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This is to certify that we the undersigned, as a committee of the Graduate School, have given Florence Dell Fuller final oral examination for the degree of Master of Arts . We recommend that the degree of Master of Arts be conferred upon the candidate.

Minneapolis, Minnesota

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Chairman

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THE UNIVERSITY OF MINNESOTA

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Report

of

Committee on Thesis

The undersigned, acting as a Committee of the Graduate School, have read the accompanying thesis submitted by **Florence Dell Fuller** for the degree of **Master of Arts.**

They approve it as a thesis meeting the requirements of the Graduate School of the University of Minnesota, and recommend that it be accepted in partial fulfillment of the requirements for the degree of **Master of Arts.**

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GIFTED CHILDREN IN THE PUBLIC SCHOOLS

A Thesis

Submitted to the Graduate Faculty

of the

University of Minnesota

by

FLORENCE DELL FULLER

In Partial Fulfillment of the Requirements

for the

Degree of

MASTER OF ARTS

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GIFTED CHILDREN IN THE PUBLIC SCHOOLS

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B. Achievement.

- a. Haggerty Reading Test, Sigma 3.

C. School records.

6. Central High School, St. Paul, Minn.

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GIFTED CHILDREN IN THE PUBLIC SCHOOLS

REVIEW OF THE LITERATURE

Individual men and women are found in every country, and in every age, who are outstanding figures. History is replete with instances of persons of extraordinary ability. There have been the Davids, the Michael Angelos, the Mozarts, the Napoleons, the George Eliots, and the Washingtons. In like manner there are children who forge ahead of their fellows in their play and in their work. Some children always stand at the head of their classes while others keep their places with equal consistency at the foot. Members of the latter group have attracted public attention for many years, in fact, references are found in ancient Greek writings to persons who were "devoid of understanding". On the other hand, those who have led their classes have been overlooked and allowed to care for themselves, since they have not clogged the wheels of the school machinery.

Within the past few years, however, the public has been awakened to the injustice done to those children who are unusually gifted, and to the folly of not preparing them to utilize their abilities to the greatest extent for the good of society. Little reference to superior children as a class is found in literature before 1900, and not until after 1910 was the subject taken at all seriously. Within the past four or five years, however, a vital

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interest in superior children has developed, and a considerable volume of writings on various aspects of the subject has been published.

The Proportion Of Gifted Children.

The exact proportion of gifted children is not known. Many estimates have been made. J. B. Lee declared in 1918 that there are as many children above the average mentally as there are below.* Kelly criticized Starch's statement that one third of the children proceed too slowly. He claimed that due to the unreliability of the tests the amount of overlapping was not more than 17%.** If we carry this out to its logical conclusion, it would mean that about 17% of the children are superior to their fellows. According to McDonald, Dr. Keyes has concluded that from a fourth to a third of the pupils in the public schools are able to gain from one year in seven to two in nine.*** In their report on "Provision for Exceptional Children in Public Schools" Van Sickle, Witmar and Ayers made the statement that about 4% of the pupils are talented, and Dr. Goddard has corroborated this statement. His belief is based on the results of the Binet Simon tests which were used in a study of 2000 pupils.

* Lee, J.B. Breaking of the Lockstep; An Experiment in Optimism.
Edu. R 56: 149-57. Sept. '18.

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***McDonald, R.A.F. Adjustment of School Organization to Various Population Groups. (T.Col.Contrib. to Educ. No.75, 1915, 144 pp.) especially Chapter XI.

* Van Sickle, J.H., Witmar, L., Ayers, L.P. Provision for Exceptional Children in Public Schools. U.S. Bur. Educ. Bul.1911, 14: 1-92.

** Goddard, Dr. Two Thousand Children Measured by the Binet Measuring Scale of Intelligence. Ped.Sem.June, 1911.p 236.

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He concludes that these children are so much superior to the others that they can not be properly handled in the ordinary type of schools. William F. Book has reported a study made in Indiana in 1919-1920 in which 6188 seniors in the high schools were tested.* The Indiana University Intelligence Scale, Schedule 2, by Dr. and Mrs. Pressey was used. This is not, of course, an accurate means of determining the proportion of gifted pupils for the high school senior class is a highly selected group. It was found that 8% of these pupils were of A rank, while 2% were high A's. It is probable that these pupils would far surpass their classmates in the grades. They were, no doubt, as much above the average as imbeciles are below, tho this has not been proved. It is evident that we are in need of accurate information in regard to the number of truly superior children there are, and as to the degree of their superiority.

Types Of Gifted Children.

A number of classifications of superior children have been made. Prof. Sakaki claims that there are seven distinct types of gifted children; and that members of each type are so different that it is not feasible to educate them in the same classes.**He places in the first group the actual geniuses. There are few geniuses and they need a very special type of education. Second are those children who are gifted with unusually good memories.

* Book, Wm.F. Preliminary Report on the State-Wide Mental Survey of High School Seniors. Bul. Ind. U. pp 33-67. 1919.

** Sakaki, Y. Some Studies of So-Called Abnormally Intelligent Pupils. Psych. Clinic, 6: 1912, 18-25.

They have great power of concentration, and are not easily fatigued. Due to these factors they seem to be brilliant and succeed in school work, tho they may not have a very high mentality. In the third group he has placed children who resemble those of the preceding group in all save health. They are not so tireless, yet have a considerable degree of persistence. In the fourth group are children who are stimulated by their environment to unusual effort, and who have also had special opportunities. Fifth are the precocious. These children develop rapidly both physically and mentally. Prof. Sakaki believes that these individuals are apt to fall back during adolescence, or maturity. He says that they are unsocial and frequently become suicides; in fact they may develop dementia praecox, neurasthenia, or hysteria. In the sixth group are children of nervous temperment. They may be easily stimulated to competition. They are hyper-sensitive, and are usually pathological cases. Seventh are those persons who are not well balanced mentally. They may be intelligent and yet be morally deficient. Of course these children do not fit in any ordinary scheme of education.

William Stern took into consideration the fact that some children seem to be "universally gifted". They are superior along all lines. There are others, however, who appear gifted in some specific field; for instance in music, drawing, or mechanics.

Groszmann has placed superior children in four classes, some of which are very similiar to those given by Sakaki. They are: (1) Children endowed with exceptional memories. This group would include Sakaki's second and third groups. (2) Children

whose physical and mental growth is more rapid than that of ordinary children, e.g. the precocious group of Sakaki. (3) Individuals with a one sided development, such as artists. (4) Children in whom neuropathic or psychopathic tension is associated with general or special excellence, a classification which probably includes Sakaki's 6th and 7th groups.* Grossmann emphasizes the fact that these groups vary enough so that they ought not be given the same type of education as is given to ordinary children, nor should the same methods be used.

Precocious Children and Child Prodigies.

A considerable portion of the literature on gifted children is devoted to precocious children and prodigies. Lightning calculators have long puzzled the psychologists. Summaries of the accomplishments of these calculators together with possible explanations of the means by which they obtained their results are given by a number of writers. Among the calculators frequently mentioned are: Tom Fuller (1710-1790), Jedediah Buxton (1702-1772), Zerah Colburn (1802-1840), Jacques Inaudi (1867-?), George Parker Bidder (1806-1878), George P. Bidder, Jr. (1837-), Truman Henry Safford (1836-1901), Carl Friedrich Gauss (1777-1855), and William James Sidis. F. D. Mitchell gives an account of his own achievements. He shows that little tricks and short cuts are commonly used by lightning calculators, and, moreover, a large number of facts are committed to memory just as are the multiplication tables. He believes that most calculators are auditory minded, instead of

* Grossmann, M.P.E. Care of Exceptionally Bright Children. Sci. Am. 80: 171, S.11, 1915.

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being visual minded as has been commonly believed, and gives proofs to substantiate this belief.*

Except in the cases of Fuller and Buxton these individuals manifested their unusual talents between the ages of 3 and 8 years. Practically in every case circumstances favored the development of the talent. Some of them were called upon to herd sheep. Leisure was thus given to practise manipulating numbers, and a knowledge of numbers was of use to them in their daily work. In other cases boys were hampered by physical disabilities so that they were unable to play as other children did, and amused themselves by working with numbers.

Lightning calculators have not in general been of much social value. For instance, Tom Fuller was a negro slave and his talent was not discovered until he was perhaps 70 years of age. Buxton was wholly illiterate. Many of the prodigies utilized their talents only on the stage where they displayed themselves as curiosities. On the other hand the Bidders and Gauss were gifted along several lines so that they were able to make use of this mathematical talent, in scientific work.

It is too early to tell yet what William James Sidis will do for society. He has made a wonderful beginning. At eleven years of age he gave a lecture on the fourth dimension before the Professors of Harvard. While he is a prodigy in mathematics, it is reported that he is far above the average in other subjects too.**

* Mitchell, F.D. Mathematical Prodigies. Amer. J. Psych., 18: 1907, 61-143.

** Bruce, H. A. Bending the Twig. Am. Mag. 69: 690-695. 1910.

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In a publication of 1917 Groszmann said that the chief development of young Sidis had been in the field of abstract thought. He lacked manual dexterity and was awkward in his movements. These conditions Groszmann considered danger signals, and was the more apprehensive since, the much publicity had been given to Sidis's early development, it was no longer open to investigation. At the time of the publication of "The Exceptional Child" he said that the boy must be 19 or 20 years of age.*

Among the precocious children of the present day, the following have been given considerable notoriety: Viola Olerich, the Berle children, Norbert Wiener, Winifred Sackville Stoner, Otto Pohler, and Raymond Ray. At 10 months of age, Raymond Ray could name all the presidents of the United States when shown their pictures. He knew the alphabet when $1\frac{1}{2}$ years old, and could read and write at 3 years of age. When admitted to the seventh grade of the public school at Rosewell, New Mexico, he was 7 years old. He is progressing well and at his present rate he will have his doctor's degree at the age of 14 years.**

The accomplishments of Winifred Sackville Stoner are equally as startling.*** She read at 16 months, kept a diary at 2 years, played the piano and used the typewriter at 3 years of age, learned Latin declensions and conjugations, and earned a diploma in Esperanto when 5 years old. She passed the entrance examinations of one of the largest western universities when she was but 9 years old. She was ready for graduate work in any university of the

* Groszmann, M. P. E. The Exceptional Child. New York, 1917. Chap. 7.

** Eike, P. V. Am. Mag. 81: 52, Mar. 1916.

*** Stewart, Jane A. Natural Education. J. Educ. 1915, 81: 520.

United States at 12 years of age. Since that time her mother has been shielding her from strenuous study during the period of adolescence. Winifred is continuing her work in music and dramatics, and aids her mother for a short time daily in correcting proof. Moulton says that at twelve years of age Winifred had written ten books and helped to illustrate them, had beaten champion chess players, could row, fence, swim, ride horseback, skate, play ball, crochet, cook, knit, sew, and execute fancy dances* It is evident from these things that her training has been comprehensive, and that she is universally gifted.

The Berle children and those of Prof. Wiener have also received much notice. All have entered higher institutions of learning at unusually early ages.** Norbert Wiener entered Tufts at 11 years of age. The youngest of the Berle children was in high school at 9 years of age and the oldest was a sophomore in Radcliffe when 16 years old. The other two children were doing equally well, and are said to be developing normally.***

Other precocious children are described but their names are withheld. Their abilities vary widely. Garrison, Burke, and Hollingworth have described a child 8 years and 4 months whose IQ is 187, according to the Stanford Revision of the Binet-Simon tests. He had a vocabulary of 11520 words. Other tests were also given

* Moulton, R. H. Twelve-year Old Child Wonder.(portrait)
Am. Mag. 79:56-58 F.1915.

** Bruce, H. A. New Ideas in Child Training. Am. Mag. 72:
July, 1911, 286-294.

*** Bruce, H. A. New Ideas in Child Training. Am. Mag. 72:
July, 1911, 286-294.

him, such as the Seashore test for musical ability, the Pintner form of the Knox Cube Test, the tapping test and the Stenquist Construction Box II. They state that his intelligence is such as is found in only one in over a million people.*

The lives of geniuses have been studied and it has been found that a number of them were precocious children. Among these individuals are given John Stuart Mill, the great economist, Lord Kelvin of Largs, one of the foremost scientists of two centuries, Gauss to whom we have already referred, and Karl Witte of Germany.** Not all of the geniuses were considered so in childhood, however. Charles Darwin says of himself in his autobiography, "When I left school I was for my age neither high nor low, and I believe that I was considered by all my masters and by my father as a very ordinary boy, rather below the common standard in intellect!*** Seward's teacher once reported to his father that he was too stupid to learn. Patrick Henry "was too idle to gain any solid advantage from the opportunities that were thrown in his way." Sir Isaac Newton "was extremely inattentive to his studies and stood very low in school." "Robert Fulton was a dullard because his mind was filled with thots about other things than his studies." "Heine made a poor showing at school". "In her early days George Eliot was not precocious. It was with difficulty that she learned to read, tho her brother Isaac, with pardonable pride, thot that this was because she enjoyed playing so much more than studying".

* Garrison, C. G., Burke, Agnes, Hollingworth, L. S. Psychology of a Prodigious Child. J. Appld. Psych. 1:1917, 101-110.
** Bruce, H. A. New Idéas in Child Training. Am. Mag. 72: July, 1911, 286-294.
*** Darwin, Charles. Life and Letters: 29-30.

"Oliver Goldsmith's teacher, in his early childhood, thot him one of the dullest boys that she ever tried to teach." "At Eton, Gladstone gave no evidence of unusual ability."* These instances could be multiplied at length, yet to no real advantage. Sufficent evidence has been given to show that some precocious children have become recognized geniuses, while some children who appeared quite ordinary have developed later into very superior men and women.

Cause of Superiority of Gifted Children.

There has been much discussion as to the cause of mental superiority. Some authorities firmly believe that brilliance is due to heredity, while others are sure that, with the proper environment and training, any normal child can accomplish what has been accomplished by the precocious children previously mentioned. Mrs. Stoner, herself, insists that any child with proper training can do what Winifred has done.** Bruce*** and Berley[†] are strong believers in the ability of any normal child to become so-called "child wonders", if they are given proper environment and training. Prof. Olerich went one step further and to put this theory to practical test, he adopted a child and gave her his personal attention from infancy. He was rewarded by little Viola's response to his training. She ranked among the first of the prodigies.^{††}

* Swift, E. J. Mind in the Making. 1908, pp. 1-32.

**Stoner, Mrs. Winifred S. Natural Education. Indianapolis, 1914 255p.

*** Bruce, H. A. Bending the Twig. Am. Mag. 69:1910, 690-695.

† Berle, A. A. Teaching in the Home. New York, 1915. 354p.

†† Olerich, H. The Cleverest Child in the World. Strand Mag. 20:1900, 130-136.

Galton proves that the scientists had superior^{innate} ability,* and Havelock Ellis shows that British genius is inherited.** Miss Dolbear says that both heredity and training play a part in the development of precocity.*** While environment and conditions were such as to favor the practising of calculating, Mitchell shows that the trait was inherited.★ Woodrow also agrees that heredity plays an important part in brightness, but adds that environment, too, enters in.★★ It can scarcely be determined which one is the more important.

Qualitative Differences Between Children.

Some studies of the qualitative differences between gifted, normal, and subnormal children have been made. There are many people who believe that the precocious child is being prepared for an early grave, or for some terrible malady. The notion has seemed to prevail that poor physical health and superiority in intellectual attainments go together. Thus K. E. Dolbear says that some people believe in early and continuous training, but that most psychologists, psychiatrists, physicians, and educators see grave danger in the crowding process.★★★ Not only has this criticism been made in regard to precocious children but also in regard to persons who have become geniuses. As a result there have been some studies of geniuses made in which health of these superior men and women was investigated. Galton made a study of about 180 of the most eminent scientists of the day and reported that nearly

* Galton, Frances. English Men of Science. 1874, 266p.
 ** Ellis, Havelock. A Study of British Genius. London, 1904. 300p.
 *** Dolbear, K. E. Precocious Children. (Bibliography) Ped. Sem. 19:D1912. 461-491.
 ★ Mitchell, F. D. Mathematical Prodigies. Am. J. Psychol., 18:1907. 61-143.
 ★★ Woodrow, H. Brightness and Dullness in Children. Philadelphia, 1919.
 ★★★ Dolbear, K. E. Precocious Children. Ped.Sem. 19:461-91.D.1912.

all had good health and abundant energy.* Yoder found that great men are not more liable to physical sickness than are ordinary people; that tall men predominate, and that the large proportion of them were fond of sports and of physical exercise.** Havelock Ellis, on the other hand, made a study of 975 men and 55 women of high intellectual ability. He points out that genius was often accompanied by lack of muscular coordination, and was frequently found in connection with delicate health and diseases, such as gout, or tuberculosis. He noted a rather high percent of insanity among geniuses yet offered good reasons for believing that insanity is not one of the concomitants of genius since it seems more closely allied to imbecility.***

It is agreed that superior persons have an unusual power of attention and amount of persistence. Gifted children have often been misunderstood in their classes, on account of their lack of willingness to conform to the established order, and due to their inattention to those things that prove uninteresting to them.†

Boris Sidis has in his "Philistine and Genius" a biting criticism of the schoolmasters on account of their inability to recognize and to sympathize with genius. He accuses them of attempting to crush out all individuality, and of being mere system worshippers.††

Book in his study of high school seniors found that the

*Galton, Frances. English Men of Science. London, 1874. 266p.
 ** Yoder, A. H. The Study of the Boyhood of Great Men. Ped. Sem. 3:134-156. 1894.
 *** Ellis, Havelock. A Study of British Genius. London, 1904. 300p.
 † Groszmann, M. P. E. Exceptional Children; Why? Nat. Educ. Assn. (Proceedings and Addresses) 1913:767-772.
 †† Sidis, Boris. Philistine and Genius. New York, 1911. 105p.

superior pupils had their plans all laid as to the college in which they intended to pursue further study. While other seniors often intended to go to college they would not necessarily, like the superior seniors, have looked far enough forward to select the place at which they would continue their work.*

Not all persons who are intellectually superior are successful. Dr. Downey believes that there is a great difference among gifted children as to qualities which make up the "will profile". Among these qualities she has included speed of movement, freedom from load, flexibility, speed of decision, motor impulsion, assurance, resistance to opposition, motor inhibition, interest in detail, coordination of impulses, volitional perservance, and revision, or finality of judgment. She has been experimenting with some tests which measure these qualities by means of motor reactions, has compared the results obtained with the achievements of pupils in school work. Dr. Downey concludes that great differences actually do exist in the accomplishments of gifted children and that this variation is due to their qualitative differences.**

It has already been mentioned that some persons are "universally gifted" while others are gifted along only one line, as in the case of lightning calculators, or musicians. Terman believes, however, that gifts are more commonly general than special. He has summarized the qualities of superior children in the following

* Book, Wm. F. Preliminary Report on the State-Wide Mental Survey of High School Seniors. Bul. of Ind. U., 1920. pp33-67.

