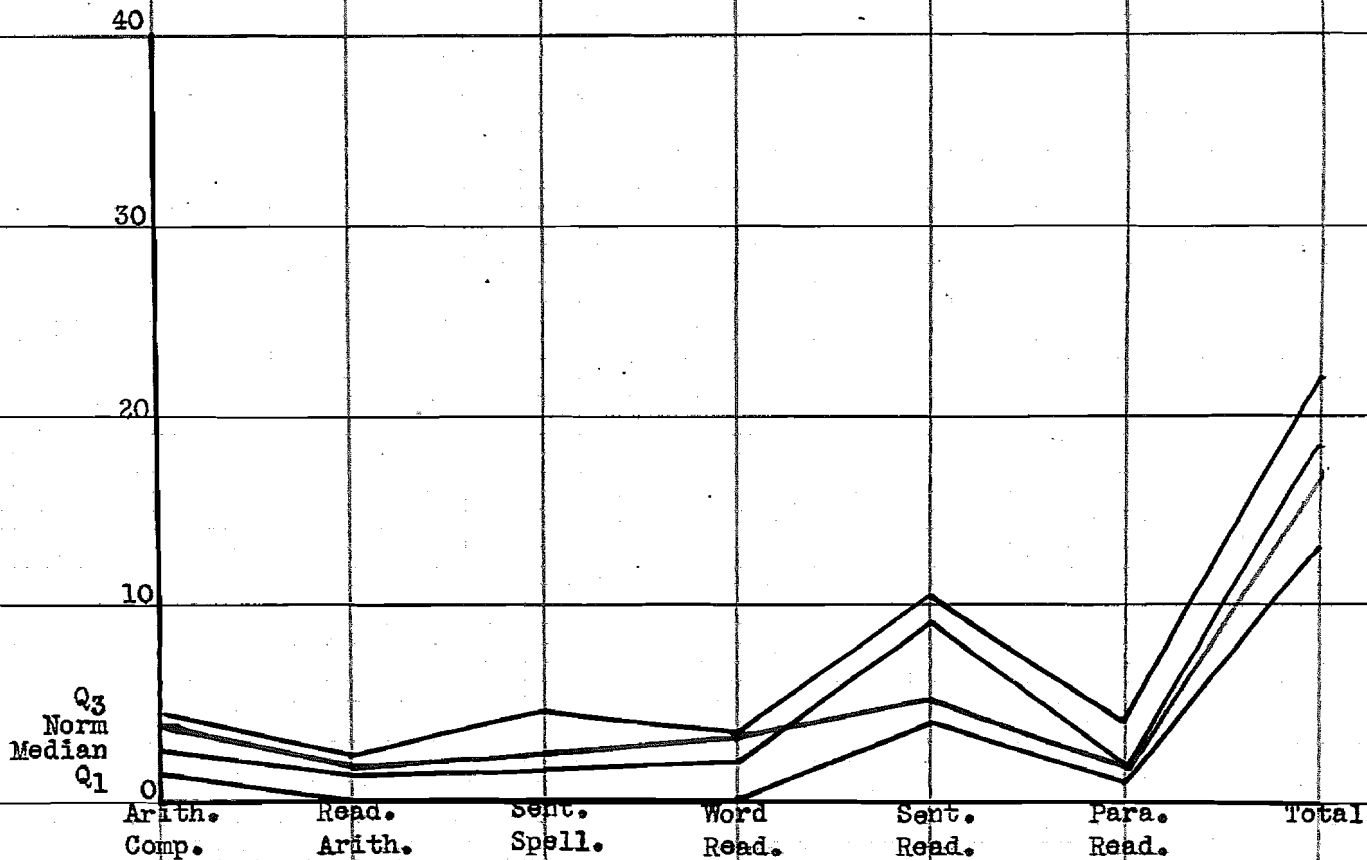


Fig. 21. Showing the Comparison of the Results of the Every Pupil Primary Achievement Test in the Primary Grades.

## SUMMARY

From the results of the achievement tests, it was found that as a whole the medians of all grades were equal to or above the norms in paragraph meaning, word meaning, sentence meaning, literature, and vocabulary tests. This is an advantage for the pupils as reading ability has direct influence on the success in other school subjects. Perhaps the vocabulary ranking may be partly attributed to the extensive reading done by these pupils. The language usage test results pictured the pupils as being up to par. In the spelling tests, however, all grades with the exception of 4A, 6A, 2B, and 2A were below the norm. This may be accounted for partly by the fact that in this school spelling is taught by word and not by sentence dictation method. Then also, the spelling words are taken for the most part from the materials studied in the various school subjects.

The grades showed a superior ranking in the geography and the physiology and hygiene tests. Although these subjects are not taught directly to the pupils from the beginning of their school life, they receive from the study of social studies and health a good background for these subjects. The results showed an inferior ranking for history and civics in all grades but the 5A and 6A. This may be due to the type of history taught. The pupils study World History which is more general in nature and not so specific as the type of material used in the test items. In all grades of the school, the medians were equal to or above the norms in arithmetic reasoning, but in case of arithmetic computation the medians in 4A, 5B, and 1A fell below the norms.

The norms for the Beach Music Test were exceeded by the medians to a large extent. This superior ranking is probably due to the superior instruc-



tion and a definite period each day. The quality and rate of handwriting were inferior in the tests. This may be due to the fact that less stress is placed on handwriting as compared to a few years ago. It is considered sufficient now for a child to write a legible hand as most of the writing is done with the typewriter.