** Downey, June E. The Adolescent Will-Profile. J. Educ. Psych. 11:157-169. Mar. 1920.

way: "According to the testimony of their teachers such children are fully as likely to be healthy as average children; their ability is far more general than special; they are studious above the average; really serious moral faults are not common among them; they are nearly always socially adaptable, are sought after as playmates and companions; their play life is usually normal; they are leaders far oftener than other children, and, notwithstanding their many really superior qualities, they are seldom vain, or spoiled."*

The Condition of Gifted Children in the Public Schools.

Not until very recently has the common school given any attention to gifted children. They have been allowed to pass thru the grades at the same rate as the average child. This means that superior children have not been forced to exert themselves to the extent of their capacity. Thus they have developed habits of inattention, and frequently they do not progress even at the rate of the ordinary child. This procedure has been severely condemned by a number of the educators. However the idea of democracy has led men to disfavor giving special advantages to any group of individuals. In general the tendency has been to give the best teachers, and to devote the most money to those persons who are mentally defective, or backward, or retarded thru neglect.** Van Sickle says that the attempt has been to bring all to a common level, but that

* Terman, L. M. Mental Hygiene of Exceptional Children. Ped. Sem. 22:529-537. D.1915.

** Aley, R. J. Care of Exceptional Children in the Grades. Nat. Educ. Assn. (Addresses and Proc.) 1910:881-886.

has been the level of the average.* The exceptional child is more neglected and handicapped, Groszmann assures us, than are the dull. They are misunderstood, repressed, and may finally become criminals or selfish demagogues.**

Since 1900 there have been various attempts to provide for superior children. In 1911, McDonald reported that 222 cities were making special provision for delinquent and backward children, while only 54 cities did so for gifted children, and only 5 of these cities had special classes. In the other 49 cities probably flexible grading systems were used.*** Henry says that Elizabeth L. Woods reported 45 cities with special classes in 1917. He believes that this number is too high, and gives the following list which he says is authentic:

In 1900 New York City established classes for gifted children, in some of which two terms of work were covered in one term, while in others three terms of work were covered in two. In the same city in 1915, classes were organized which completed the seventh, eighth, and ninth grades in two years.

English and languages were given in the seventh, eighth, and ninth years of the preparatory schools of Worcester, Mass., for high school credit. Later the same subjects were given in only the eighth and ninth years.

Baltimore in 1902 carried out a similiar plan except that mathematics was offered. Indianapolis adopted a similiar plan in

* Van Sickle, J. H. Gifted Pupils. J. Educ. 71:Mar. 17, 1910. 291-292.

** Groszmann, M. P. E. Exceptional Children, Why? Nat. Educ. Assn. 1913:767-772.

*** McDonald, R.A. F. Adjustment of School Organization to Various Population Groups. T.Col.Contrib.to Educ. No. 75:1915, Chap. 11.

1908. In 1910, Cincinnati had a special class of 32 pupils, belonging to various grades, and each selecting his own course of study. Twenty-five pupils out of the 32 did two years' work in one. In 1913, Boston started classes in the sixth and fifth grades, with an enrollment of 30 pupils in each. These children were also taught by one teacher until they had completed the elementary grades. This experiment was considered a success since the sixth grade children completed the required work in a year and a half, and the fifth grade children finished a year ahead of the usual time. The number of these classes for superior children has been increased in Boston until in 1917 there were a total of 13. Louisville, Ky., started two classes for gifted children in 1917. In one class a full year's work was accomplished in half the time, then the children were returned to the regular classes. In the other class an IQ of 120 was required. Here the aim was not so much to gain time but to broaden the course. German was added and was taught by the conversational method. In 1914, Lead, S. D., segregated 55 of the brighter pupils and found that they could do three semesters' work in two. Framington, Mass., and Jacksonville, Ill., organized classes that did more work in a shorter time. Wausau, Wis., and Concord, Mass., have classes for misfits in which both the gifted and the slow pupils receive special attention. In Rockford, Ill., "misfits" went to a special teacher once each week and were given special assignments. It was found in an experiment in Urbana, Ill., that a two year course had been shortened a half.*

* Henry, T. S. Classes for Gifted Children. The Ninteenth Yearbook of the National Society for the Study of Education. Part 2.

These illustrations show clearly that special classes providing for the instruction of superior children do exist in many parts of North America. In some of the places such classes were mere experiments, yet the tendency is toward their incorporation in the public school system.

Dr. Harris working in the St. Louis schools as early as 1868 was among the first to introduce a flexible grading system. Other cities have been using various types of flexible grading for years. In general two kinds of flexible grading systems are in use. One system seeks uniform progress while the other aims at rapid promotion, only keeping the pupils in each grade as long as it is absolutely necessary. The first system accomplishes its purpose by giving special help to the "dull" child (Batavia Plan), by providing supplementary work for the bright (North Denver Plan), and by half-year promotions. The second system is typified by various procedures.

The Elizabeth, N. J., plan makes use of four sections with rapid promotions from one to another. The Cambridge, Mass., plan has courses constructed so as to take account of individual differences. The basal course consists of eight years of work divided into 23 grades. Course B includes six years of work divided into 17 grades. Promotions take place every three months. At stated times pupils can pass from one course to another, by the Le Mars-Cambridge plan which is similar to the "Cambridge". Nine grades can be completed in six, seven, eight or nine years. Woburn, Mass. has had what is termed the "double tillage" plan. In this the work is covered rapidly in the first half year. Children who learn rapidly are promoted, while those who fall behind repeat the same work in more detail the following semester.

This plan was discontinued in 1903 except in the lower grades. The Portland-Cambridge course of study is divided into 54 parts, covering eighteen terms of five months each. Promotion by subjects occurs at the end of each term. By the Santa Barbara plan classes are sectioned according to the abilities of the children and the sections do the work with varying amounts of detail. Transfers from one section to another may be made at any time. In Newton, Mass., special teachers aid the accelerates and the retardates, and pupils are promoted by subjects at any time. Other places make use of vacation schools to assist some children to complete their courses before the usual time and to help others to complete them at the usual time.*

Apparently there is no standard method of caring for gifted children in the United States. The different plans described are largely in the experimental stage, tho some of them have been in operation for some time. Results of these experiments do not yet indicate that there is any best method of providing for superior children. Some authorities believe in passing children thru the grades rapidly, while others are very sure that that is a mistake. Some do not believe in segregation of the gifted; others believe that that is the only right way to meet the problem. It is evident however, that both educators and parents are beginning to recognize the fact that superior children do constitute a real problem and that immediate constructive measures are essential.

* McDonald, R. A. F. Adjustment of the School Organization to Various Population Groups. (T. Col. Contrib. to Educ.) No. 75: 1915, Chap. 11.

Experiments with Gifted Children.

Considerable interest has been manifested in experiments with gifted children. In order to carry on such experiments with gifted children, some means of selecting them had to be devised. At first the judgment of the teacher was used. It was observed, however, that unless a child did good work in the particular subject taught by a teacher she was not likely to recognize intellectual superiority.* Even in the elementary grades where one teacher handles all subjects the judgment of the teacher often has proved to be untrustworthy. This was shown in the experiment by Whipple in Urbana, which will be described later.

A step in advance was the use of school records. If a child had done excellent work all thru his school career it was considered fair evidence that he was bright at least. This scheme was used in an experiment reported by Superintendent Downes of Harrisburg, Pa., in 1912. He states that in 1910 special schools for gifted children were opened, drawing pupils from all the surrounding schools. These pupils were selected by the official records of their work and with the consent of the parents. Children completed in this one year the work of the eighth and ninth years, while the teacher's report showed, that (1) the attendance was excellent, (2) the scholarship was unusually good, none receiving 80% or below, and (3) the discipline was very good. The following year 32 of these pupils entered high school, 25% of whom received averages between 90% and 100% in the first half year, 72% received

* Sidis, Boris: Philistine and Genius. New York. Moffat, Yard & Co. 1911, 105p.

averages between 80% and 90%, while only 1 pupil fell below an average of 80%. In comparison with this class a group of 30 pupils who were especially strong in their elementary work but who had taken the regular nine years to complete the elementary grades, made the following record: 20% received averages of from 90% to 100%, 57% made averages of 80% to 90%, while the average of 7 pupils were less than 70%. This shows conclusively that those pupils who had been accelerated were able to maintain the lead.*

An account of a similiar experiment was published by J. B. Lee in 1918.** He reports that opportunity classes in which twice the ground was covered in a given time were maintained for six months in the Ryerson Annex of the Commercial High School in New York City. Volunteers who had not been deficient in any subject the preceding two terms made up the classes. There were 38 boys in the language course and 31 boys in the three-year commercial course. Later two boys who were not quite up to the standard were permitted to join the Spanish class. The results were: The attendance averaged 97% against 86% before. Only 16% of the pupils stopped school as against 26%, and most of these left because of necessity. In scholarship 97% of the pupils were passing and they averaged 15% above the passing mark while in the preceding term they had averaged only 4% above the passing mark. In bookkeeping 45 pupils out of 60 pupils passed, altho the standard for passing was 7% higher. There were 20 out of 30 boys who passes in Spanish, 25 boys out of 60 passed in algebra, while in stenography there

* Terman, L. M. Mental Hygiene of Exceptional Children. Ped. Sem. 22:D. 1915. 529-537.

**Lee, J. B. Breaking the Lockstep; An Experiment in Optimism. Educ. R. 56:S. 1918, 149-157.

were 27 boys out of 60 boys who passed. Nineteen pupils passed in all the subjects. Supt. Lee considered that there was a saving of \$1250 to the city, less congestion in the schools, and that pupils found themselves and became more helpful.

Among the things learned by this experiment Mr. Lee gives the following: (1) The students must be volunteers. (2) Ambition can not be substituted for ability. (3) It is wise to divide the class and give part of the time to review. (4) The course should be worked over so as to emphasize the essentials. (5) Devices to secure enthusiasm are worth while. (6) The class teacher must inspire confidence. (7) There must be cooperation among teachers, principal and students.

That a special room has been conducted for a number of years for the benefit of those who wish to make a grade or a part of an extra grade in the Whittier School in Denver, is reported by H. W. Zirkle.

Pupils were selected for this special room by (1) the standings previously obtained in school work, (2) the age of the child, (3) his physical condition, and (4) power of application.

The type of work carried on in this room may be inferred from the following outline for the year 1918-1919:

First Quarter-

10 pupils in 4-B working for 4-A.

3 pupils reviewing 4-A working for 4-A.

14 pupils in 6-B working for 6-A.

Second Quarter-

8 pupils in 4-A working for 5-B and becoming 5-A
at the end of the semester.

5 pupils reviewing 5-B working for 5-B.

10 pupils in 6-A working for 7-B and becoming 7-A at the end of the semester.

Third Quarter-

11 pupils in 5-A working for 6-B.

9 pupils in 7-A working for 8-B.

Fourth Quarter-

11 pupils working for 6-A and becoming 7-B in June.

9 pupils in 8-B working for 8-A and becoming 9-B.

1 pupil in 8-A and becoming 9-B.

During a period of 4 years there were 320 special promotions in this school. Thirty-one pupils made 2 special promotions in the 4 years, and 3 pupils made 3 special promotions. There were only 8 pupils who failed in the next regular promotion. Mr. Zirkle believes that this scheme has reduced the nervous strain on both the teachers and the pupils.*

Another means of selection the superior children is by the use of objective tests. During the past 10 years the market has been flooded with various kinds of individual and group intelligence tests. Some of these have been quite well standardized. In order to determine the value of intelligence tests in selecting gifted children and to learn which tests were of the greatest diagnostic value in location of gifted children, G. M. Whipple carried on an experiment in the Leal School of Urbana, Ill., during the year of 1916-1917. A class of 30 fifth and sixth grade pupils were selected by the principal and teachers to do two years'

* Zirkle, H. W. Character and Results of Special Rooms as Conducted in the Whittier School (Denver, Col.) El. Sch. J. 21: Nov. 1920, 189-197.

work in one. Three rooms containing 57 fifth grade and 62 sixth grade pupils formed a control group. The special fifth grade averaged two months younger in chronological age than the control group and the special sixth grade 4.6 months younger. The equipment and teacher of this class of gifted pupils were average. Previously each of these pupils had made one grade each year which is considered normal progress.

Fourteen individual tests and 71 group tests were given to the children in the gifted group and nearly as many to the control group. The attempt was made to give the same tests to all the children in both the groups, but the people who were directing the tests were somewhat hampered by various school regulations so that it was not always possible to do as they had planned to do.

At the close of the experiment a rigorous examination was given by the superintendent to the class of superior children. Nine children of the fifth grade and 8 children of the sixth grade passed this test in every subject. Of the twelve pupils who failed to be promoted six would have been rejected at the outset by the tests, and three were wrongly failed as can be abundantly proved by our numerous objective measures of their ability and their classroom performance.* In other regards the class had proved a success. There was a greater degree of regularity and punctuality of attendance. The health of the children was unimpaired. The school atmosphere was good so that there was little need for discipline and apparently egotism had not been developed.**

*Whipple, G. M. Classes for Gifted Children. Bloomington, Ill. 1919.

** Henry, Theodore S.

Nineteenth Yearbook of the National Society for the Study of Education. Part.2.

Those in charge of the experiment felt that segregating the gifted children had proved advantageous, not only to these individuals, but also to the school system. Whipple declared also that by means of tests he could discover in 17 hours what it took a teacher a year to discover. As a result of this experiment Mr. Whipple has made a battery of tests consisting of six tests bound in a twelve page pamphlet. He recommended the following group tests: Woody-McCall Mixed Fundamentals, 1, Trabue Language Scales B and C, Thurstone Punched Holes Test, Equivalent Proverbs, No.6, Whipple Marble Statue (deferred recall), and Steacy Drawing Construction, 41-100.

J. M. Alexander testifies further to the value of intelligence tests in determining the capabilities of children. Mr. Alexander reported in 1920 that he had been using the Binet tests in the schools of Hinsdale, Ill,. He learned by means of the test what should be expected of the various children and they were urged to attempt to attain the limit of their possibilities. He claimed that both teachers and pupils received more justice in this way, since the work could be suited to the capabilities of the pupil and since the principal would know by means of the tests nearly the kind of work a teacher might be expected to do with the children she had.*

The value of tests is pointed out in Holmes's citation from Stern, explaining Kerschensteiner's experiment with 50,000 Munich children. The discovery of much artistic talent among them

* Alexander, Jessie Martin. Binet-Simon Tests in Practical Use in the Public Schools of Hinsdale, Illinois. El. Sch.. J. 21: Oct. 1920, 146-148.

resulted in the creation of special opportunities for the specially gifted. Without tests these latent possibilities might have gone unheeded.*

Intelligence is not the only factor that determines the type of work that will be done by a child in school. Certain qualities that are part of the "will profile" are potent factors. In order to discover what qualitative characteristics a child may have ^{at} Dr. Downey has worked out tests for the "will profile". (These have been previously discussed.) According to Dr. Downey experiments show that tests of the "will profile" are of realdiagnostic value in selecting these pupils who will do superior work in school, when used in connection with intelligence tests.

Not all writers are agreed that the objective test method is the best one to use in selecting gifted children. In an article published in 1920 G. W. Willett made the statement that there were three methods of selecting gifted children. (1) teacher's judgments, (2) cumulative record of earlier progress and indicated interests, (3) intelligence tests and I.Q.'s, the cumulative record being the best** However, since tests have become common, they have been added to the data used in selecting pupils for the special classes in the Whittier School in Denver.*** Doubtless a combination of all these methods would prove best. A cumulative record of a child's school grades and attendance, his health, interests, scores in achievement tests, and in intelligence tests

*Holmes, W. H. Promotion Classes for Gifted Children. J. of Educ. 75:1912, 376-379.

** Willett, G. W. A Suggestion for Meeting Individual Differences. School Review, Oct. 1920, vol.28:576-584.

*** Zirkle, H. W. Character and Results of Special Rooms as Conducted in the Whittier School (Denver, Col.) El. Sch. J. 21: Nov. 1920, 189-197.

would be very helpful in determining his fitness to be placed in a special class for gifted children, as well as being of value for research work.*

No standard method of handling the gifted children has been worked out yet. Aley says that, in larger systems where the cost will permit it, gifted children should be thrown together under enthusiastic and intelligent teachers who have sympathy, understanding, patience and interest.** A number of the larger school systems are classifying children according to their ability. This plan keeps the gifted pupils with children of nearly their own ages as well as abilities. In the smaller systems where there are not enough of the superior children to do this, they have been promoted rapidly. Carey Boggess objects to both these plans, because, since there are comparatively few gifted children segregation would mean added cost and rapid promotion would place the gifted pupils with children older than themselves thus depriving them of association with other children of the same age. Moreover, he believes there is a decided advantage in maturity when the work of the more advanced grades is taken up.*** Some others hold this same view. However, the drift of opinion seems to be toward passing children who are capable thru the grades rapidly. Terman says that bright children should be promoted as rapidly as they can advance but they should be given proper medical supervision. In

* Bruce, H. A. New Ideas in Child Training. Am. Mag. 72: July, 1911. 286-294.

** Aley, R. J. Care of Exceptional Children in the Grades. Nat. Educ. Assn. (Addresses and Proc.) 1910: 881-886.

*** Boggess, Carey. Discussion of The Bright Pupil. Nat. Educ. Assn. (Addresses and Proc.) 1915:457-462.

fact he believes that there is more danger of overcrowding the subnormal children than the bright children.* Sakaki claims that there is "need for reform in the present system of class making, for this system renders it difficult to differentiate individual children and consequently those who stand most in need of judicious and expert handling are neither recognized as such nor likely to receive the training and education adapted to their special requirements.**

The experiments by Whipple,*** Downes,[†] and Zirkle,^{††} which have already been described, showed that the plan of segregating the gifted pupils was successful. Lee concludes as the result of the experiment previously described that children should be grouped according to their mental ability when they enter the high schools. He believes that it is useless to chain the "Newtons"^{†††} and the "Blind Toms" back with the average pupils.