## CHAPTER IV

## MENTAL SURVEY

The purpose of the intelligence test in the school is to measure the pupil quality or capacity to learn. The knowledge of the capacity of the child is an important factor for the teacher or instructor. The mental survey gives a cross section of the native capacities of the pupils. The norm used is 100 or what is commonly known as the normal individual.

## INTERMEDIATE GRADES

The Intermediate Grades as defined in the preceding chapter consist of the grades 4B to 6A inclusive. In the intermediate department, the Otis Self-Administering Tests of Mental Ability, Intermediate Examination, Form A, was given in February, 1934.

This test attempts to measure the mental ability. It consists of 75 items arranged in order of difficulty. The score is the number of correct responses less any penalty that may be used for failure to follow directions.

Table XXII and Figure 22 show the summary of the chronological ages of the pupils. From these data, it may be seen that the advancement educationally is in direct proportion to the advancement chronologically. The standard age used was 6 years for grade 1B, 6 years and 6 months for grade 1A, and an advancement of six months for each half grade throughout the entire school. The greatest difference in the ages of the pupils within a grade was 3-10 (3 years and 10 months) in the 6A and the smallest difference was 2-6 in 5B.

TABLE XXII

Showing the Comparison of the Chronological Ages  
in the Intermediate Grades

|                    | GRADES |      |      |       |      |       |
|--------------------|--------|------|------|-------|------|-------|
|                    | 4B     | 4A   | 5B   | 5A    | 6B   | 6A    |
| Third Quartile     | 9-8    | 9-11 | 10-9 | 10-11 | 11-5 | 11-11 |
| Class Median       | 8-9    | 9-8  | 10-0 | 10-8  | 11-0 | 11-8  |
| First Quartile     | 8-7    | 9-4  | 9-6  | 10-2  | 10-9 | 11-4  |
| Quartile Deviation | 0-6    | 0-4  | 0-7  | 0-3   | 0-4  | 0-3   |
| Standard Age       | 9-0    | 9-6  | 10-0 | 10-6  | 11-0 | 11-6  |
| High Age           | 10-9   | 11-1 | 11-9 | 12-7  | 12-7 | 14-1  |
| Low Age            | 8-0    | 8-5  | 9-3  | 9-7   | 10-2 | 10-3  |

Read table thus: In the grade 4B, the third quartile is 9-8 (to be interpreted 9 years and 8 months); class median, 8-9; first quartile, 8-7; quartile deviation, 0-6; standard age, 9-0; the high age, 10-9; and the low age, 8-0. Read the remaining items in the same manner.

Table XXIII and Figure 23 show the results of the test. In comparison of the medians and the norms for the test, it was found that all grades were above the norm with the exception of 4B. The greatest number of points above the norm was 13.13 in 6A. In 4B the norm exceeded the median by .67 points. The greatest range of scores was 58 in 6B and the smallest 16 in 4B.

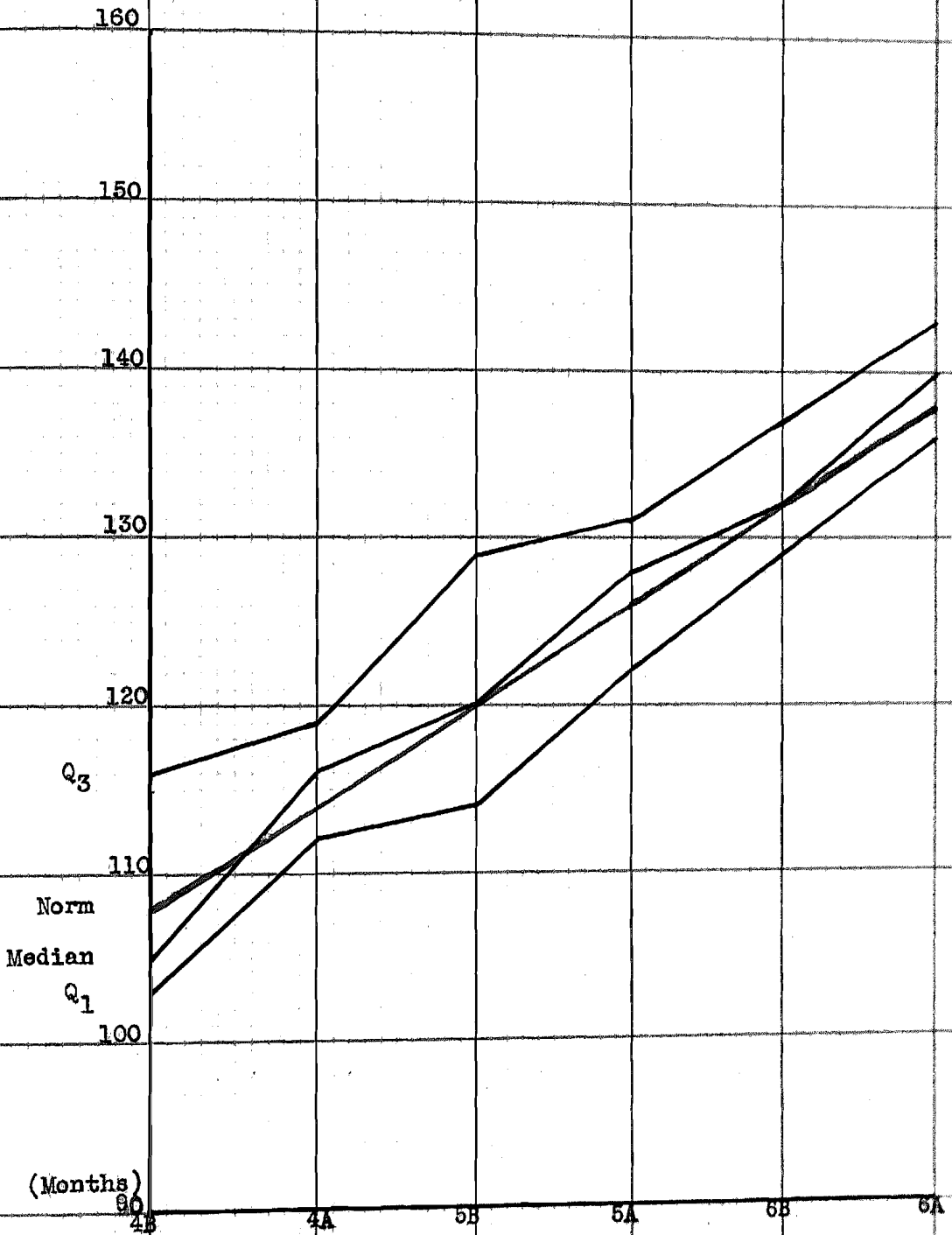


Fig. 22. Showing the Comparison of the Chronological Ages in the Intermediate Grades.

TABLE XXIII

Showing the Comparison of Scores on Otis Self-  
Administering Tests of Mental Ability  
in the Intermediate Grades

|                    | GRADES |      |       |       |       |       |
|--------------------|--------|------|-------|-------|-------|-------|
|                    | 4B     | 4A   | 5B    | 5A    | 6B    | 6A    |
| Third Quartile     | 21     | 33   | 42.19 | 53.25 | 50.42 | 60.42 |
| Class Median       | 15.33  | 30.5 | 30.31 | 45    | 45.5  | 50.63 |
| First Quartile     | 11.5   | 25   | 25.63 | 39.83 | 33.75 | 41.88 |
| Quartile Deviation | 4.75   | 4    | 8.28  | 6.71  | 8.34  | 9.27  |
| Norm               | 16     | 21   | 26    | 30    | 34    | 37.5  |
| High Score         | 24     | 43   | 53    | 62    | 64    | 70    |
| Low Score          | 8      | 6    | 7     | 18    | 6     | 23    |

Read table thus; In grade 4B, the third quartile is 21; class median, 15.33; first quartile, 11.5; quartile deviation, 4.75; norm, 16; high score, 24; and the low score, 8. Read the remaining items in the same manner.

The intelligent quotients were determined from the chronological ages and the scores on the test. Table XXIV and Figure 24 show these findings. The medians in all grades with the exception of 4B ranked above the norm. The greatest acceleration was 16 in grades 5A and 6A. The retardation in 4B was 2 points. The greatest range of the I.Q.'s was 63 in 5B and the smallest 28 in 4B.