It is admitted by practically all authorities that a type of work different from that which is given to average pupils is needed for the gifted pupils. The explanations need not be so complete for the gifted pupils. They see principles much more readily than do the average children, and are bored by superfluous explanations. Much less drill is necessary in teaching the gifted

* Terman, L. M. Mental Hygiene of Exceptional Children. Ped. Sem. 22:529-537 D. 1915.
 ** Sakaki, Y. Some Studies of So-Called Abnormally Intelligent Pupils. Psycholo. Clinic, 6:1912, 18-25.
 *** Whipple, G. M. Classes for Gifted Children. Bloomington, Ill. 1919.
 † Downes, F. E. Seven Years with Unusually Gifted Children. Psych. Clinic, 6:1912, 13-17.
 †† Zirkle, H. W. Character and Results of Special Rooms as Conducted in the Whittier School (Denver, Colo.) El. Sch. J. 21: Nov.1920, 189-197.
 ††† Lee, J. B. Breaking the Lockstep; An Experiment in Optimism. Educ. Review, 56: S, 1918, 149-157.

children. They seem to retain facts in their memories without much effort, and with little repetition. The habit of industry should be inculcated. As in all good teaching, interest should be made the dynamic force which aids the pupils to accomplish their work with the least expenditure of energy.*

A number of people have written in regard to training in the home, among these are Mrs. Stoner,** Bruce*** and Berle.† All these writers insist that it is a mistake to wait till a child is five or six years old before his "formal" education is begun. They say that the child can learn much more readily in its first four years of life, than in any other period of the same length. They believe in seizing this opportunity to teach the child to read, write and think. From an older brother Ervin Palda of Cedar Rapids, Iowa, learned his letters at 2 years of age and could spell and do sums at three years old. His parents were frightened so they removed his blocks and other materials. The boy forgot what he had learned and the parents report that he seemed to relearn it at school with more difficulty than he had had in learning it at first. He was graduated from high school when he was eighteen years of age with a good record but with no indication of unusual talent. Bruce uses this illustration to prove that it is wise to begin child training very early.*** The people just quoted also insist that the interest of the child must be maintained thru

* Henry, Theo. S. Nineteenth Yearbook of the National Society for the Study of Education. Part 2.
** Stoner, Mrs. Winifred S. Natural Education. Indianapolis, 1914. 255p.
*** Bruce, H. A. Psychology and Parenthood. New York, 1915. 290p.
† Berle, A. A. Teaching in the Home. New York, 1915. 354p.

objects and games, as much more can be accomplished if the child enjoys the studies. However, they believe in firmly insisting that work be done, since this is necessary until the child has found the joy in mastery.

A survey of the literature on gifted children is convincing evidence that the subject of gifted children forms one of the important educational problems of the day. It shows that while the exact proportion of gifted children in the general population is not known, yet it has been demonstrated that there are a sufficient number so that special attention should be given them as a group. The types of gifted children described are so different that they can not be successfully educated in the ordinary classes of the public schools. A number of precocious children and prodigies have been described and it has been shown that environment and training as well as heredity were very potent factors in their development. Qualitative differences of character which have been largely responsible for success and failure have been pointed out, showing that education should be differentiated for different children. It has been shown, likewise, that, in the majority of the public schools, gifted children have not been receiving as much attention as subnormal or defective children have, tho the gifted children will be the leaders in the communities in a short time, no doubt. A number of cities have grading plans by means of which gifted children may be accelerated. These plans do not solve the problem satisfactorily, however. Several experiments have proved that a great deal more can be accomplished by means of special classes for gifted children, in which the work may be suited to the child. It has been shown that there are tests of intelli-

gence and of the "will profile" by means of which gifted children may be selected quite accurately, especially when used in conjunction with the school records of the children, their physical condition and the judgments of their teachers. The dirth of a system of training gifted children has been pointed out, tho a few principles and the importance of early home training have been discovered.

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STATEMENT OF THE PROBLEM.

The purpose of this study is three fold, namely, (1) To show that there are children whose mentality is distinctly superior to that of their classmates in ordinary school groups, (2) To determine what the rate of progress of gifted children thru the schools may be, (a) when judged by the relation of grade age to chronological age, and (b) when judged by the relation of grade to mental age, and (3) To determine the achievement of gifted children as related to mentality when measured by (a) school grades and (b) standardized psychological and educational tests.

Numerous standardized group mental and educational tests are on the market. It is possible to determine readily by means of such mental tests the abilities of children in school with a fair degree of accuracy. No longer is it necessary to spend great lengths of time in examining pupils individually with painstaking care, for large numbers of pupils may be examined in less than an hour by means of ^{group} mental tests. It is then a comparatively easy task to determine the mentality of a group of children. Likewise by means of standard educational tests, the achievement of pupils in various subjects may be easily tested.

Psychological tests have disclosed wide ranges of individual differences. Not only do individuals differ widely but whole groups of individuals deviate from the norms. While some groups of pupils are inferior to the average children there are other groups that are distinctly superior to average groups of children. It is to discover these groups of superior individuals, and to determine their present conditions and capacities that this study is made.

STATEMENT OF SOURCES, METHODS AND MATERIALS.

Work for this study has been carried on in 4 schools, namely the Douglas School and Central High School in Minneapolis, Central High School and Mechanic Arts High School in St. Paul, Minnesota. In all of these schools classes for gifted children had been organized by the principals who kindly allowed their data to be used and permitted further experiments to be carried on.

Miss Ford, principal of the Douglas School, and Mr. Boardman, second principal of the Central High School, Minneapolis, have aided the writer in every way possible to collect the data desired. Mr. O. G. Johnson, psychologist in St. Paul, Mr. Myers, second principal of Central High School, and Miss Tschida, school visitor and assistant principal in Mechanic Arts High School, St. Paul, have put their data at the disposal of the writer, and aided her by permitting experimentation in the schools. The writer wishes to acknowledge these courtesies and to express her appreciation of them.

Douglas School.

Haggerty Intelligence Test, Delta 2.

In Douglas School, Minneapolis, there were 52 children in the sixth B grade. The principal, Miss Ford, had given them the Haggerty Intelligence Test, Delta 2, by means of which she had selected 15 pupils to compose a gifted class. One pupil was left in the average group whose score was higher than the scores of some of those who were selected, while another pupil might have received a place on a tie. The judgment of the principal and of the teachers entered into the selection of the two pupils who took

the places of the pupils just mentioned. Little attention was given to the chronological ages of the pupils in making this selection, which Miss Ford has since considered a mistake, tho as will be shown later not a very serious one. These 15 pupils have been placed in a room with 24 children of the sixth A grade. It has been Miss Ford's plan to have them advance as rapidly as possible. The remaining 37 pupils formed the control group.

National Intelligence Tests.

The intelligence rating was checked by means of the National Intelligence Tests which were given by the writer. The scores of the 48 pupils who took the National Intelligence Tests were compared with the scores in the Delta 2 Test. The scores in these tests were used for an intelligence rating.

Stanford Binet Test.

During February 14 pupils of the special group were given the Stanford Binet Tests, by Miss Righter, a member of the Psycho-Educational Clinic. Members of the Mental Diagnosis class tested 22 pupils in the control group during March. The IQ's were used to corroborate the results of the group tests, and the mental ages were used in connection with the grade age to determine the progress of the individuals.

Haggerty Reading Examination Sigma 3.

Achievement in reading in the 6th B grade in the Douglas School was tested by the Haggerty Reading Examination Sigma 3 which was given by the writer January 21, 1921. Five children of the control group were missing so that only 47 pupils took the tests. The results of this test have been checked against the mental ratings, and have also been compared with the norms.

Spelling Test.

A spelling test was given to both the gifted class and the control group on February 24, 1921, by the writer. The Virginia Survey Spelling List was used, a copy of which follows:

- | | | |
|-----------|----------------|----------------|
| 1. come | 8. always | 15. necessary |
| 2. was | 9. uncle | 16. experience |
| 3. foot | 10. beautiful | 17. athletic |
| 4. happy | 11. surprise | 18. convenient |
| 5. could | 12. vessel | 19. decision |
| 6. once | 13. century | 20. recommend |
| 7. pretty | 14. invitation | |

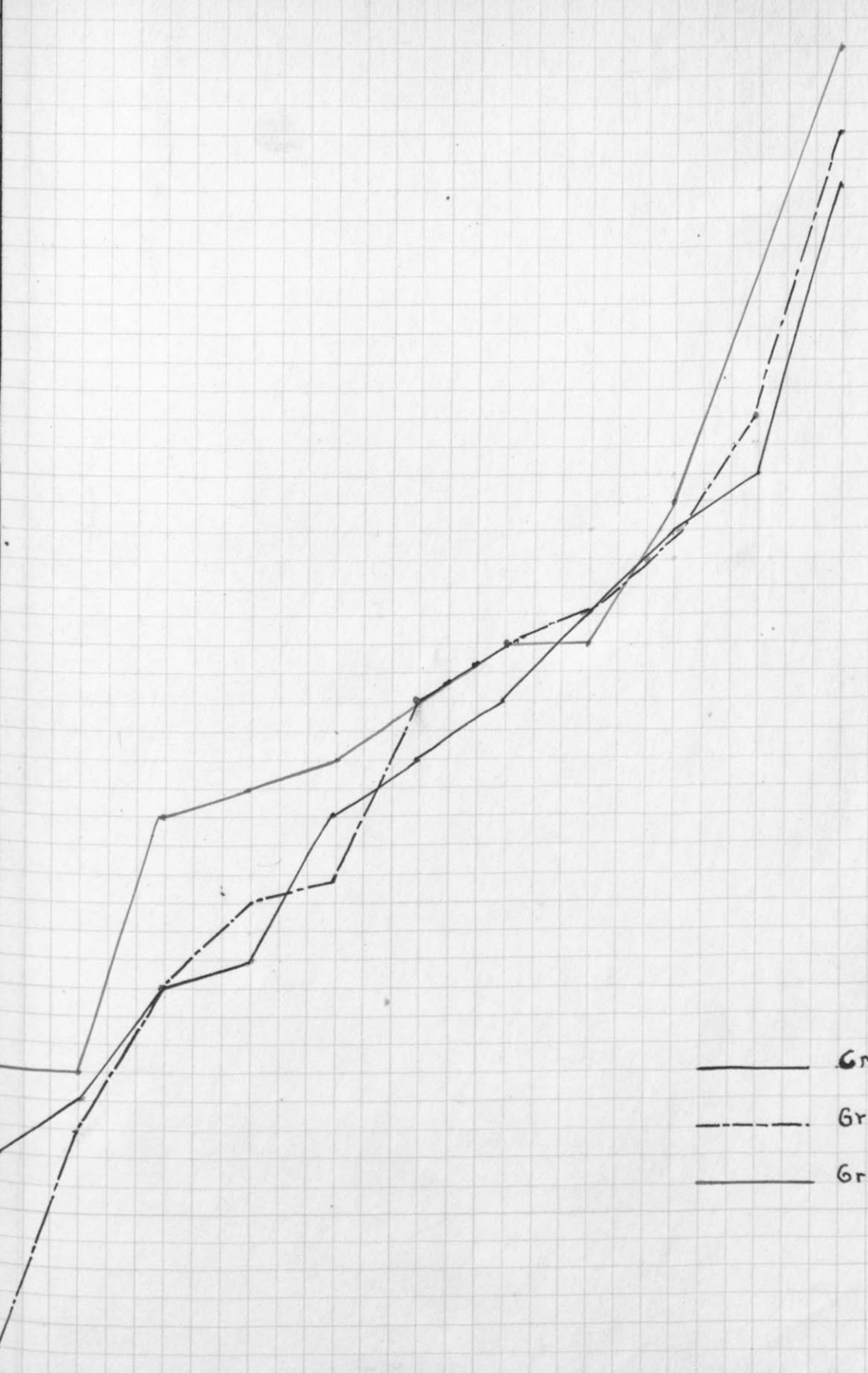
The scores in the spelling tests were checked against the intelligence ratings also.

Woody Addition and Multiplication, Form B.

On April 4, 1921 the Woody Addition and Multiplication Tests, Form B, were given by the writer to both the gifted class and control group in the sixth B grade of the Douglas School. The scores in this test were compared with the norms to determine the achievement in arithmetic, and the achievement was checked against the mental ratings.

A record of the grades of each child in each subject studied during the first two quarters of the year 1920-1921 was made; and the averages of each child was found, and checked against his mentality. These medians of the averages of the gifted group and the control group were compared to show the differences in the achievements of the two groups.

16 years
15 years
14 years
13 years
12 years
11 years
10 years
9 years
8 years
7 years
6 years
5 years
4 years
3 years
2 years
1 year
0 years



_____ Group A
 - - - - - Group B
 _____ Group C

FIGURE 4
Percentile Graph Showing Age Distribution in Groups A, B and C. The groups were selected by means of Delta 2 Intelligence Test. 110 Freshmen, Central High, Minneapolis, Minn.

Central High School, Minneapolis.

Haggerty Intelligence Test, Delta 2.

During the spring of 1920 the Haggerty Intelligence Test, Delta 2, was given supposedly to all eighth grade pupils in the Minneapolis public schools, (See Minneapolis School Bulletin in Appendix). The scores obtained were sent by the central office to the principals of high schools which the pupils were expected to attend. Because of the illness of several of the administrators at Central High School, these scores were not used in classifying those pupils who started school in the fall. A classification of pupils who entered Central High School the second quarter was made, however, in accordance with the intelligence rating. It was found that half of those who entered school the second quarter had not been given the test, so to this group also the Delta 2 was given. Mr. Boardman, Second Principal of Central High School, Minneapolis, reported that the scores of 243 freshmen ranged from 80 to 159. For administrative reasons he divided the group into thirds, as nearly as possible, by means of the tests. In group A he placed 81 children whose scores were from 128 to 159, and whose ages were from 12 years and 6 months to 16 years and 1 month. In group B there were 80 pupils with scores of 116-127, and ages of 12 years 1 month to 16 years 9 months. Group C had 82 children with scores of 80 to 116 and ages extending from 12 years 5 months to 17 years 3 months. Group A is supposed to be made up of the brighter children. Figure 4 shows the distribution of ages.

Terman Group Test of Mental Ability, Form B.

The Terman Group Test, Form B, was given by the writer as a check upon the classification made by the Delta 2. It would have

been preferable to have tested the entire class at one time, but due to a lack of sufficient test materials, it was necessary to divide the class, and to give the examination at two different times. On January 14, 1921, 82 pupils were tested, and on February 24, 111 pupils were tested, making a total of 183. The remaining 60 pupils had either withdrawn from school or were absent. Of these 183 pupils only 110 could be used in the final summary because of lack of other data. The scores in the Delta 2 and the Termen tests were compared. The sum of the scores in each test was then used for the intelligence rating. The North Carolina Reading Test, Sigma 3, (See Appendix), was given by the teachers of the English classes to 166 pupils for the purpose of testing achievement in reading. The scores in the reading test were compared with the scores made in the Delta 2 test and also with the combined intelligence scores.

The writer made a record of the grades obtained by each pupil in each subject studied during the second quarter of the year 1920-1921. Averages of the school grades were made and these were compared with the intelligence ratings.

A study of the ages of the various pupils as compared with their achievements as shown by their grade location, and as compared with their mentality was also made. The chronological age used was the age at the time of taking the North Carolina Reading Examination, Sigma 3.

Mechanic Arts High School, St. Paul

In the fall of 1920 two special classes were organized in Mechanic Arts High School in St. Paul. They were called the Alpha and Beta classes. The Alpha class was composed of the children who were superior to their fellows in abilities, while the Beta class was composed of those who were inferior and slower. The pupils were selected by Mr. O. J. Johnson, the educational psychologist, on the basis of the scores made in Haggerty Intelligence Test, Delta 2, and the Van Wagenen Association Test which were given the various eighth grades in St. Paul in the spring of 1920. Mr. Johnson had also collected data in regard to the ratings of the children made by their eighth grade teachers in regard to scholarship and industry. On the basis of these data Mr. Johnson had made the classification. There were about 25 pupils in each of these classes. Thus the two extremes of abilities were removed and the pupils who made up the other freshmen classes may be considered to be of average ability.

The attempt was made to keep these children together in their English and mathematics classes the second semester of the year 1920-1921. This was not always possible, however, due to administrative difficulties. In some cases it was necessary to allow a pupil from the gifted group to take work with an average class, while in other cases it was impossible for an average pupil to complete his program unless placed in the class with the gifted pupils. It was also true that some children who entered the school from outside the city were not given intelligence tests, yet were placed in the classes for gifted children regardless of this fact. Hence, the 26 children were found in the

Alpha class, there were only 19 of them who belonged to the selected group of Alphas, and for 1 of these there was no score in Delta 2, while in the control^{group} that was used for comparison there were only 17 out of 30 pupils that had records of intelligence tests.

Copies of scores made in the intelligence tests by each child, their ages at the time of taking the tests, the ratings in scholarship and industry by their teachers in the eighth grades were made, by permission of Mr. Johnson who kindly put his data at the disposal of the writer. A record of the grades received at the high school during the first semester was obtained thru the courtesy of the administrators of the school, Miss Tschida and Principal Lange.

In addition to the above data the Haggerty Reading Test, Sigma 3 (See appendix) was given by the writer to the Alpha class and to control group. As before mentioned there were 26 pupils in the Alpha class as it was constituted the second semester, and 30 pupils in the control group which was used for comparison. The tests were given at the regular class period on Feb. 4, 1921.

Central High School, St. Paul

In Central High School, St. Paul, Alpha and Beta classes were also organized by Mr. Johnson in the same manner as in the Mechanic Arts High School. There were three Alpha classes here, one class organized the second semester of the year 1919-1920, another class organized the first semester of 1920-1921, and third class formed the second semester of 1920-1921. This left as before a number of classes made up of so-called average children, those who were at neither extreme of ability. Similarly at the beginning of each new semester there was a tendency for the classes to break up tho an attempt was made to keep them intact. Studies were made of these Alpha classes and of control groups to correspond with each of the Alpha classes.

Following the same procedure used in the Mechanic Arts High School, scores in the Haggerty Intelligence Test, Delta 2, and the Van Wagenen Association tests were copied, together with the Eighth grade teachers' ratings in scholarship and industry. The records of achievements in High School were also obtained from the school records by permission of the principals, Mr. Marshall and Mr. Myer who courteously cooperated with the writer. The Haggerty Reading Test, Sigma 3, was given to the Alpha classes on February 18, 1921. A similar reading test, the North Carolina Reading Test, Sigma 3 (See Appendix) was given to three control groups on March 4, 1921.