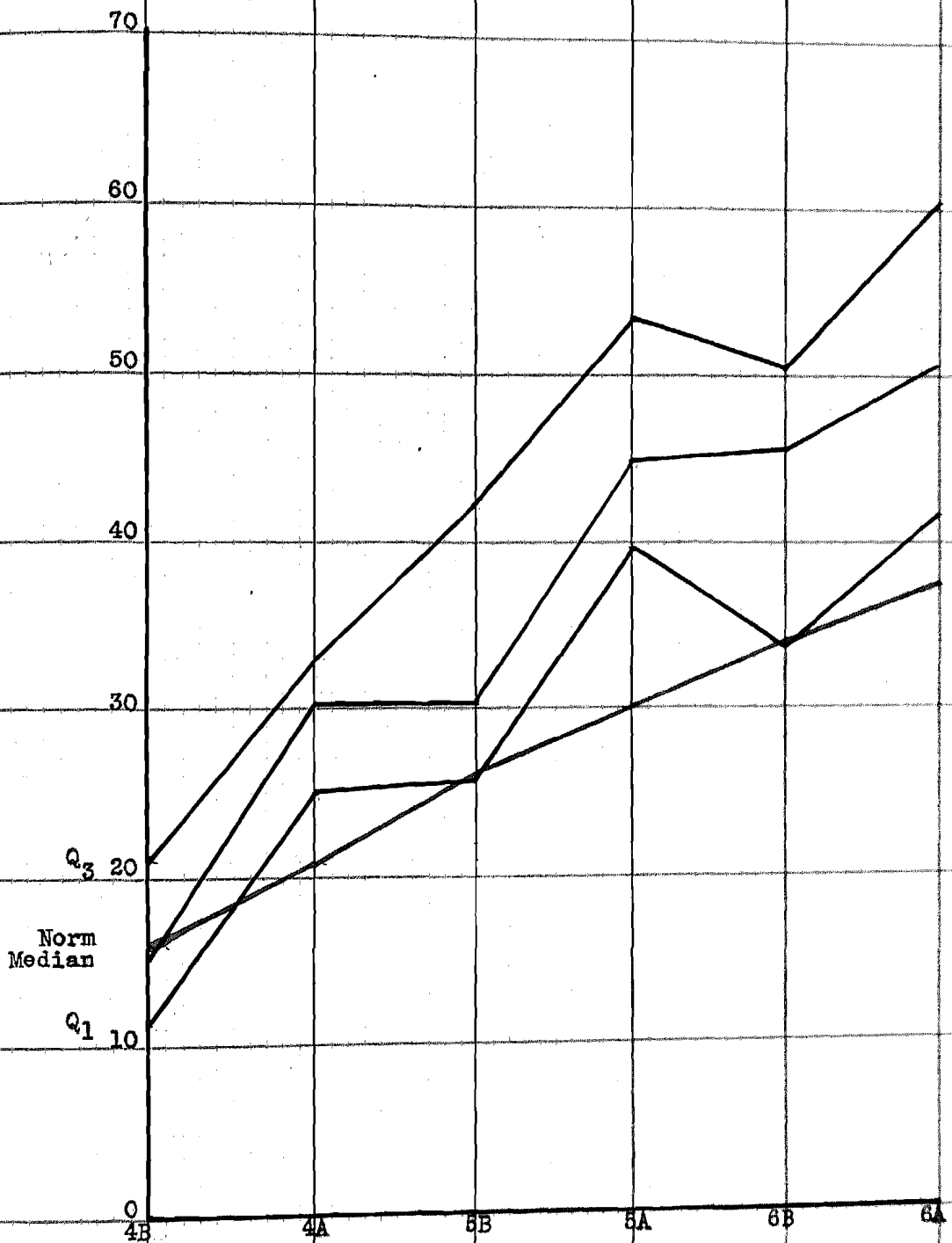


Fig. 23. Showing the Comparison of Scores on Otis Self-Administering Tests of Mental Ability in the Intermediate Grades.

TABLE XXIV

Showing the Comparison of the Intelligence Quotients  
in the Intermediate Grades

|                    | GRADES |     |     |     |     |     |
|--------------------|--------|-----|-----|-----|-----|-----|
|                    | 4B     | 4A  | 5B  | 5A  | 6B  | 6A  |
| Third Quartile     | 110    | 115 | 124 | 125 | 124 | 127 |
| Class Median       | 98     | 110 | 105 | 116 | 113 | 116 |
| First Quartile     | 96     | 103 | 99  | 108 | 106 | 106 |
| Quartile Deviation | 7      | 6   | 13  | 9   | 9   | 10  |
| Norm               | 100    | 100 | 100 | 100 | 100 | 100 |
| High I. Q.         | 114    | 133 | 135 | 138 | 136 | 136 |
| Low I. Q.          | 86     | 74  | 72  | 86  | 80  | 79  |

Read table thus: In the grade 4B, the third quartile is 110; class median, 98; first quartile, 96; quartile deviation, 7; norm, 100; high I.Q., 114; and low I.Q., 86. Read the remaining items in the same manner.

#### PRIMARY GRADES

The Primary Grades consist of the grades from 3A to kindergarten inclusive. Two tests were given in this department: Haggerty Intelligence Examination, Delta 1, in the grades from 1B to 3A inclusive, and Pintner-Cunningham Primary Mental Test in the kindergarten. The kindergarten consists of two divisions--the forenoon and the afternoon divisions.

#### Haggerty Intelligence Examination

The test was used in the attempt to measure the mental capacity of the primary pupils. The test consists of twelve exercises, six fore-exercises and six actual exercises. The fore-exercises are not scored, and the maximum score is 119.

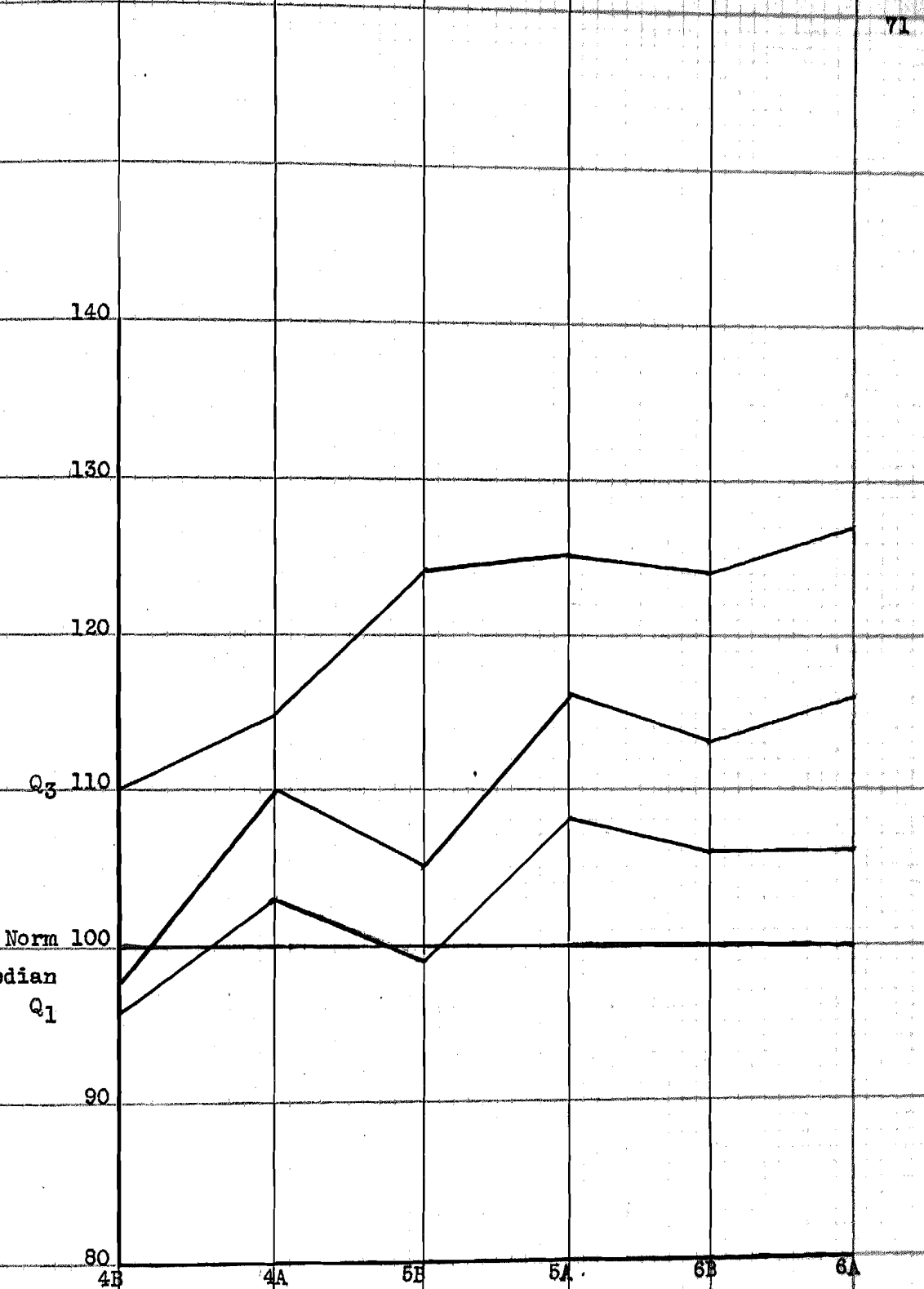


Fig. 24. Showing the Comparison of the Intelligence Quotients in the Intermediate Grades.



The summary of the chronological ages of the pupils is shown in Table XXV and Figure 25. In the comparison of the class medians and the

TABLE XXV

Showing the Comparison of the Chronological Ages in the Primary Grades

|                    | GRADES |      |      |     |      |     |
|--------------------|--------|------|------|-----|------|-----|
|                    | 1B     | 1A   | 2B   | 2A  | 3B   | 3A  |
| Third Quartile     | 6-4    | 6-10 | 7-1  | 8-1 | 8-2  | 8-6 |
| Class Median       | 6-0    | 6-6  | 6-10 | 7-6 | 8-1  | 8-3 |
| First Quartile     | 5-11   | 6-4  | 6-7  | 7-5 | 7-11 | 8-0 |
| Quartile Deviation | 0-3    | 0-3  | 0-6  | 0-6 | 0-2  | 0-3 |
| Standard Age       | 6-0    | 6-6  | 7-0  | 7-6 | 8-0  | 8-6 |
| High Age           | 7-2    | 7-3  | 7-5  | 8-6 | 9-2  | 9-1 |
| Low Age            | 5-9    | 6-3  | 6-4  | 7-1 | 7-8  | 7-3 |

Read table thus: In the 1B grade, the third quartile is 6-4 (6 years and 4 months); class median, 6-0; first quartile, 5-11; quartile deviation, 0-3; standard age, 6-0; high age, 7-2; and the low age, 5-9. Read the remaining items in the same manner.

standard age for each grade, it was found that as a whole the medians were about the same as the standard ages in the primary grades. The greatest difference of ages within a grade was 1-10 in the 3A and the smallest 1-0 in the 1A.

Table XXVI and Figure 26 reveal the summary of the mental ages of the pupils. These ages were determined from the scores made on the test. In every instance the median is equal to or above the standard age for the grade. The standard age used was 6 years for grade 1B, 6 years and 6 months for grade 1A, and an advancement of six months for each half grade. The greatest acceleration was 9 months in 1A, and the median and the standard