First Semester Alpha Class.

The first semester Alpha class was composed of 23 pupils. There were two average classes tested to use as a control group. These classes contained 50 pupils, for 46 of whom information was

available in regard to scores in intelligence tests, with the ages at the time of taking the tests, and the ratings by the eighth grade teachers. It seemed best, however, to limit this study to those pupils for whom scores in the Haggerty Intelligence Test Delta 2 were available as this test has been well standardized and had been used in most of the schools. This plan reduced the number in the average class to 26 pupils, but no change was made in the number in the Alpha class.

Second Semester Alpha Class.

The second semester Alpha class was composed of 22 pupils for 15 of whom there were the complete records before mentioned. In the control group which was used for comparison there were 37 pupils who were given the North Carolina Reading Test, Sigma 3, but only 19 pupils were used in this study since records were complete for only 19 pupils.

Third Semester Alpha Class and Control Group.

The Haggerty Reading Test, Sigma 3, was given to 20 pupils in the third semester Alpha class. There were only 14 of these pupils for whom scores in the Haggerty Intelligence Test could be found. The North Carolina Reading Test Sigma 3 was given to 41 pupils in two classes for average children. There were scores in the Delta 2 Intelligence Test for only 20 of these children. Consequently the study has been limited to a comparatively small group of the first semester sophomores.

In each of these grades in the various schools, comparisons of the achievements and of the mental ratings have been made to discover the relationship between intelligence, as indicated by the tests, and achievement, as shown by the school

grades received and by the scores in standard educational tests. A study was also made of the relationship existing between the chronological ages of the pupils and their grade location, and of the mental ages and grade location.

STATEMENT OF THE RESULTS

The Douglas School, Minneapolis, Minn.

Haggerty Intelligence Examination, Delta 2.

Approximately complete data have been collected for 41 of the pupils in the sixth B grade in the Douglas School, Minneapolis. (4 pupils missed the Stanford Binet Test and 5 missed the Woody Arithmetic Test) Fifteen pupils selected on the basis of the Haggerty Intelligence Examination formed the gifted group and were placed in a room with about 25 pupils belonging in the sixth A grade. The remainder of the sixth B grade formed the control group.

The distribution of the scores of the gifted class and the control group in the Haggerty Intelligence Test, Delta 2, is shown in the following table:

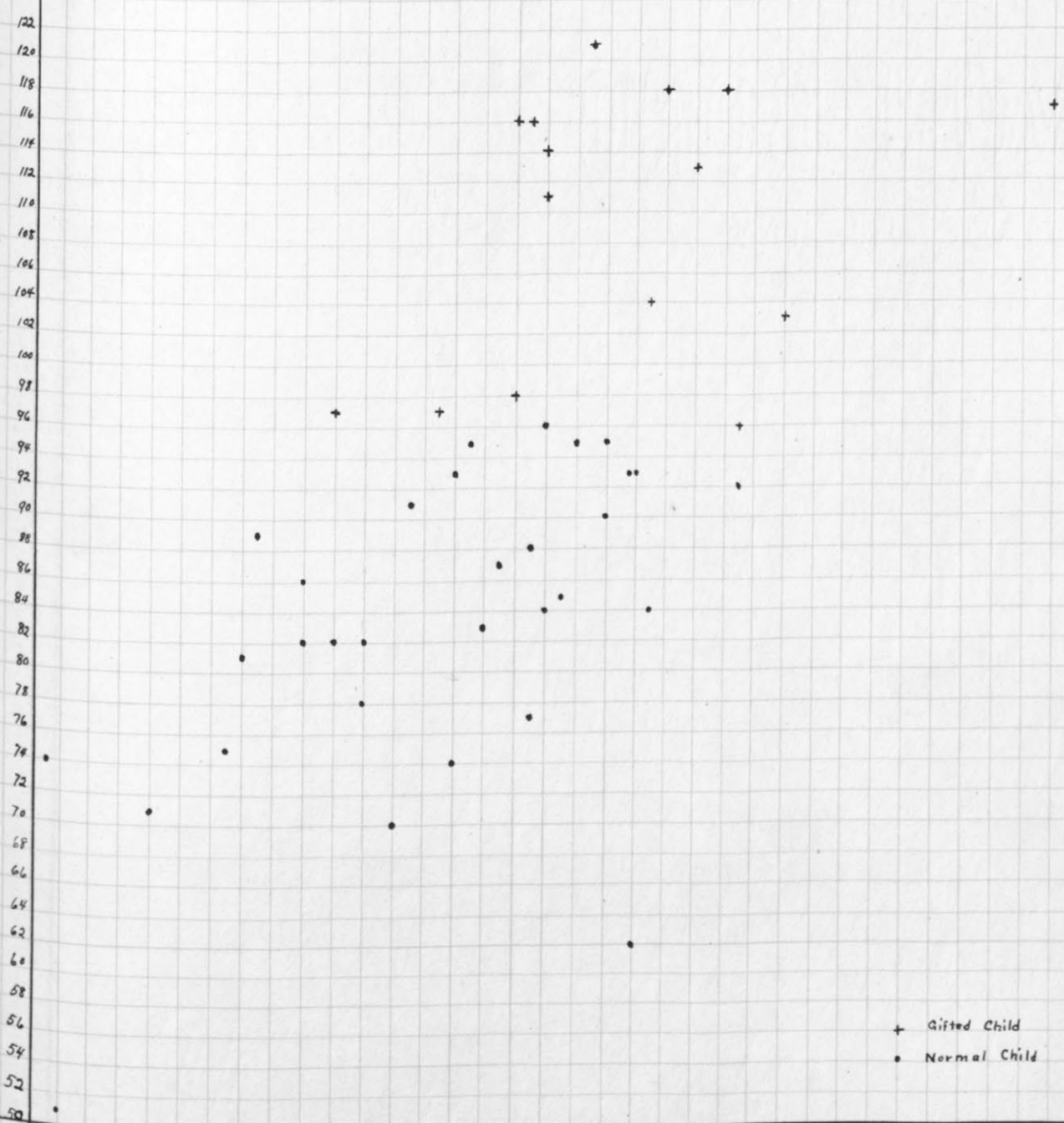
Table 1. Distribution of Scores in the Haggerty Intelligence Examination as Found in the Gifted and Control groups in grade 6 B in the Douglas School, Minneapolis, Minn.

Gifted Group Number	Score	Number	Control Score	Group Number	Score
1	121	1	100	2	82
2	118	1	96	1	78
1	117	4	95	1	77
2	116	2	93	2	74
1	114	1	91	1	71
1	113	1	90	1	70
1	111	1	89	1	54
1	104	1	88		
1	103	1	86		
1	98	1	85		
2	97	2	84		
1	96	1	83		

It will be observed that there are two pupils in the control group whose scores were as good as or better than, some of the scores of pupils who are in the superior group. This occurred due to the ages, and the previous scholastic records of the pupils. The child who received a score of 100 was 13 years and 1 month old as is shown in Table 2. The oldest pupil in the superior group was 12 years and 9 months old at the time of taking the Delta 2 Test. The child who received a score of 96 and who was not placed with the gifted group was 9 years and 9 months old. The school work of these two children was not sufficiently good to place them in the group of gifted children in preference to those who had similar scores.

The National Intelligence Test was given in order that there might be some check on the classification. (Table 2 shows the scores of each individual in the two groups, for each of the intelligence tests, together with the age at the time of taking the Haggerty Intelligence Examination, Delta 2.) Had the National Intelligence Test been used as a basis of classification alone there would have been considerable difference in the personnel of the group of gifted children. Six pupils of the upper group would have been replaced by individuals from the lower group, while a seventh pupil would have tied for a place. It is interesting to note that the child who had received 100 as a score in the Delta 2 (Case 21 Table 2) would not have been placed in the gifted group by this test, and that the one who had a score of 96 in the Delta 2 (Case 16 Table 2) would have tied for a place in this test as in the preceding test.

Haggerty
Delta 2



+ Gifted Child
• Normal Child

74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 Nat. Int. T

Fig. 1. Correlation Graph Showing the Relation of the Scores in Haggerty Intelligence Test, Delta 2 and the National Intelligence Test in Grade 6 B (52 cases) Douglas School, Minneapolis, Minn.

The coefficient of correlation between the Haggerty Intelligence Examination Delta 2 and the National Intelligence Test as found by the Pearson Product Moment Method is $.604 \pm .0669$, still it indicates that there is considerable relationship between these tests. This relationship is pictured in the correlation graph in Figure 1. On this figure the scores in the National Intelligence Test are represented by the ordinates and those of the Haggerty Delta 2 by the abscissas. Each dot or cross represents the scores of one child in both tests. Thus the cross in the upper right hand corner shows that one child received a score of 142 in the National Intelligence Test and 117 in the Haggerty Delta 2. The cross is used to represent the scores of those pupils who were placed in the superior group, and the dot for pupils in the control group. It is evident that the crosses are fairly well grouped in the upper right hand corner. There are a few which are placed nearly midway to the left. However the majority of crosses stand off by themselves. This would indicate that the classification is fairly good.

The sum of the scores obtained in the Haggerty Intelligence Examination, Delta 2, and in the National Intelligence Tests by each pupil was found to determine what readjustments would have been made had the combined scores of the two tests been used as a basis for determining which pupils should constitute the superior group. (Table 2) It was found that three pupils of this gifted group would have been displaced by children from the lower group. It will be noticed that the child before mentioned (Case 21) who had a score of 100 in the Delta 2 would not have been placed in the

Table 2. Scores for 41 pupils of grade six B, Douglas School, Minneapolis, Minnesota, in the Haggerty Intelligence Examination, Delta 2, the National Intelligence Test, Form B, and the two combined, together with the ages at the time of taking the Delta 2 Examination.

Group of Superior Children				
	Chron. Age Yr.Mo.	Haggerty Delta 2	National Intelligence Form B	Combined Delta 2 & Nat. Int.
1.	9-10	121	111	232
2.	11-6	118	116	234
3.	10-5	118	120	238
4.	10-11	117	142	259
5.	10-10	116	107	223
6.	10-3	116	106	222
7.	11-4	114	108	222
8.	11-9	113	118	231
9.	11-1	111	108	219
10.	12-9	104	115	219
11.	10-11	103	124	227
12.	11-6	98	106	204
13.	10-11	97	94	191
14.	11-11	97	101	198
15.	10-11	96	121	217
Group of Average Children				
16.	13-1	100	105	205
17.	9-9	96	108	204
18.	11-8	95	110	205
19.	11-1	95	89	184
20.	11-7	95	103	198
21.	12-6	95	112	207
22.	11-3	93	102	195
23.	10-11	93	114	207
24.	11-11	91	99	190
25.	11-2	90	112	202
26.	14-10	89	89	178
27.	11-7	88	107	195
28.	14-7	86	92	178
29.	11-4	85	109	194
30.	11-0	84	108	192
31.	11-2	84	115	199
32.	12-11	83	104	187
33.	11-6	82	96	178
34.	12-1	82	92	174
35.	12-5	78	96	174
36.	13-5	77	107	184
37.	11-11	74	75	149
38.	12-4	74	102	176
39.	13-7	71	82	153
40.	11-6	70	98	168
41.	11-4	54	95	149

gifted group, except on a tie, and neither would the one who had a score of 96 (Case 16.). A similar condition is found if each child is ranked in the two tests and the ranks combined as in Table 3. On the whole the classification made by using the Delta 2 Test is satisfactory, tho not perfect.

The grade norms for the Haggerty Intelligence Examination, Delta 2, are as follows:

Grade	3	4	5	6	7	8	9
Score	40	60	78	96	110	120	130

According to this the superior group are all save one better than the norm for their grade. One of them exceeds the norm for the eighth grade, while the median for the group 113 lies between the norms for the seventh and the eighth grades. The average group on the other hand has a median, 85, which lies between the norms for the fifth and sixth grades. The poorest score received, 54, is less than is expected of a good fourth grade child. The highest score, 100, is a little better than the norm for the sixth grade.

National Intelligence Tests.

The National Intelligence Tests have not been as well standardized as the Delta 2, and the norms quoted are tentative.

Norms for the National Intelligence Tests:

Grade	4	5	6	7	8
Score	74.4	90.7	107.2	116.0	131.3

It will be noted that one of the group of gifted children received a score which is far better than the norm for the eighth grade. Since norms have not been established for the ninth grade it is impossible to determine with accuracy the rank of the child who received a score of 142. It would probably

Table 3. Ranks of the Gifted Class and the Control Group in Douglas School in (1) Age at the Time of Taking the Haggerty Intelligence Test Delta 2, (2) Scores in Delta 2, (3) Scores in the National Intelligence Tests, (4) Combined Intelligence Rating, (5) Scores in the Haggerty Reading Examination Sigma 3, (6) Scores in the Spelling Test, (7) Combined Spelling and Reading Tests.

	Age	Delta 2	Nat. Int.	Comb. Int. Rtg.	Sigma. 3	Spig.	Com- bined
<u>GIFTED GROUP</u>							
1.	2	1	12	6 $\frac{1}{2}$	6	2 $\frac{1}{2}$	4 $\frac{1}{2}$
2.	21 $\frac{1}{2}$	2 $\frac{1}{2}$	6	4 $\frac{1}{2}$	17	2 $\frac{1}{2}$	9 $\frac{1}{2}$
3.	4	2 $\frac{1}{2}$	4	3 $\frac{1}{2}$	3	7	5
4.	8	4	1	2 $\frac{1}{2}$	5	7	6
5.	5	5 $\frac{1}{2}$	20	12 $\frac{1}{2}$	8 $\frac{1}{2}$	7	7 $\frac{1}{2}$
6.	3	5 $\frac{1}{2}$	22 $\frac{1}{2}$	14	2	15 $\frac{1}{2}$	8 $\frac{1}{2}$
7.	18	7	16 $\frac{1}{2}$	11 $\frac{3}{4}$	18 $\frac{1}{2}$	12	15 $\frac{1}{2}$
8.	27	8	5	6 $\frac{1}{2}$	31	15 $\frac{1}{2}$	18 $\frac{1}{2}$
9.	12 $\frac{1}{2}$	9	16 $\frac{1}{2}$	12 $\frac{1}{2}$	4	7	5 $\frac{1}{2}$
10.	35	10	7 $\frac{1}{2}$	8 $\frac{1}{2}$	16	2 $\frac{1}{2}$	9 $\frac{1}{2}$
11.	8	11	2	6 $\frac{1}{2}$	1	2 $\frac{1}{2}$	1 $\frac{1}{2}$
12.	21 $\frac{1}{2}$	13	22 $\frac{1}{2}$	17 $\frac{1}{2}$	18 $\frac{1}{2}$	20	19 $\frac{1}{2}$
13.	8	14 $\frac{1}{2}$	35	24	15	33	24
14.	29	14 $\frac{1}{2}$	29	21 $\frac{1}{2}$	27 $\frac{1}{2}$	20	23 $\frac{3}{4}$
15.	8	16 $\frac{1}{2}$	3	9 $\frac{1}{2}$	10	12	11
<u>CONTROL GROUP</u>							
16.	37	12	24	18	25	41	33
17.	1	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$	38	12	25
18.	26	19 $\frac{1}{2}$	13	16 $\frac{1}{2}$	8 $\frac{1}{2}$	20	14 $\frac{1}{2}$
19.	12 $\frac{1}{2}$	19 $\frac{1}{2}$	38 $\frac{1}{2}$	26	36 $\frac{1}{2}$	20	28 $\frac{1}{2}$
20.	24 $\frac{1}{2}$	19 $\frac{1}{2}$	26	22 $\frac{1}{2}$	26	20	23
21.	34	19 $\frac{1}{2}$	10 $\frac{1}{2}$	15	33 $\frac{1}{2}$	33	33 $\frac{1}{2}$
22.	16	22 $\frac{1}{2}$	27 $\frac{1}{2}$	25	11	12	11 $\frac{1}{2}$
23.	8	22 $\frac{1}{2}$	9	15 $\frac{3}{4}$	23	27	25
24.	29	24	30	27	27	27	27
25.	14 $\frac{1}{2}$	25	10 $\frac{1}{2}$	17 $\frac{3}{4}$	20	12	16
26.	41	26	38 $\frac{1}{2}$	32 $\frac{1}{2}$	33 $\frac{1}{2}$	33	33 $\frac{1}{2}$
27.	24 $\frac{1}{2}$	27	20	23 $\frac{1}{2}$	12 $\frac{1}{2}$	27	19 $\frac{1}{2}$
28.	40	28	36 $\frac{1}{2}$	32 $\frac{1}{2}$	41	38	39 $\frac{1}{2}$
29.	18	29	14	21 $\frac{1}{2}$	35	36 $\frac{1}{2}$	35 $\frac{1}{2}$
30.	11	30 $\frac{1}{2}$	16 $\frac{1}{2}$	23 $\frac{1}{2}$	14	27	20 $\frac{1}{2}$
31.	14 $\frac{1}{2}$	30 $\frac{1}{2}$	7 $\frac{1}{2}$	19	29 $\frac{1}{2}$	7	18 $\frac{1}{2}$
32.	36	32	25	28 $\frac{1}{2}$	21	27	24
33.	21 $\frac{1}{2}$	33	32 $\frac{1}{2}$	32 $\frac{1}{2}$	39 $\frac{1}{2}$	39 $\frac{1}{2}$	39 $\frac{1}{2}$
34.	31	34	36 $\frac{1}{2}$	35 $\frac{1}{2}$	29 $\frac{1}{2}$	27	28 $\frac{1}{2}$
35.	33	35	32 $\frac{1}{2}$	33 $\frac{1}{2}$	12 $\frac{1}{2}$	20	16 $\frac{1}{2}$
36.	38	36	20	28	7	27	17
37.	29	37 $\frac{1}{2}$	41	39 $\frac{1}{2}$	39 $\frac{1}{2}$	39 $\frac{1}{2}$	39 $\frac{1}{2}$
38.	32	37 $\frac{1}{2}$	27 $\frac{1}{2}$	32 $\frac{1}{2}$	24	33	28 $\frac{1}{2}$
39.	39	39	40	38 $\frac{1}{2}$	36 $\frac{1}{2}$	36 $\frac{1}{2}$	36 $\frac{1}{2}$
40.	21 $\frac{1}{2}$	40	31	35 $\frac{1}{2}$	27 $\frac{1}{2}$	33	30 $\frac{1}{2}$
41.	18	41	34	37 $\frac{1}{2}$	32	20	26

approximate the norm for the ninth grade, however. The child in the ^{gifted} group who received only 94 for his score falls nearer the norm for the fifth grade than that for the sixth grade. The median for the group, 111, lies about midway between the norms for the sixth and seventh grades .