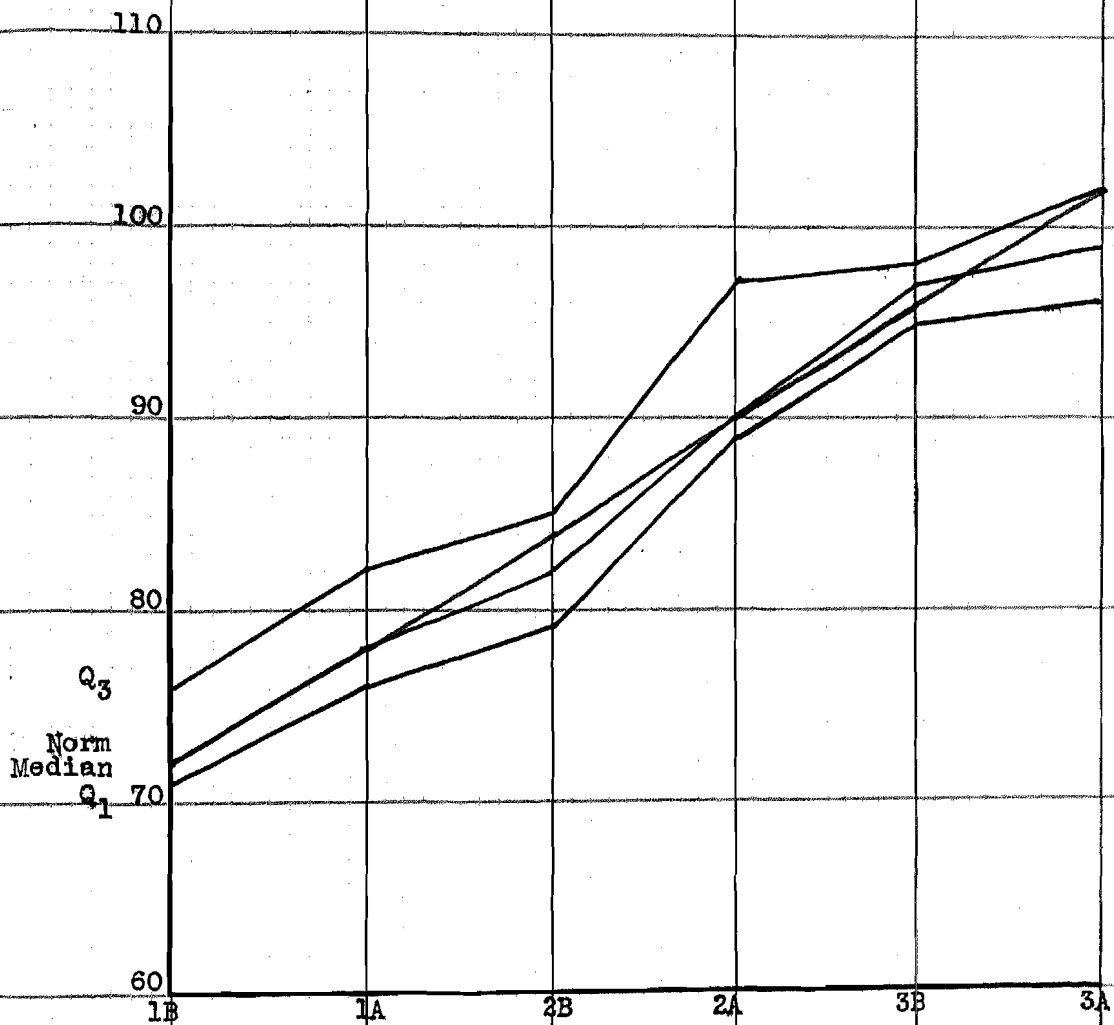


Fig. 25. Showing the Comparison of the Chronological Ages in the Primary Grades.

TABLE XXVI

Showing the Comparison of the Mental  
Ages in the Primary Grades

|                    | GRADES |      |     |      |      |      |
|--------------------|--------|------|-----|------|------|------|
|                    | 1B     | 1A   | 2B  | 2A   | 3B   | 3A   |
| Third Quartile     | 6-6    | 7-6  | 7-8 | 9-11 | 9-3  | 10-2 |
| Class Median       | 6-1    | 7-3  | 7-5 | 7-11 | 8-0  | 8-11 |
| First Quartile     | 5-9    | 6-10 | 7-4 | 7-6  | 7-9  | 8-0  |
| Quartile Deviation | 0-9    | 0-4  | 0-4 | 1-2  | 0-9  | 1-1  |
| Standard Age       | 6-0    | 6-6  | 7-0 | 7-6  | 8-0  | 8-6  |
| High Age           | 6-6    | 7-11 | 8-2 | 10+  | 10-3 | 11-0 |
| Low Age            | 4-1    | 6-1  | 6-6 | 6-8  | 7-2  | 7-4  |

Read table thus: In grade 1B, the third quartile is 6-6; class median, 6-1; first quartile, 5-9; quartile deviation, 0-9; standard age, 6-0; high age, 6-6; and the low age, 4-1. Read the remaining items in the same manner.

age were equal in 3B. The widest range of ages was in the 2A and the smallest in 2B.

The I.Q.'s were computed from the mental and chronological ages. The results are shown in Table XXVII and Figure 27. In every grade, the median was equal to or above the norm. The greatest acceleration was 24 in the 3A, and the 1B median and norm were equal. One pupil's score in the 2A was 91, and as no norms are given for scores above 80, the mental age is indicated as 10+ and the I.Q. as 133+.

#### Pintner-Cunningham Primary Mental Test

This test is so constructed to be suitable for use among kindergarten as well as primary. The picture is used throughout the test rather than

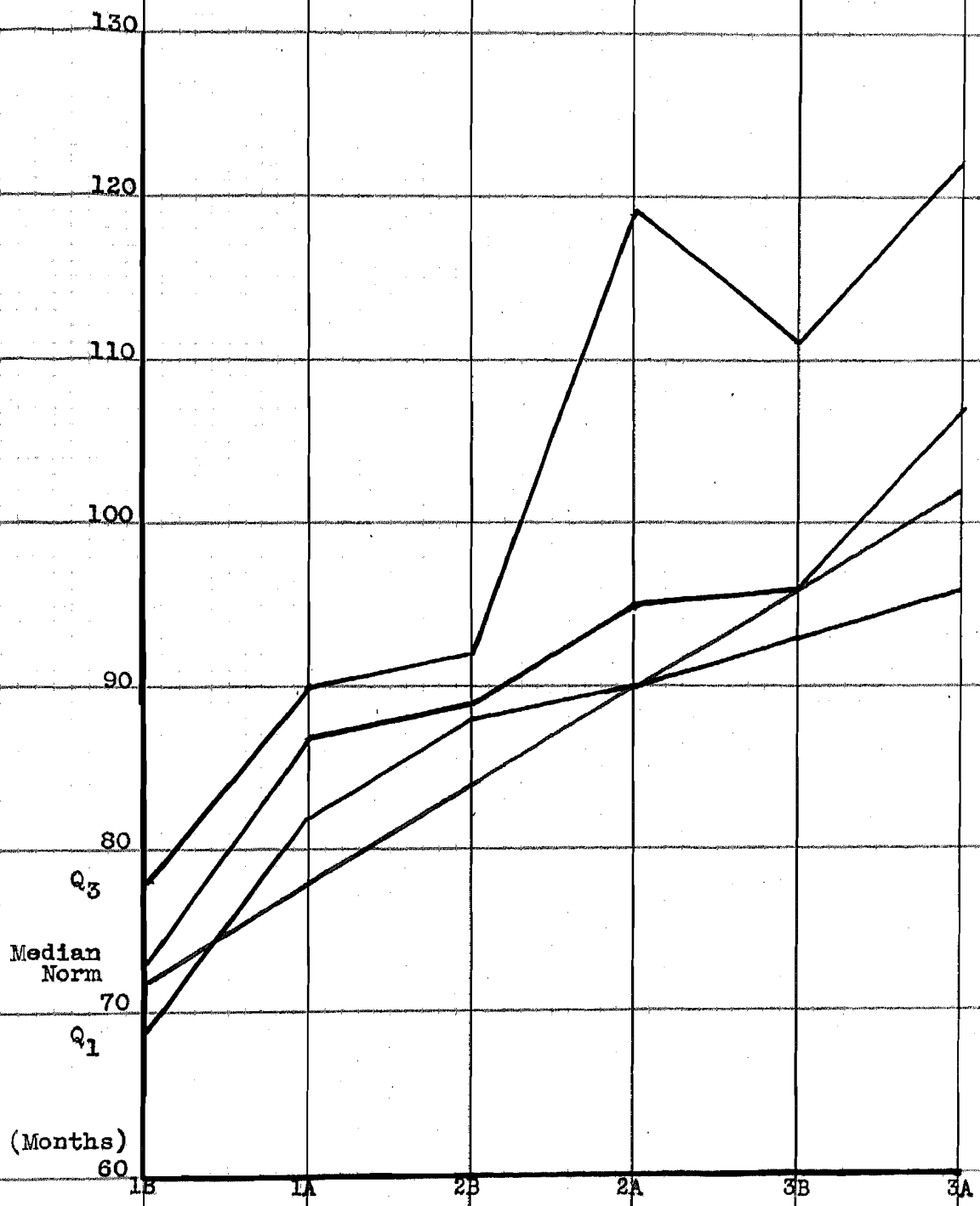


Fig. 26. Showing the Comparison of the Mental Ages in the Primary Grades.

TABLE XXVII

Showing the Comparison of the Intelligence  
Quotients in the Primary Grades

|                    | GRADES |     |     |      |     |     |
|--------------------|--------|-----|-----|------|-----|-----|
|                    | 1B     | 1A  | 2B  | 2A   | 3B  | 3A  |
| Third Quartile     | 106    | 116 | 113 | 116  | 114 | 124 |
| Class Median       | 100    | 109 | 109 | 108  | 101 | 112 |
| First Quartile     | 93     | 105 | 105 | 101  | 95  | 94  |
| Quartile Deviation | 7      | 6   | 4   | 8    | 10  | 15  |
| Norm               | 100    | 100 | 100 | 100  | 100 | 100 |
| High I.Q.          | 111    | 120 | 118 | 133+ | 130 | 139 |
| Low I.Q.           | 75     | 92  | 90  | 81   | 91  | 81  |

Read table thus: In the grade 1B, the third quartile is 106; class median, 100; first quartile, 93; quartile deviation, 7; norm, 100; high I.Q., 111; and the low I.Q., 75. Read the remaining items in the same manner.

the letter or digit. In making a response, only the simplest mark is required of the child. The subject matter of the test has been selected as to attract and hold attention of each child. There are six tests, and each test is scored separately. The possible score is 89, and the maximum mental age is 115 months.

A test is given each semester to the pupils who enroll in the kindergarten for the first time. The forenoon division of the kindergarten is composed of pupils who have attended the kindergarten previously, or those who are physically, mentally, and socially advanced. The afternoon group consists of the new pupils or those repeating the work. Table XXVIII shows the results of the test for the two divisions of the kindergarten. The test for the forenoon division of the kindergarten was given in October,