The median for the average group is 103. This lacks four points of reaching the norm for the sixth grade. The lowest score, 75, approximates the norm for the fourth grade, while the highest, 115, is nearly equivalent to that of the seventh.

It is evident that, judged by either test, the class of gifted children is distinctly superior to the class of average pupils. However, there is an overlapping of the two classes. In each group there are individuals who fall considerably below the median for the class, and others who exceed the median a great deal.

In order to give the individuals the benefits of both tests, the norms for the two tests have been combined and the result follows:

Grades	4	5	6	7	8
Scores	134.4	168.7	203.2	226.	251.3

By this combination there are still two of the gifted group the sum of whose scores fail to reach the norm for the sixth grade. while one pupil has a combined score which is superior to that of the eighth grade, (Table 2). The median, 222, does not quite equal that for the seventh grade.

In the group of average children the range is from 149 to 207, (Table 2). This means that the best pupil has a score that just surpasses that for the sixth grade while the poorest has a score which lies between the norms for the fifth and sixth grades.

Haggerty Reading Test, Sigma 3.

The Haggerty Reading Test, Sigma 3, was given by the writer to the complete 6th B grade on Jan. 21, 1921. The distribution of the scores in the two groups is shown in the following table:

Table 4. Distribution of the Scores of 41 Pupils of the 6th B Grade in the Douglas School, Minneapolis, in the Haggerty Reading Test, Sigma 3. Jan. 21, 1921.

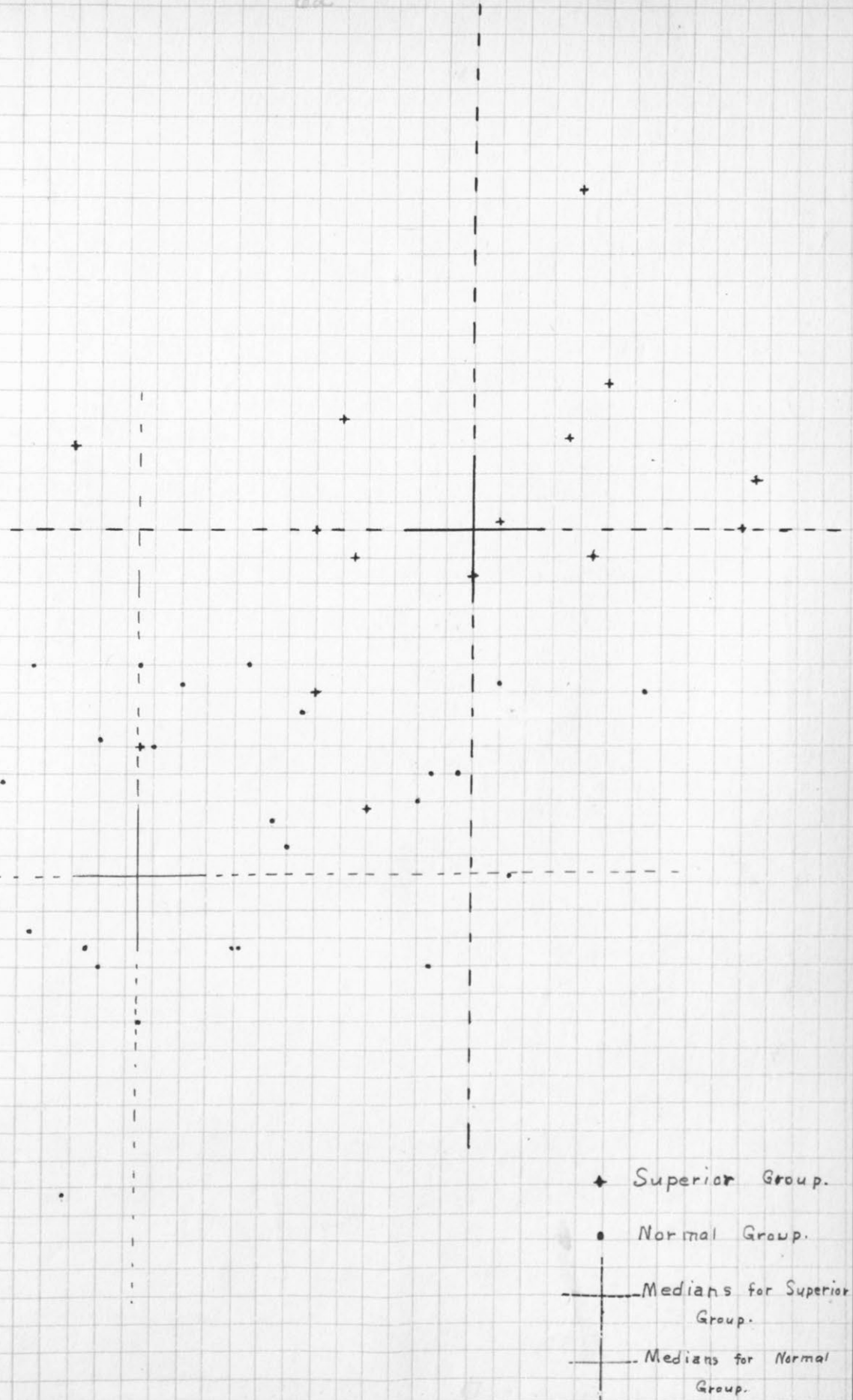
Gifted Group		Control Group			
Number	Score	Number	Score	Number	Score
1	97	1	79	1	45
1	96	1	78	2	43
1	86	1	75	1	41
1	85	2	73	2	40
1	84	1	72	1	39
1	83	1	63	2	38
1	78	1	62	1	34
1	76	1	61		
1	68	1	59		
1	67	1	58		
1	66	1	54		
2	64	1	52		
1	51	1	51		
1	46	2	48		

The norms for the Haggerty Reading Test Sigma 3 are as follows:

Grade	5	6	7	8	9	10	11	12
Score	31	50	68	76	84	90	96	102

Combined Intellig.
qance Scores.

261
258
255
252
249
246
243
240
237
234
231
228
225
222
219
216
213
210
207
204
201
198
195
192
189
186
183
180
177
174
171
168
165
162
159
156
153
150
147
144
141
138
135
132
129
126



+ Superior Group.
 • Normal Group.
 — Medians for Superior Group.
 — Medians for Normal Group.

Sigma 3 = 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98
 Figure 2 Graph Showing Relative Scores in [Delta 2 + National Intelligence] and Sigma 3 Reading Test
 Grade 6 B Douglas School, Minneapolis, Minn. 49 cases.

It is evident that 2 pupils in the gifted group have scores as high as the norm for juniors in high school. The median for this group, 77, is the norm for the eighth grade. There is only 1 of these children whose score falls below the norm for the sixth grade. This is only 4 points below, or about a fifth of the distance between the norms for the fifth and the sixth grades. These scores are comparatively higher than were those in the intelligence tests.

In the class of average children the scores range from 34, 3 points higher than the fifth grade norm, to 79, three points higher than the eighth grade norm. The median for the group, 52, is 2 points above the norm for the sixth grade. Again the scores in the reading test are higher in comparison than the scores in intelligence.

A record of the achievement of each child in the reading test will be found in Table 5.

The relationship between the intelligence, as shown by the combined scores in the Haggarty Intelligence Examination, Delta 2, and the National Intelligence Tests and the achievement in reading as shown by the scores in the Sigma 3 Reading Test is shown in the correlation graph in Figure 2. The scores in the reading test are arranged along the X axis, and those in intelligence along the Y axis. The crosses represent the pupils in the class for the gifted. The medians for the two groups show the wide difference between achievements of the gifted and control groups. It will be observed that 3 of the dots are found to the right of the median in reading for the superior group showing that 3 of the control

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 Table 5. Records of 41 pupils in Grade Six B, Douglas School, Minneapolis, Minn., Showing Scores in (1) Haggerty Reading Examination, Sigma 3, (2) Spelling, (3) Arithmetic, and (4) Grade Averages; also (5) the Chronological Age, (6) the Mental Age, and (7) the I. Q.

Case	Sigma 3	Spell- ing	Arith- metic	Grade Average	Chrono- logical Age Yr.Mo.	Binet Mental Age Yr.Mo.	I. Q.
<u>GIFTED GROUP</u>							
1.	83	95	33	89	10- 0	14- 4.5	1.44
2.	66	95	35	86	11- 8	14- 7.5	1.25
3.	78	90	30	89	11- 0	16- 0	1.45
4.	86	90	34	93	10- 7	14- 9	1.40
5.	84	90	28	87	11- 2	16- 1.5	1.44
6.	96	80	30	88	11- 5	16- 4.5	1.43
7.	64	85	28	89	11- 6	14- 9	1.28
8.	46	80	30	91	11-11	14- 3	1.20
9.	85	90	27	85	11- 4	15- 5	1.33
10.	67	95	35	86	13- 1	14- 8	1.12
11.	97	95	--	86	11- 2	14- 7.5	1.31
12.	64	75	30	88	11- 8	13- 6.5	1.16
13.	68	60	31	88	11- 0	14- 7.5	1.32
14.	51	75	26	83	12- 2	15- 3	1.25
15.	76	85	31	84	11- 2	14-10.5	1.33
<u>CONTROL GROUP</u>							
16.	39	85	27	84	10- 2	12- 8	1.25
17.	78	75		93			
18.	40	75	29	77			
19.	52	75	27	85	11-10	15- 0	1.27
20.	43	60	29	88	12-10	13- 1	1.02
21.	54	35	25	88	13- 5	13-10	1.03
22.	75	85	27	86	11- 7	14- 8	1.27
24.	59	70	26	92	11- 3	14- 6	1.29
26.	61	70	19	78	12- 3	13- 8	1.12
27.	63	85	30	91	11- 7	12- 5	1.07
28.	43	60	28	92	13- 2	13-11	1.06
29.	73	70	28	92	12- 1	14- 3	1.19
31.	34	50	23	86	15- 0	12-10	.86
32.	41	55	29	87	11- 8	12- 5	1.06
33.	72	70	--	91			
34.	48	90	34	88	11- 6	13- 7	1.18
35.	62	70	16	88	13- 3	13- 0	.98
36.	38	45	28	80	11-11	11- 5	.96
38.	48	70	--	78			
40.	73	75	30	87	12-10	12-11	1.01
41.	79	70	21	80	13- 9.5	12- 9	.93
45.	38	45	--	73	12- 3.5	11- 3	.92
46.	58	60	29	84	12- 7	11- 3	.89
47.	40	55	29	74	13-11	11- 9	.84
48.	51	60	29	91	11-11	13- 4	1.12
51.	45	75	26	82	11- 7	10- 2	.88

group read as well as the median for the gifted group. Two crosses are found to the left of the median in reading for the average group showing that 2 pupils in the gifted group did not read as well as the median for the control group, and several more crosses lie between the medians for the two groups.

The correlation of the Sigma 3 test with the Haggerty Delta 2 test was .518 ± .0777, with the National Intelligence Test, .565 ± .0716, and with the Combined Intelligence Scores it was .628 ± .0636, found by the Pearson Product Moment Method. These correlations are not so very high, yet high enough to indicate the existence of real relationship.

The reading examination shows that in general the achievement is what could be expected when considering the mentality. In fact, the median for the gifted group in reading exceeds the eighth grade norm while the median for the combined intelligence did not reach the seventh grade norm. The same thing is true of the control group but not in so marked a degree. Evidently these pupils have been taught reading unusually well.

Spelling Test.

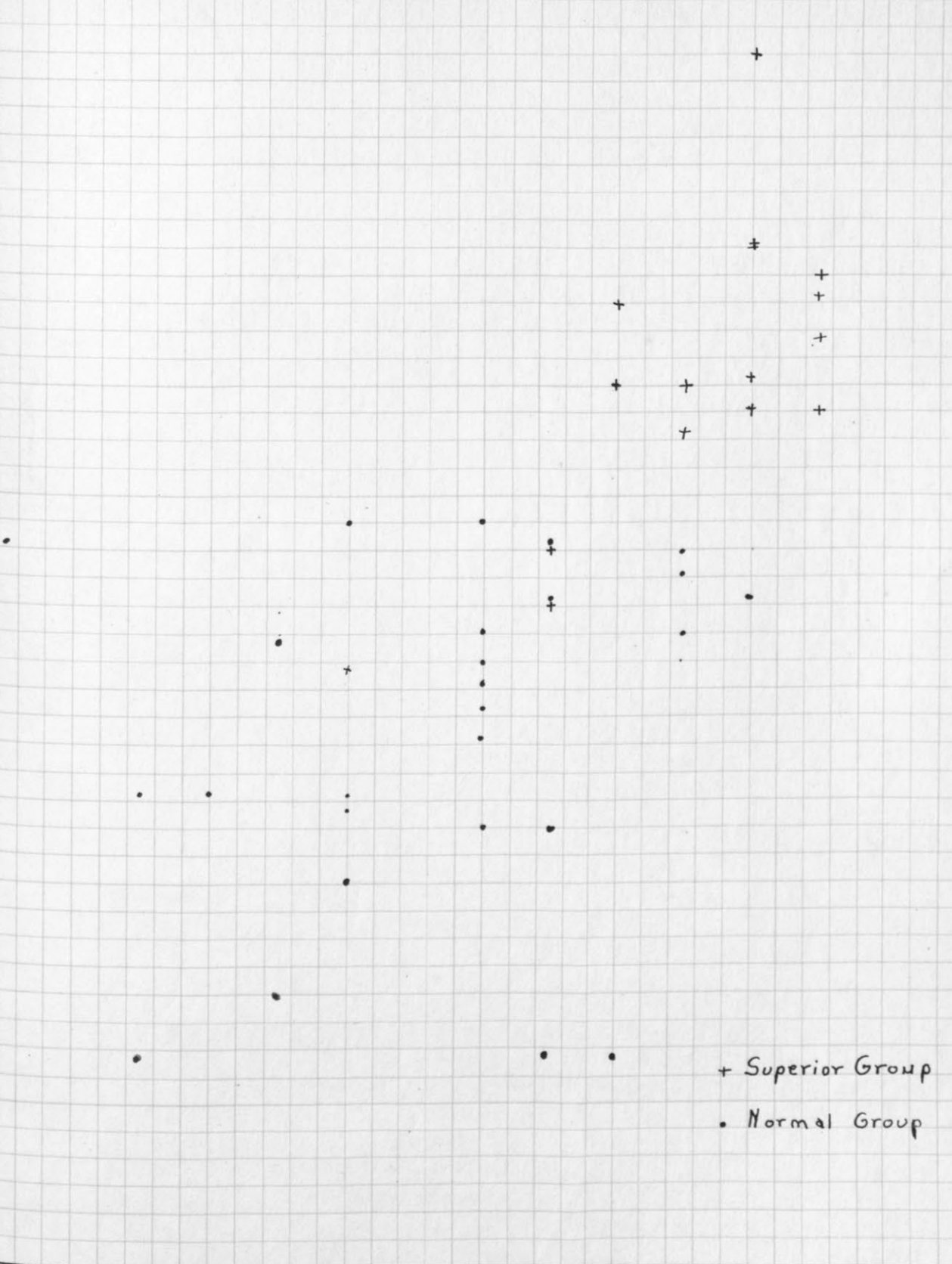
On February 24, 1921, the spelling test, which has been described previously, was given to both groups. The distribution of scores is contained in the following table:

Table 6. Distribution of Scores of 41 Pupils of the Sixth B Grade in the Douglas School, Minneapolis, in the Spelling Test.

Gifted Group		Average Group		Control Group	
Number	Score	Number	Score	Number	Score
4	95	1	90	1	50
4	90	3	85	2	45
2	85	5	75	1	35
2	80	7	70		

Combined Intelligence Scores.

261
258
255
252
249
246
243
240
237
234
231
228
225
222
219
216
213
210
207
204
201
198
195
192
189
186
183
180
177
174
171
168
165
162
159
156
153
150
147
144
141
138
135
132
129
126



+ Superior Group
• Normal Group

Spelling = 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100

Fig. 3 Graph Showing Relative Scores in [Delta 2 + National Intelligence] Tests and Spelling. Grade 6B. Douglas School, Minneapolis, Minn. 42658

Table 6. (Continued).

Gifted Group		Average Group		Control Group	
Number	Score	Number	Score	Number	Score
2	75	4	60		
1	60	2	55		

Only one child in the average group received a score which was as high as the median for the gifted group. On the other hand, only one child in the group for the gifted children received a score as low, or lower than, the median for the control group. The range in either case is quite wide. In the class for gifted children the scores run from 60 to 95, while in the control group the range is from 35 to 90. Most of the superior group centered near the upper end of the scale. This is shown by the correlation graph Figure 3. In this the combined scores in the intelligence tests are arranged on the ordinates and the scores in the spelling along the abscissas. Each dot represents the scores of one child in the combined intelligence tests and in spelling. The cross is used to indicate the children in the gifted group and the dot indicates average children. It will be noticed that 12 of the crosses stand off by themselves in the upper right hand corner of the graph. These represent the children who had the unquestionable right to a place in the superior group. None of these pupils had a low score in the spelling test. The remaining 3 pupils from the group for gifted children had lower scores in the intelligence tests and they are the pupils who had the lowest scores in the group in spelling. There is one striking example of a pupil who has a comparatively high score in the intelligence tests but who can not

spell. This is shown by the dot located midway up the graph and at the extreme left.

Apparently there is a relationship between intelligence and ability to spell. Correlations found by the Pearson Product Moment Method, are presented below:

	Haggerty Delta 2	National Intelligence	Delta 2 and Nat.Int.
Spelling	.563	.955	.680
P. E.	.0324	.0927	.0565

In achievement in reading the pupils who have the high mentality were decidedly superior to the control group. Norms for the spelling test were not at hand, hence it was impossible to determine the degree of superiority of these pupils.

Woody Addition and Multiplication Test.

The Woody Arithmetic Tests in Addition and Multiplication, Series B, were given to the children who had composed the grade six B. By this time the new term had begun and the majority of the class were classified as six A's. Five of the children had either moved to another part of the country or were ill so the records show tests for only 36 pupils, of whom 14 belonged to the group of gifted pupils.

The distribution of scores is shown in Table 7. The scores of the gifted pupils ranged from 26 to 35, when the scores in addition and in multiplication were combined. The norms are as follows:

Grade	5	6	7	8
Norm	25	31	35	36.5

Table 7. Distribution of the Scores in the Woody Arithmetic Tests in Multiplication and Addition, Series B, for 36 pupils of the Sixth Grade in the Douglas School in Minneapolis, Minn., April 4, 1921, Grouped in the Classes for Gifted and for Average Pupils.