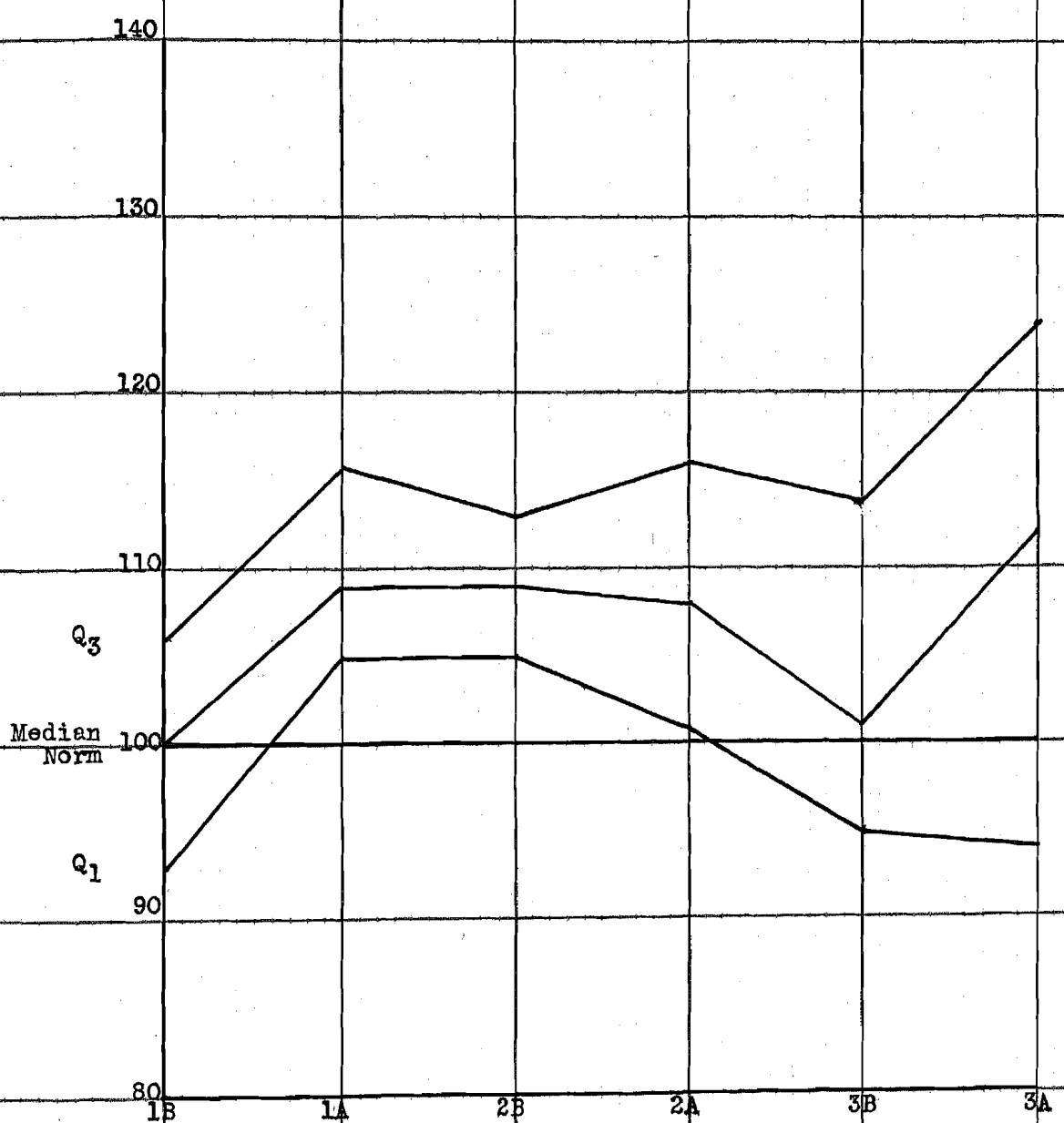


Fig. 27. Showing the Comparison of the Intelligence Quotients in the Primary Grades.

1933 and the test for the afternoon division in February, 1934. This would make the data for the forenoon division one semester old. At the present time the median of the chronological ages for the forenoon division would be 5-7 as opposed to 5-3. The mental ages would increase in direct proportion as I.Q.'s tend to remain constant. In each case medians of both divisions were above the norms. This would indicate that the pupils are accelerated in mental capacity. There seems to be a slightly wider range in the afternoon division than in the forenoon division.

TABLE XXVIII

Showing the Comparison of the Chronological Ages, Mental Ages, and I.Q.'s in the Kindergarten

|                    | C.A. |      | M.A. |      | I.Q. |      |
|--------------------|------|------|------|------|------|------|
|                    | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| Third Quartile     | 5-4  | 5-3  | 6-10 | 6-10 | 118  | 129  |
| Class Median       | 5-3  | 5-1  | 6-3  | 6-1  | 115  | 113  |
| First Quartile     | 5-1  | 4-11 | 5-4  | 5-3  | 101  | 101  |
| Quartile Deviation | 0-1  | 0-4  | 0-9  | 0-9  | 9    | 14   |
| Norm               | 5-0  | 5-0  | 5-0  | 5-0  | 100  | 100  |
| High Result        | 5-5  | 6-0  | 7-9  | 7-10 | 155  | 156  |
| Low Result         | 4-9  | 4-10 | 4-10 | 4-3  | 94   | 78   |

Read table thus: In the forenoon division of the kindergarten, the third quartile of the chronological age is 5-4; class median, 5-3; first quartile, 5-1; quartile deviation, 0-1; norm, 5-0; high result, 5-5; and the low result, 4-9. Read the remaining items in the same manner.

## SUMMARY

In the mental survey, it was found that the medians of the intelligence quotients in all grades were above the norm with the exception of 4B which showed a retardation of 2 points. The range of the I.Q.'s for all grades

including the kindergarten was found to be from 72 to 156. The greatest difference in chronological ages within the grades was found to be 3 years and 10 months and the smallest difference 1 year and 0 months. From the data collected on this survey, it could be inferred that as a whole the Laboratory School is an average school with respect to mental capacities of the pupils.



## SUMMARY AND CONCLUSIONS

It has been the ultimate purpose of the Elementary Laboratory School of Kansas State Teachers College of Emporia from its very beginning, September 16, 1867, to provide a school where pupils may receive superior instruction and also to serve as a laboratory where those preparing to teach in the elementary grades may do practice work under experienced supervisors. The administration is vested in the president of the school, the director of teacher training, and the principals. The teaching staff consists of the principals and supervisors who are well-trained in their fields. The curriculum is so constructed as to provide a well-adjusted program for the pupils and to satisfy the facilities necessary in training the students going out to teach in the elementary grades.

From the educational standpoint, it was found that as a whole, the school meets or is above the standards indicated by the test norms. The high reading ability of the pupils is an advantage to them in other subjects of the curriculum which require reading knowledge. The superior music ranking may be attributed to the music environment and the excellent supervision. The above average educational achievement would tend to show the efficiency and satisfactory achievement of the pupils. From the mental survey, it was found that in general the pupils are above average in intelligence.

The school represents a laboratory in which real life situations occur--those with which the teacher will be confronted in the field of teaching.

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