Gifted Pupils		Control Group	
Number	Score	Number	Score
2	35	1	34
1	34	2	30
1	33	6	29
2	31	3	28
4	30	3	27
2	28	2	26
1	27	1	25
1	26	1	23
		1	21
		1	19
		1	16

Table 8. Distribution of the Averages of the Grades in the Subjects Studied in School during the Second Quarter of the Year 1920-1921 for 41 Pupils of Grade Six B in Douglas School, Minneapolis, Minn. (The subjects studied were reading, spelling, language, arithmetic, geography, history, writing, and music).

Gifted Group		Control Group	
Number	Grade	Number	Grade
1	93	1	93
1	91	3	92
3	89	3	91
3	88	4	88
1	87	2	87
3	86	2	86
1	85	2	84
1	84	1	82
1	83	2	80
		2	78
		1	77
		1	74
		1	73

It is evident that the scores of the group extended practically from the fifth grade norm to the seventh grade norm. The scores of the average group were somewhat similar. They extended from 16, a considerably lower mark, to 34. The medians of the two groups, 30 and 28 respectively, do not differ very widely. The medians for both groups are a trifle below the norm for the sixth grade.

The Pearson Coefficient of correlation of the Woody Arithmetic scores with the Haggerty Delta 2 Test was $.268 \pm .1043$, and with the National Intelligence Tests it was $.309 \pm .1016$. Apparently there is practically no relationship between the tests in arithmetic and those in intelligence.

In Arithmetic neither of the groups had medians equal to the norms for the sixth grade. For its mentality the gifted group is lower than the control group, there being only 2 points difference in the medians of the gifted and control groups. It is evident that the achievement in arithmetic of the superior children is much lower than it should be considering the mentality of these children.

The records of school work in the elementary grades of Minneapolis are given in the letters A, B, and C. F is used for failure. The numerical values are : A, 90-100; B, 80-89; C 70-79. The plus and minus signs are used to give a little more definite meaning to the letters. The schools have not attached a numerical value to these signs, but in order to deal statistically with the grades that the children have received during the second quarter it was necessary to have numbers and the following values have been arbitrarily assigned:

A plus...98	B plus...88	C plus...78	F.....65
A.....95	B.....85	C.....75	
A minus..92	B minus..82	C minus..72	

Averages of the grades of each child in reading, spelling, language, arithmetic, geography, history, writing, and music have been made. Two grades are given during each quarter for each subject, hence there were sixteen marks for each child. The achievement for each child in his school subjects is found in Table 5. The distribution of averages is shown in Table 8.

It will be noted that there is one child in the group of average children whose average, 93, is as high as that of any child in the superior group. There are eleven pupils in the group of average children whose average grades are as good or better than the median for the gifted group. There are 8 in the average group who have grades less than that of any member of the group of gifted children. It is evident that there is a wider range in the grades of the control group than in the grades of the gifted group. The control group is the larger group, however, and that doubtless has some effect. The median for the group of gifted children is 88, one point higher than that of the other group. The striking thing about these averages is that the first fifteen or even eighteen of the average pupils have a higher average standing than do the gifted pupils. It would appear then, that the gifted pupils, if judged by school grades, do not achieve as much in school as they ought.

The progress of children thru the grades may be judged somewhat by a comparison of the chronological age with the grade age. For this purpose twelve years has been used as the normal

Table 9. A Summary of Chronological Ages, Mental Ages, I.Q.'s (by Stanford Revision of the Binet Tests), Number of Years of Retardation or Acceleration as determined by the Mental Age Minus the Grade Age (12 years at March), the Pedagogical Quotient (the grade age divided by the chronological age), and the Grade Quotient (the grade age divided by mental age), of thirty six cases in Grade Six B in the Douglass School, Minneapolis, Minn.

Yr.	Mo.	Chrono-logical Age	Mental Age	I. Q.	M.A. Minus G.A.		P.Q.	G.Q.	
					Yr.	Mo.			
<u>Gifted Group</u>									
1.	10-	0	14-	4.5	1.44	-2-	4.5	1.20	.83
2.	11-	8	14-	7.5	1.25	-2-	7.5	1.03	.82
3.	11-	0	16-	0	1.45	-4-	0	1.09	.75
4.	10-	7	14-	9	1.40	-2-	9	1.13	.81
5.	11-	2	16-	1.5	1.44	-4-	1.5	1.07	.74
6.	11-	5	16-	4.5	1.43	-4-	4.5	1.05	.73
7.	11-	6	14-	9	1.28	-2-	9	1.04	.81
8.	11-	11	14-	3	1.20	-2-	3	1.01	.84
9.	11-	4	15-	5	1.33	-3-	5	1.06	.78
10.	13-	1	14-	8	1.12	-2-	8	.92	.76
11.	11-	2	14-	7.5	1.31	-2-	7.5	1.07	.82
12.	11-	8	13-	6.5	1.16	-1-	6.5	1.03	.89
13.	11-	0	14-	7.5	1.32	-2-	7.5	1.09	.82
14.	12-	2	15-	3	1.25	-3-	3	.99	.79
15.	11-	2	14-	10.5	1.33	-2-	10.5	1.07	.85
16.									
<u>Control Group</u>									
16.	10-	2	12-	8	1.25	-0-	8	1.18	.95
17.	11-	10	15-	0	1.25	-3-	0	1.03	.80
18.	12-	10	13-	1	1.02	-1-	1	.94	.92
19.	13-	5	13-	10	1.03	-1-	10	.89	.87
20.	11-	7	14-	8	1.27	-2-	8	1.04	.84
21.	11-	3	14-	6	1.29	-2-	6	1.07	.84
22.	12-	3	13-	8	1.12	-1-	8	.98	.81
23.	11-	7	12-	5	1.07	-0-	5	1.04	.97
24.	13-	2	13-	11	1.06	-1-	11	.91	.86
25.	11-	9	13-	10	1.18	-2-	3	.99	.84
26.	15-	0	12-	10	.86	-0-	10	.80	.94
27.	11-	8	12-	5	1.06	-0-	5	1.03	.97
28.	11-	6	13-	7	1.18	-1-	7	1.04	.88
29.	13-	3	13-	0	.98	-1-	0	.91	.92
30.	11-	11	11-	5	.96	-0-	7	1.01	1.05
31.	12-	10	12-	11	1.01	-0-	11	.94	.93
32.	13-	9.5	12-	9	.93	-0-	9	.87	.94
33.	12-	10	12-	11	1.01	-0-	9	.98	1.07
34.	12-	7	11-	3	.89	-0-	9	.97	1.07
35.	13-	11	11-	9	.84	-0-	3	.86	1.02
36.	11-	11	13-	4	1.12	-1-	4	.95	.90
37.	11-	7	10-	2	.88	1-	10	1.04	1.18

age of a child in the sixth grade in the month of March. This is the age used by Dr. Kuhlmann in working up his clinical results. The chronological age used was the age of the child at the time the Binet Tests were given since these were given in March and April. By dividing the grade age by the chronological age an index of the progress of a child may be obtained. If his rate has been normal the result will be 1. If he has not progressed at the normal rate the quotient will be a decimal of this amount and if on the other hand he has progressed at a rate that is more rapid than is ordinary the result will be one and a decimal. We may call this index the pedagogical quotient or the P. Q.

The P. Q. of each child appears on Table 9. (As only 37 of these children were given the Standard Binet Test, P. Q.'s for only this number are shown). The median for the entire sixth grade, 1.03, shows a slight tendency to accelerate the progress of the children thru the grades, but this method does not take into account the mentality of the pupils, however. It is possible that, the children spend only the usual year in each grade, they are not progressing as rapidly as their mentality might warrant. To determine whether or not this might be the case a study of the relationship between the mental age and the grade age has been made. The amount of acceleration or retardation as related to mentality was found in years and months by subtracting the grade age from the mental age. (Table 9). The positive quantities indicate the amount of acceleration and the negative ones the retardation. It will be observed that there are only 5 items that are positive out of 37, and only 1 of these show an acceleration of a year or over. The average for the whole class shows a retardation of 1 year 9.1

months. The greatest amount of acceleration for any one child is 1 year and 10 months, while the greatest amount of retardation is 4 years and 4.5 months. It is evident that as a whole the class is retarded considerably if the mental ability is taken into consideration.

The same thing may be shown somewhat more clearly by finding an index by dividing the grade age by the mental age. Normal progress would be represented by 1 as in the P. Q. This index has been termed the grade quotient by Dr. Kuhlmann. The grade quotient for each child, (Table 9), shows that all children of the gifted group have progressed at less than .90 of the rate that their mentality would warrant, while there are also 8 of the average group who have progressed at less than .90 of that rate. The average of the G. Q.'s for the control group is .925, and for the gifted group the average of the G. Q.'s is .803. Then, for the control group the rate of progress is .925 of that which it should be for children of their mentality, while for the gifted group it is only .803 of the amount it should be, though there are in the class some pupils whose mentality is not so very superior.

The Stanford Binet I. Q.'s of each child are shown in Table 9. It is interesting to note that 16 of the pupils would be placed in the group ranked as Superior by the Kuhlmann classification * if these I. Q.'s were used. Of the remaining 21 pupils, 4 children are Very Bright, 6 children are Bright, 6 children are Average, 4 children are Dull and one child is a Borderline Case. In the group that was selected for special class by the Delta 2 Test all but 3 pupils were ranked as Superior by the Binet Test. Two of the others

*Kuhlmann's classification: Dull...85-94; Average...95-104; Bright...105-114; Very Bright...115-124; Superior.125-149.

pupils rated Bright and the other pupil Very Bright. The median I. Q. of the gifted class is 132.5, for the control group it is 106, and for the grade as a whole the median I. Q. is 118. It is evident that the grade as a whole is unusually bright.

It has been shown (1) that the sixth B grade in the Douglas School is composed of pupils of widely differing intellectual ability, (2) that the progress of the gifted group, when mentality is considered, is only .803 of the normal progress, while that of the control group, tho it contains several superior pupils, is .925 of the normal progress, (3) that the achievement of the gifted pupils judged by school grades and by arithmetic tests is only a trifle greater than that of the control group in spite of the great difference in the mentality of the two groups. The school, then, has not accomplished what it might have for children who have superior ability. It has been inefficient in that it has not been getting bright children to exert themselves to their utmost capacity, having been entirely satisfied if children pass creditably a grade yearly.

Haggerty Intelligence Test, Delta 2.

The data was complete for only 109 of the freshmen who entered the Central High School, Minneapolis, at the beginning of the second quarter of the current year. The groups described were of practically the same size at the time the classes were formed, but there is a great difference in the number in each as they are studied. Group A contains 55 pupils instead of 81 pupils, group B 38 pupils in place of 80, and group C 16 pupils instead of 82 pupils. This is due to a greater number of withdrawals, and a greater amount of irregularity in attendance in the two lower groups. That the latter is largely responsible is shown by the fact that there are school records for 52 pupils of Group C for 61 pupils of group B and for 66 pupils of Group A.

The distribution of scores for these children in the Haggerty Intelligence Examination, Delta 2, is shown in Table 10. In group A the range of the scores is from 128 to 159, with a median of 136. Five pupils in this group have scores which fall 1 or 2 points below the norm, 130, for the ninth grade. The median for the group, however, is 6 points above this norm.

The 38 pupils in group B have scores of 116 to 127. The median, 121, is one point higher than the norm for the eighth grade. The 5 pupils having the lowest score (116) have about what should be expected of pupils in the second half of the seventh grade, while the 2 pupils having the highest score (127) do not quite reach the norm for the ninth grade.

The scores for group C range from 87 to 115. The lowest score falls midway between the norms for the fifth and sixth grades, and the highest score midway between those for the seventh and

Table 10. Distribution of scores in the Haggerty Intelligence Examination, Delta 2, in groups A, B, and C in the Central High School, Minneapolis, Minn. (109 cases, A, 55; B, 38; C, 16.)

Group A		Group B		Group C	
Number	Score	Number	Score	Number	Score
1	159	2	127	2	115
1	154	5	126	2	112
1	152	2	125	2	108
1	151	1	124	1	107
1	150	3	123	1	104
3	149	1	122	1	102
2	147	6	121	2	101
1	145	4	120	2	100
1	144	4	119	1	98
1	142	2	118	1	91
1	141	3	117	1	87
3	140	5	116		
1	139				
5	138				
3	137				
3	136				
3	135				
3	134				
3	133				
4	132				
3	131				
5	130				
2	129				
3	128				

eighth grades, while the median, 104, is 6 points less than the seventh grade norm.

Terman Group Test of Mental Ability, Form B.

The Terman Group Test of Mental Ability, Form B, was given by the writer. The distribution of scores is shown in Table 11. It will be noticed that there is considerable overlapping in these groups. There are 4 pupils of group B that have scores as high or higher than the median score of group A, 138, and 1 pupil in group C has a score that exceeds the median of group B. The ranges of the scores in the various groups are as follows: A 89-189; B 77-152; C 52-124. All save 3 pupils in group B have scores that exceed the lowest score in group A, while all save seven pupils in group C have scores that exceed the lowest score in group B. However, there was no instance in which the highest score in the upper group was exceeded by that of a lower group or in which the lowest score of an upper group was less than the lowest score of a lower group.

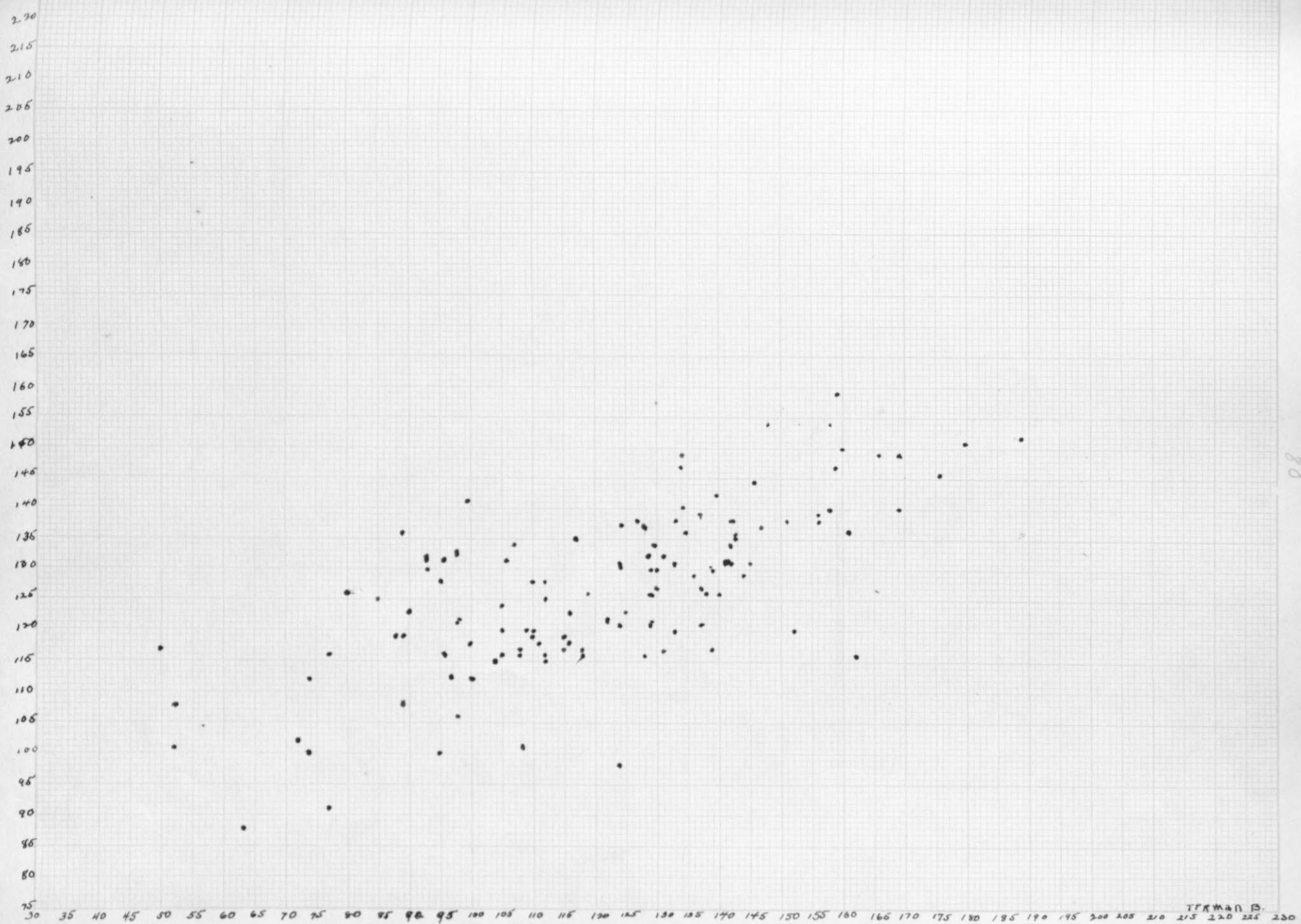
The relationship between the scores of each individual in the Haggerty and the Terman Intelligence tests is shown in the correlation graph, Figure 5. Each dot represents the scores of one individual in each of the tests. The scores in the Terman tests are represented by the abscissas, and those in the Haggerty tests by the ordinates. It will be noted that while there is some scattering, especially at the lower end of the scale, yet there is a decided clustering of the dots which shows that relationship does exist. The correlation as found by the Pearson Product Moment Method is $.703 \pm .0328$.

The scores made by each child in the Haggerty Intelligence Examination, Delta 2, and the Terman Group Test of Mental Ability,

Table 11. Distribution of the scores of 109 pupils in the Terman Group Test of Mental Ability, Form B, in the Central High School, Minneapolis, Minn. Feb. 24, and Jan. 14, 1921.

Group A		Group B		Group C	
Number	Score	Number	Score	Number	Score
1	189	1	152	1	124
1	180	1	140	1	112
1	176	1	139	1	108
2	169	1	138	1	104
1	166	2	137	1	100
1	161	1	131	1	98
1	160	1	130	1	97
2	159	3	129	1	95
1	158	1	128	1	89
1	156	1	125	1	77
1	151	1	124	2	74
1	148	1	122	1	72
1	147	1	119	1	63
2	145	1	118	2	52
1	144	2	116		
2	143	2	115		
3	142	2	112		
1	141	3	110		
1	140	1	109		
2	139	1	108		
1	137	1	106		
1	136	2	105		
1	135	2	98		
4	134	1	90		
1	133	1	89		
1	131	1	85		
2	130	1	80		
2	129	1	77		
1	128				
1	127				
2	124				
1	117				
1	112				
1	110				
1	107				
1	99				
1	98				
1	96				
1	95				
2	93				
1	89				

742
09536



98

30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230

TERMAN B.

Figure 5. Correlation Graph Showing the Relationship between the Scores of 110 Freshmen in Central High School, Minneapolis, Minn., in the Haggerty Intelligence Examination, Delta 2, and in the Terman Group Test of Mental Ability, Form B.

Form B, were combined for an intelligence rating. The distribution of these scores are shown in Table 12. The scores for the pupils of group A range from 223-341; those of group B from 193-272; and for group C the scores are from 150-227. The medians for the groups are 273.5, 235, and 197 respectively. It is evident that the score of no pupil in either of the lower groups reaches the median score of the next higher group. In order to show the rearrangement that would be necessary if these scores were to be used to group the pupils they have been ranked. It was found that the first 55 in rank were made up of 45 pupils from group A, and 10 pupils from group B; the next pupils in rank 38 were composed of 10 pupils from group A, 24 pupils from group B and 4 pupils of group C; the last 16 pupils in rank were composed of pupils from group B, and 12 pupils from group C. This grouping was made wholly for the sake of comparison as the children had been placed in classes before the Terman Tests were given. The coefficient of correlation by the Pearson Product Moment Method between the Haggerty Intelligence Test, Delta 2 and the Terman Group Test, Form B was $.703\pm .328$. Correlations will be given later in the study which will show the relationship existing between achievements and these ratings as compared with the relationship of a single test and the achievements.

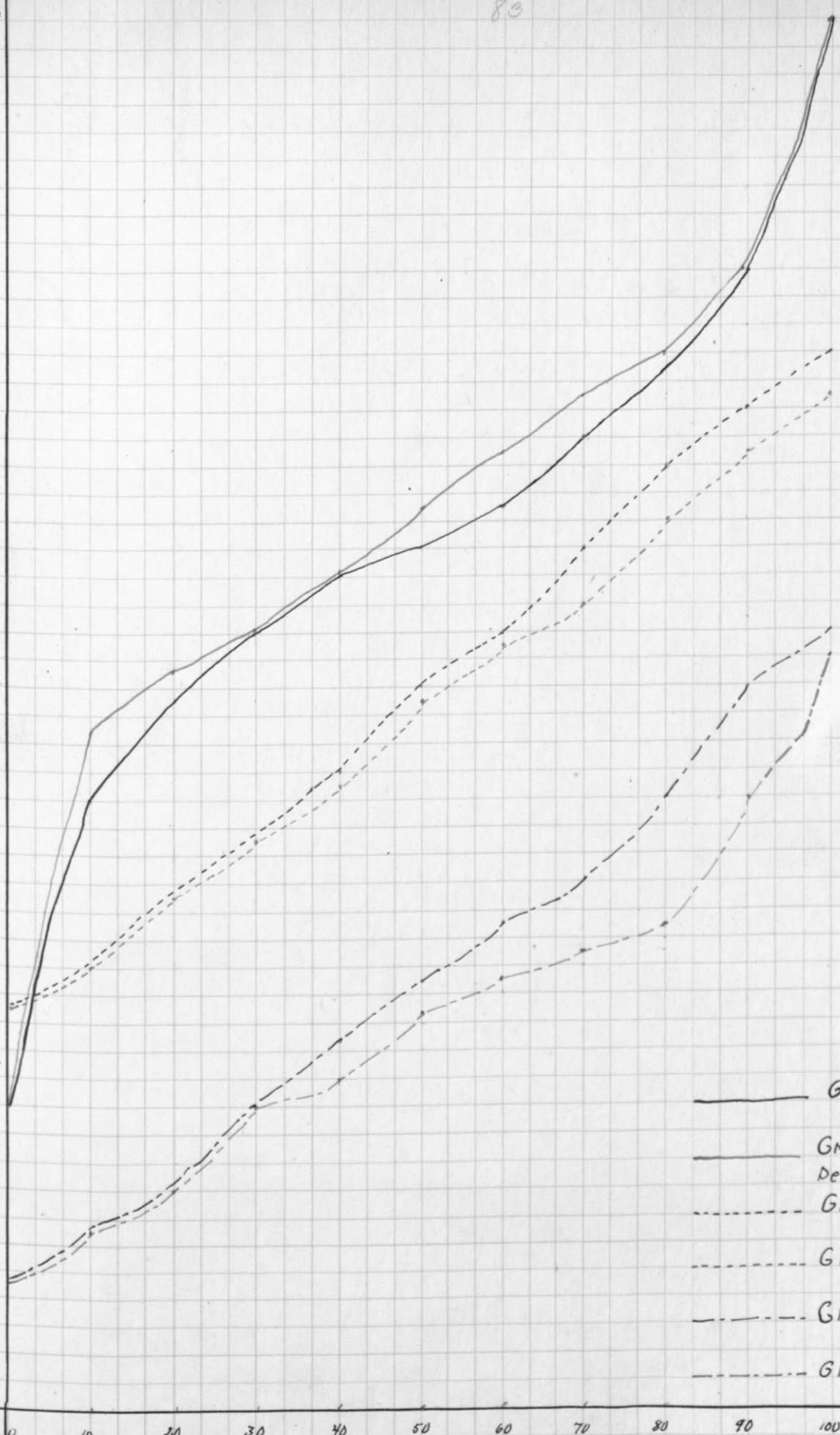
North Carolina Examination in Reading, Sigma 3.

On February 21, 1921, the North Carolina Examination in Reading, Sigma 3, a copy of which may be found in the appendix, was given to all the classes of first term freshmen by the teachers of their English classes.

Table 12. The Distribution of the Combined Scores of 109 pupils in the Termer Group Tests of Mental Ability and the Haggerty Intelligence Examination, Delta 2, Arranged According to the Groups A, B, and C, in Central High School, Minneapolis, Minnesota.

Group A		Group B		Group C	
Number	Score	Number	Score	Number	Score
1	341	1	272	1	227
1	331	1	266	1	222
1	321	2	264	1	219
2	318	1	258	1	212
1	315	1	257	1	209
1	310	1	256	1	204
1	309	1	255	1	202
1	306	2	250	1	197
1	302	2	248	1	195
1	298	2	245	1	186
1	297	2	244	2	174
1	294	1	239	1	168
2	289	1	237	1	160
1	284	3	234	1	153
1	283	1	232	1	150
1	282	1	231		
1	281	4	229		
1	280	1	228		
2	278	1	225		
3	276	2	224		
2	274	2	219		
2	273	1	213		
1	272	1	210		
1	271	1	208		
2	269	1	206		
4	265	1	193		
3	264				
1	262				
1	261				
1	260				
1	259				
1	252				
1	241				
2	240				
1	238				
1	231				
1	228				
2	225				
2	225				

100
98
96
94
92
90
88
86
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0



————— Group A. Classified by Delta
 ————— Group A. Classified by Delta 2 and Terman-Form B
 - - - - - Group B.
 - - - - - Group B.
 - . - . - Group C.
 - . - . - Group C.

Percentile Graph Showing the Distribution of Scores in the North Carolina Sigma 3 109 Cases, Central High School, Minneapolis, Minnesota, Freshmen. I Reading Test.

The distribution of the scores in this reading test grouped in the sections A, B, and C is shown in Table 13. In group A the scores range from 22 to 100, the latter being the highest possible score. The scores of group B are from 29 to 76, while those in group C are from 9 to 56. Medians for groups A, B, and C are 63, 54, and 31 respectively. In group B there are 28% of the class whose scores exceed the median score of group A, while 12½% of group C have scores higher than the median of group B. The medians for pupils in large cities found in the North Carolina survey were for 9th grade 48.3, for 10th grade 60.4, for 11th grade 67.2. It is evident that group A has achieved in reading much more than freshmen while group C is far below freshmen in achievement. Group B is a trifle above normal in achievement.

If the combined results of the Haggerty and the Terman Tests were used to place the pupils in groups of the same size as sections A, B, and C, and if these were called groups A', B', and C' the distribution of the scores in the reading test would be as shown in Table 14. The range would be for group A' 22-100, for B' 27-73, and for C' 9-55. It will be noted that there is not a great degree of difference in the ranges shown in the two groupings. The median for group A' is two points higher than the median for group A; while the medians for groups B' and C' are each two points lower than the medians for groups B and C respectively.

The correlation found between the Haggerty Intelligence Examination, Delta 2 and the North Carolina Reading Examination, Sigma 3, by the Pearson Product Moment Method was $.709 \pm .0319$. The correlation between the Terman Group Test and Sigma 3 Reading

Table 13. Distribution of the Scores of 109 Pupils of Central High School, Minneapolis, Minn., in the North Carolina Examination in Reading, Sigma 3, Grouped in Sections A, B, and C by Means of the Haggerty Intelligence Examination, Delta 2. Feb. 21, 1921.

Group A		Group B		Group C	
Number	Score	Number	Score	Number	Score
1	100	1	76	1	56
1	89	1	75	1	55
2	85	3	73	1	44
1	84	1	71	2	38
3	78	2	69	1	36
2	76	3	64	1	35
3	75	1	60	1	33
3	73	2	56	2	31
1	71	4	55	1	25
3	69	1	53	1	24
1	67	2	51	1	22
4	65	2	47	1	16
3	62	1	44	1	13
4	60	3	42	1	9
4	58	2	40		
4	56	2	38		
2	53	2	36		
2	51	1	35		
2	49	1	33		
1	47	2	31		
1	45	1	29		
1	44				
1	33				
1	31				
1	27				
1	22				

Table 14. Distribution of the Scores in the North Carolina Examination in Reading, Sigma 3, When the Class is Grouped into Sections A', B', and C' by Means of the Haggerty, and the Terman Intelligence Tests Combined. Dentral High School, Minneapolis, Minn., February 21, 1921.

Group Number	A' Score	Group Number	B' Score	Group Number	C' Score
1	100	3	73	1	55
1	89	1	71	1	44
2	85	2	69	1	36
1	84	3	64	1	35
3	78	2	62	1	33
3	76	1	60	2	31
4	75	1	58	2	29
1	74	3	56	1	24
3	73	2	55	1	22
1	71	1	53	1	16
3	69	3	51	1	13
1	67	3	47	1	9
4	65	1	45		
2	62	1	44		
4	60	3	42		
2	58	1	40		
4	56	4	38		
2	55	2	36		
3	53	2	33		
1	51	1	31		
2	49	1	27		
1	47				
1	44				
1	40				
1	31				
1	22				

Per Cent

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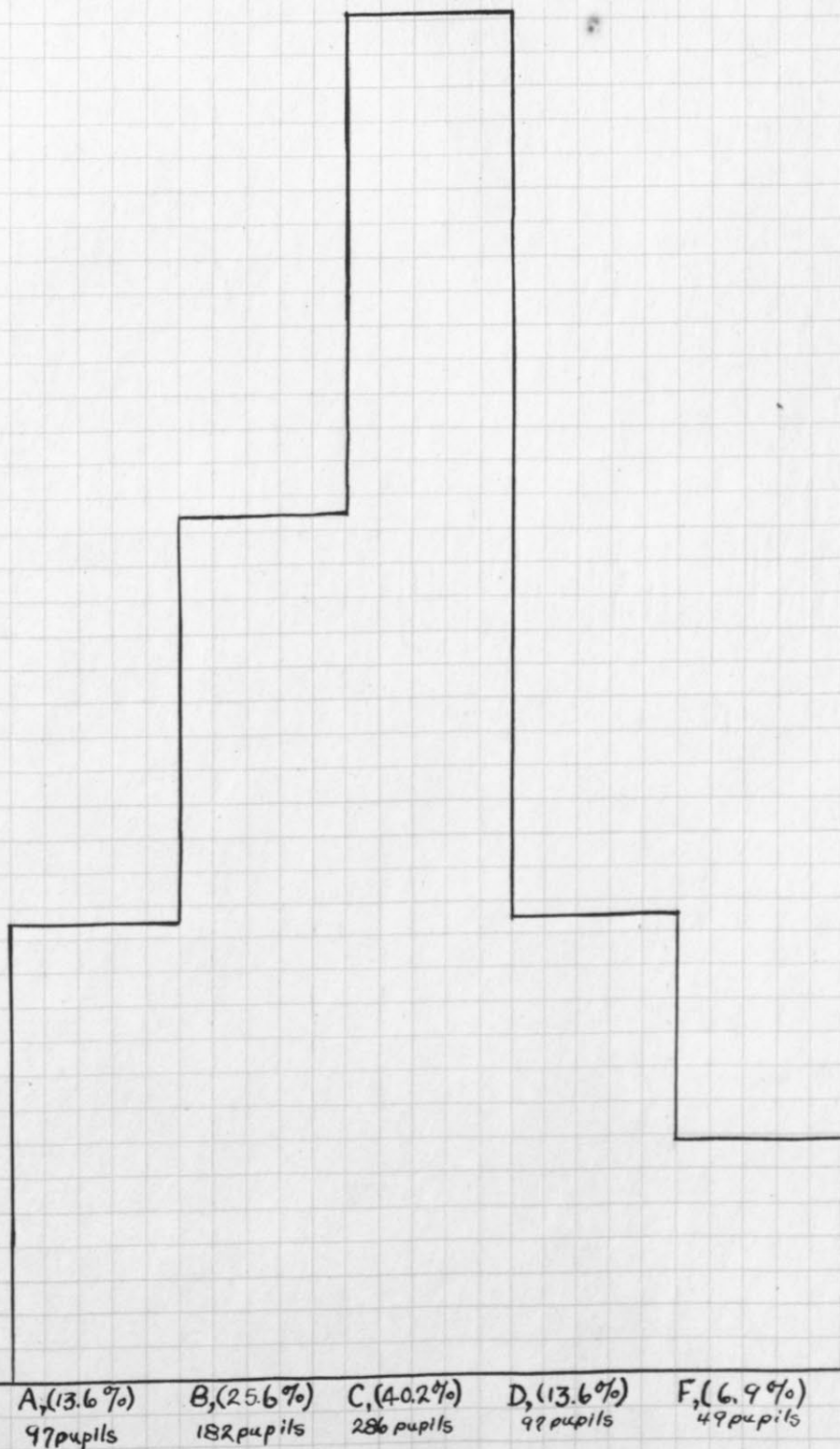


Fig. 6. Frequency Curve Showing the Per Cent of A, B, C, D, and F grades in the Freshman Class of Central High School, Minneapolis, Minn.

Test was $.680 \pm .0343$, while the correlation between the Combined Intelligence Tests and Sigma 3 Reading Test was $.745 \pm .0282$. These correlations show considerable relationship between the reading and the intelligence tests.

It has been shown that measured by standard tests the achievement of the superior group in reading is about two years in advance of the average achievement of pupils of the ninth grade. Tho these pupils were segregated on entering high school, they have until very recently been in classes with the pupils of groups B and C, whose abilities and achievements are far less. It is evident that subject matter suited to the ability of group B would be too difficult for the pupils of group C and too easy for the pupils of group C and too easy for pupils of group A, consequently the superior pupils could master their daily lessons with little effort and their powers would not be fully developed.

Grades in School Subjects.

The writer made a copy of the grades made by each of these 109 pupils during their first term in school (the second term of the school year 1920-1921). Central High School uses A for excellent, B for good, C for fair, D for poor and F for failure. No numerical value is given to these letters. It is impossible to handle the letters statistically, hence it was necessary to work out a scheme for reducing these grades to numerical values. In order to do this a curve of distribution was made. (Figure 6) It was found that out of 711 grades 97, or 13.6% of them were A's; 182, or 25.6% of them were B's; 286, or 40.2% of them were C's; 97, or 13.6% were D's; and 40, or 7% of them were F's. Since

there is no reason to believe that the children in Minneapolis, or the schools either, differ very greatly from those in St. Paul, where the grades are recorded in numbers, the median of the uppermost 13.6% of the grades of the pupils studied in St. Paul was found. This value was assigned to A. In a similar manner the values were determined for B, C, D, and F. The results are as follows:

A.....91%	D.....75%
B.....87%	F.....68%
C.....80%	

Using these values for the letters the averages of the grades of each pupil was found. A pupil carries 4 subjects each quarter if he is doing the required amount of work. In order to give credit for more than the required amount of work, and to deduct for less than the required amount of work, the sum of the grades of each child was always divided by 4 in finding the average. Thus it has come about that some children have for their averages more than 100%, while others have less than 50%. The grades of each child is shown in Table 15. In group A the averages of the grades run from 56% to 111%, in group B they extend from 38% to 103%, while in group C they extend from 73% to 102%. The medians are 85%, 82%, and 82% for groups A, B, and C respectively. Apparently group A does not do very much better work than the other two groups in the estimation of their teachers. As noted before, school grades are not very trustworthy data, yet the tendency of the schools to bring all children to a common level in achievement may be seen.

Pedagogical Quotient.

The normal age in March of pupils in the ninth grade would

Table 15.

Records of 109 Freshmen in Central High School, Minneapolis, Minn., in (1) the Haggerty Intelligence Examination, Delta 2, (2) the Terman Intelligence Tests, Form B, (3) the Two Tests Combined, (4) the North Carolina Reading Examination, Sigma 3, (5) the Average of the School Grades for the Second Term of the Year 1920-1921, and (6) the Ages at the Time of Taking the Delta 2 Test.

	Age Yr. Mo.	Haggerty Delta 2	Terman Group	Combined Intelli- gence	N. Car. Sigma 3	Av. Sch. Grades
<u>GROUP A.</u>						
1.	14- 2	159	159	318	78	78
2.	12- 7	154	148	302	73	82
3.	14- 4	152	189	341	100	90
4.	13- 2	151	180	331	71	111
5.	12- 9	150	160	310	78	90
6.	13- 7	149	166	315	78	85
7.	13- 2	149	134	283	75	84
8.	13-11	149	169	318	89	91
9.	13- 2	147	159	306	73	91
10.	14- 3	147	134	281	64	86
11.	12- 6	145	176	321	85	89
12.	12- 8	144	145	289	75	75
13.	14- 1	142	140	282	76	78
14.	14- 4	141	99	240	45	79
15.	12- 8	140	169	309	65	91
16.	13- 5	140	134	274	62	108
17.	13- 1	140	158	298	84	88
18.	13- 9	139	137	276	69	88
19.	13- 9	138	134	272	65	85
20.	14- 7	138	151	289	56	82
21.	13- 1	138	142	280	53	89
22.	12- 9	138	127	265	69	86
23.	13- 1	138	156	294	65	85
24.	13- 7	137	147	284	58	82
25.	13- 3	137	128	265	56	86
26.	12- 6	137	124	261	60	85
27.	14- 0	136	135	271	60	75
28.	12- 6	136	161	297	44	89
29.	14- 4	136	89	225	60	77
30.	13- 7	135	143	278	22	87
31.	13- 3	135	143	278	56	87
32.	14- 4	135	117	252	31	79
33.	14- 6	134	130	264	64	84
34.	13- 1	134	142	276	76	89
35.	13-10	134	107	241	51	66
36.	14- 6	133	98	231	62	72
37.	14- 6	133	129	262	58	88
38.	14- 6	133	131	264	73	82
39.	13-11	132	93	225	69	86
40.	14- 2	132	96	228	33	76

Table 15. (Continued).

	Age Yr. Mo.	Haggerty Delta 2	Terman Group	Combined Intelli- gence	N. Car. Sigma 3	Av. Sch. Grades
41.	14- 7	132	141	273	56	86
42.	13- 9	132	142	274	49	80
43.	13- 7	131	145	276	85	86
44.	13- 8	131	133	264	62	85
45.	12- 6	131	124	265	75	66
46.	14- 4	130	130	260	60	76
47.	15- 2	130	93	223	64	71
48.	13- 4	130	139	269	53	89
49.	13- 9	130	139	269	65	90
50.	15- 4	130	129	259	60	78
51.	14- 5	129	136	265	49	109
52.	14- 6	129	144	273	67	56
53.	14- 1	128	95	223	51	86
54.	13-11	128	112	240	58	81
55.	13- 9	128	110	238	54	83

GROUP B.

56.	14- 4	127	130	257	69	76
57.	13-11	127	137	264	64	82
58.	13- 0	126	80	206	31	99
59.	14-11	126	138	264	75	84
60.	13- 2	126	129	255	55	90
61.	13-11	126	119	245	69	79
62.	13- 2	126	140	266	76	88
63.	14- 9	125	85	210	56	79
64.	13- 0	125	112	237	38	85
65.	14- 4	124	105	229	42	75
66.	13- 1	123	90	213	36	79
67.	13-10	123	125	248	38	80
68.	13- 5	123	116	239	42	86
69.	15- 0	122	122	244	47	59
70.	13- 4	121	124	245	40	87
71.	14- 0	121	98	219	42	82
72.	12- 1	121	129	250	55	86
73.	13- 8	121	137	258	40	79
74.	14- 4	121	98	219	64	78
75.	13- 1	121	129	250	60	56
76.	13- 1	120	152	272	47	76
77.	14- 2	120	105	225	47	84
78.	14- 0	120	109	229	31	88
79.	14- 5	120	110	230	51	73
80.	14- 7	119	89	208	35	82
81.	13- 5	119	110	229	73	74
82.	12- 7	119	110	229	33	90
83.	15- 7	119	115	234	71	81
84.	15- 1	118	116	234	73	38

Table 15. (Continued).

	Age Yr.Mo.	Haggerty Delta 2	Terman Group	Combined Intelli- gence	N. Car. Sigma 3	Av. Sch. Grades
85.	14- 5	118	106	224	44	103
86.	14- 9	117	139	256	53	85
87.	12-11	117	131	248	73	88
88.	13- 5	117	115	232	51	83
89.	14- 4	116	118	234	55	85
90.	13- 4	116	128	244	56	85
91.	15- 1	116	112	228	55	79
92.	14- 5	116	77	193	29	75
93.	13- 6	116	108	224	64	87
<u>GROUP C.</u>						
94.	16- 0	115	105	219	38	82
95.	13- 7	115	112	227	56	82
96.	13- 9	112	100	212	36	82
97.	14- 5	112	74	186	25	76
98.	13-11	108	89	197	31	82
99.	15- 7	108	52	160	35	96
100.	14- 3	107	97	204	24	81
101.	13- 9	104	98	202	31	82
102.	14- 2	102	72	174	22	84
103.	15-10	101	108	209	55	74
104.	15- 0	101	52	153	33	82
105.	14- 2	100	74	174	13	73
106.	13-10	100	95	195	44	79
107.	12-10	98	124	222	38	86
108.	15- 1	91	77	168	16	102
109.	13- 7	87	63	150	9	82

be 15 years if they had entered at the beginning of the school year, according to the grade age used in the treatment of the sixth grade. Since the pupils studied in Central High School, Minneapolis, had entered the school in March a deduction of 6 months was made, leaving the grade age for these pupils $14\frac{1}{2}$ years.

The pedagogical quotient was found by dividing the grade age by the chronological age. The P. Q. for each child is shown in Table 16. The averages of the P. Q.'s for the groups were found to be 1.01 for C, 1.03 for B and 1.05 for group A. The tendency to pass pupils thru the grades at the normal rate of one grade per year is quite evident. The ranges of the P. Q.'s for the groups are A .93-1.14, B .86-1.21, D .90-1.12, respectively. Group B shows the widest range, .35. One pupil had been accelerated considerably, and one had been retarded nearly as much judged by the age and the grade location.

Grade Quotient.

In treating the sixth grade of Douglas School in Minneapolis the Grade quotient was found. A similar index was desired for the pupils in the Central High School in Minneapolis, but these pupils had not been tested by the Binet tests, hence there was no data on the mental age at hand. A number of investigations have found the I. Q. and the mental ages by means of the group tests. Miss Eleanor Brewer, assistant psychologist in the Mental Hygiene Clinic in Philadelphia has done so with the Haggerty Intelligence Tests, Delta 2 and found a correlation of .74 with the Stanford Binet Tests. As she was dealing with pupils who were dull, or subnormal, she did not work out the mental age equivalents for the scores in the upper levels. She used 115 as the score at

Table 16. Records of 109 Pupils in Central High School, Minneapolis, Minn., Showing (1) the Chronological Ages, (2) the Pedagogical Quotient, (grade age, 14 years 6 months), (3) Mental Age from the Delta 2 Test, and (4) Grade Quotient, (14 years 6 months).

Case	Chrono-logical Age Yr. Mo.	Pedagog-ical Quotient	Mental Age. Yr.Mo.	Grade Quotient.
<u>GROUP A.</u>				
1.	14- 7	1.00	20- 2	.72
2.	12-10	1.14	19- 6	.74
3.	14- 8	1.00	19- 2	.76
4.	13- 5	1.09	19- 0	.76
5.	13- 0	1.12	19- 0	.76
6.	14- 1	1.07	18-11	.77
7.	13- 5	1.09	18-11	.77
8.	14- 3	1.03	18-11	.77
9.	13- 5	1.09	18- 9	.78
10.	14- 6	1.01	18- 9	.78
11.	12-10	1.14	18- 5	.79
12.	13- 0	1.12	18- 2	.80
13.	14- 4	1.02	18- 1	.80
14.	14- 8	1.00	18- 1	.80
15.	12-11	1.13	17- 9	.82
16.	13- 8	1.06	17- 9	.82
17.	13- 4	1.10	17- 9	.82
18.	14- 1	1.04	17- 7	.82
19.	14- 0	1.04	17- 7	.82
20.	14-10	.98	17- 7	.82
21.	13- 4	1.18	17- 7	.82
22.	13- 1	1.12	17- 7	.82
23.	13- 5	1.09	17- 7	.82
24.	13-11	1.05	17- 4	.84
25.	13- 7	1.07	17- 4	.84
26.	12-10	1.14	17- 4	.84
27.	14- 3	1.03	17- 3	.84
28.	12-10	1.14	17- 3	.84
29.	14- 7	1.00	17- 3	.84
30.	13- 2	1.11	17- 1	.85
31.	13- 7	1.07	17- 1	.85
32.	14- 7	1.00	17- 1	.85
33.	14- 9	.99	17- 1	.85
34.	13- 4	1.10	17- 1	.85
35.	14- 1	1.04	17- 1	.85
36.	14-10	.98	17- 0	.85
37.	13- 6	1.08	17- 0	.85
38.	14- 9	.99	17- 0	.85
39.	14- 3	1.03	16-10	.86
40.	14- 5	1.01	16-10	.86
41.	15- 0	.97	16-10	.86
42.	14- 1	1.04	16-10	.86
43.	13-11	1.05	16- 8	.87

Table 16. (Continued).

Case	Chrono-logical Age Yr. Mo.	Pedagog-ical Quotient	Mental Age. Yr. Mo.	Grade Quotient.
<u>GROUP A (Continued).</u>				
44.	13-11	1.05	16- 8	.87
45.	13-11	1.05	16- 8	.87
46.	14- 7	1.00	16- 6	.88
47.	15- 6	.94	16- 6	.88
48.	13- 7	1.07	16- 6	.88
49.	14- 1	1.04	16- 6	.88
50.	15- 8	.93	16- 6	.88
51.	14- 8	1.00	16- 4	.89
52.	14-10	.98	16- 4	.89
53.	14- 4	1.02	16- 4	.89
54.	14- 3	1.03	16- 4	.89
55.	14- 1	1.04	16- 4	.89

GROUP B.

56.	14- 7	1.00	16- 2	.90
57.	14- 3	1.03	16- 2	.90
58.	13- 3	1.10	16- 0	.91
59.	15- 3	--	16- 0	.91
60.	13- 5	.99	16- 0	.91
61.	14- 0	1.03	16- 0	.91
62.	13- 6	1.08	16- 0	.91
63.	15- 3	.93	15-10	.92
64.	13- 4	1.10	15-10	.92
65.	14- 7	1.00	15- 8	.93
66.	13- 4	1.10	15- 8	.93
67.	14- 2	1.03	15- 8	.93
68.	13- 9	1.06	15- 6	.94
69.	14- 2	1.03	15- 4	.95
70.	13- 7	1.07	15- 4	.95
71.	14- 4	1.02	15- 4	.95
72.	12- 5	1.18	15- 4	.95
73.	13-11	1.05	15- 4	.95
74.	14- 7	1.00	15- 4	.95
75.	13- 5	1.09	15- 4	.95
76.	13- 4	1.10	15- 2	.95
77.	14- 5	1.01	15- 2	.96
78.	14- 3	1.03	15- 2	.96
79.	15- 9	1.92	15- 2	.96
80.	14-10	.98	15- 0	.97
81.	13- 9	1.06	15- 0	.97
82.	12- 1	1.21	15- 0	.97
83.	16-10	.86	15- 0	.97

Table 16. (Continued).

Case	Chrono-logical Age Yr. Mo.	Pedagog-ical Quotient	Mental Age. Yr.Mo.	Grade Quotient
<u>GROUP B. (Continued).</u>				
84.	15- 5	.94	15- 0	.97
85.	14- 8	1.00	15- 0	.97
86.	15- 1	.96	14-11	.97
87.	13- 2	1.11	14-11	.97
88.	13- 9	1.06	14-11	.97
89.	14- 7	1.00	14- 9	.98
90.	13- 8	1.06	14- 9	.98
91.	15- 4	.95	14- 9	.98
92.	14- 9	.99	14- 9	.98
93.	13-10	1.05	14- 9	.98
<u>GROUP C.</u>				
94.	13-11	1.05	14- 8	.99
95.	13- 9	1.06	14- 8	.91
96.	14- 1	1.04	14- 3	1.02
97.	14- 9	.99	14- 3	1.02
98.	14- 3	1.03	13- 9	1.05
99.	15-10	.92	13- 9	1.05
100.	14- 6	1.01	13- 7	1.07
101.	14- 1	1.04	13- 3	1.09
102.	14- 5	1.01	13- 0	1.12
103.	16- 1	.90	12-10	1.13
104.	15- 4	.95	12-10	1.13
105.	14- 5	1.01	12- 8	1.14
106.	14- 3	1.03	12- 8	1.14
107.	13- 1	1.12	12- 6	1.16
108.	15- 4	.95	11- 6	1.27
109.	13-10	1.05	11- 0	1.32

the age of 15 years. According to this method of evaluation the score at 16 years would be about 126*, but this figure is not a standardized norm.

It is agreed by most authorities that intelligence does not increase much after 16 years of age. This is the age used by Terman in figuring the I. Q. Since the pupils in the high school were nearing this age it was hard to find an index of their mentality that would show up their progress. Instead of finding a mental age the score obtained by a pupil was divided by 126 (the score taken for 16 years of age) to find what proportion of that age the pupil's score represented. The 16 years was multiplied by this proportion to find a mental index. The grade quotient was then found by dividing the grade age by the mental index. It is admitted that the scheme is not absolutely accurate, so far as individuals are concerned, but it is believed, however, that it may be fairly used to show the attitude of the schools in regard to promoting children according to their mentality. Grade quotients found in this way are shown in Table 16. The G. Q.'s for group A run from .72 to .89, for group B they are from .90 to .98, and for C they are .99 to 1.32. The average G. Q. for group A is .83, for group B it is .95 while for group C it is 1.10. This shows clearly the tendency of the schools to retard the bright pupils and to accelerate the dull ones according to the mental age. It is the belief of the writer that even greater divergence would have been found had the Stanford-Binet Tests been used as in the Douglas School.

* Dr. Haggerty, author of the Delta 2 Tests, believes that the figure 126 would probably be not far wrong.

It has been shown (1) that in the freshman class in Central High School the pupils differed greatly in ability; (2) that the superior group read better than juniors in high school do usually; (3) that the averages of the school grades of the gifted children were practically no better than the averages of either of the inferior groups; (4) that for the grade location the gifted pupils were practically as old as pupils of the average and slow classes, and (5) and that if mentality were considered the superior group have been very much retarded in their progress. In fact the schools have failed to accomplish what might have been accomplished with gifted children in that the children have not been promoted as rapidly as they might have been, and in that the children have not achieved as much as was possible.

Mechanic Arts High School, St. Paul

Haggerty Intelligence Test, Delta 2.

In the Alpha class in Mechanic Arts High School in St. Paul the scores in the Haggerty Intelligence Examination, Delta 2, extended from 129 to 163, while in the control group the scores were from 82 to 148. (Table 17) there is quite a divergence between the medians, the median for the Alpha class being 135.5, and for the control group 107.

Haggerty Reading Examination, Sigma 3.

The scores for the Alpha class in the Haggerty Reading Examination, Sigma 3, extend from 78 to 127, with a median of 108, while the scores for the control group are from 60 to 106, and the median is 88. The scores for each individual in the Delta 2 test and in the Sigma 3 test together with the ages of the pupils at the time of taking each test, and the averages in the school subjects are shown in Table 17. It is evident here that the gifted pupils do surpass the control group in the achievement test in reading to a considerable degree. The median of the gifted is higher than the norm for seniors in high school, while the median for the control group is about mid way between the norms for 9th and 10th grades.

Average of School Grades.

The average of the school grades was found by dividing the sum of the grades (omitting the grade in gymnasium and also that in chorus, and taking the average of the penmanship and spelling grades for a combined grade as the two count as one credit only) by 4, which is the number of subjects usually required. This scheme results in an average of over 100% for those children

Table 17. Records of 18 Pupils of the Second Semester Alpha Class in the Mechanic Arts High School in St. Paul, showing Age at the Time of Taking the Delta 2 Test, Scores in the Haggerty Intelligence Examination, Delta 2, Scores in the Haggerty Reading Examination, Sigma 3, Averages of the First Semester Grades in High School, and the Age at the Time of Taking the Sigma 3 Test.

Delta 2		Sigma 3		No. of Subjects Studied	Grade Average
Age Yr.Mo.	Scores	Age Yr.Mo.	Scores		
13-3	163	14-1	120	6	64
13-1	155	14-0	131	6	115
13-7	151	14-4	123	6	128
14-2	149	14-10	127	6	130
14-5	144	13-9	114	6	136
13-8	142	14-5	115	6	116
14-2	138	14-10	97	6	129
14-3	135	15-0	88	4	77
13-1	135	13-9	78	6	118
13-8	135	14-5	111	4	90
13-1	133	13-9	102	6	118
14-5	133	15-3	107	6	135
13-10	132	14-7	95	6	111
14-11	132	15-9	111	6	121
15-1	131	15-1	84	4	78
13-4	131	15-2	104	6	127
13-8	130	14-6	115	6	124
13-1	129	13-10	108	6	118

Average Class in Mechanic Arts H. S.

13-9	148	14-6	106	4	81
13-1	124	13-11	97	54	102
13-10	122	14-7	81	4	83
13-10	121	14-6	84	6	125
13-7	109	14-2	64	2	39
14-11	105	15-6	60	6	126
15-5	102	16-0	88	4	73
14-5	102	15-4	96	5	109
14-4	101	15-2	62	5	133
14-9	82	15-5	97	4	69

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who are taking more than 4 subjects and getting fair grades in them. The averages for the Alpha class run from 64% to 136% with an average of 114%, while for the control group they run from 39% to 133%, with an average of 84%. Another point of interest is the type of subjects that studied in the groups. This is shown in Table 18:

Table 18. Record of the Subjects Studied by 18 Pupils of the Alpha Class, and 10 Pupils of an Average Class in the Mechanic Arts High School in St. Paul, together with the Per Cent of the Classes who were Studying Each Subject.

	Alpha Class		Control Class	
	No.	Per Cent	No.	Per Cent
English	18	100	10	100
Mathematics	18	100	8	80
History	18	100	9	90
Gymnasium	12	67	5	50
Modern Language	8	44	3	30
Spell. & Penmans'p	1	6	6	60
Chorus	2	11	3	30
Art	5	28	3	30
Sewing	4	22	3	30
Cooking	0	0	3	30
Joinery	6	33	2	20
Drawing	8	44	0	0
Latin	10	56	0	0
Shop	4	22	0	0

The table does not show that the mathematics course chosen by the pupils of the control group in 37.5% of the cases was arithmetic rather than algebra which is more abstract and which is usually considered more difficult. A much larger proportion of the Alpha class are found in the language classes and in the courses in mathematics than of the control group and in spite of this fact the Alpha class far outstrips the control group in the grade averages.

Pedagogical Quotient.

The grade age used in finding the P. Q. for these pupils

Table 19. Records of Second Semester Freshmen in the Mechanic Arts High School, Showing (1) Chronological Age at the Time of Taking the Haggerty Reading Examination, Sigma 3, (2) Pedagogical Quotient (grade age, 15 years), (3) Mental Index (found from Delta 2), and Grade Quotient.

Case	Chronological Age Yr. Mo.	Pedagogical Quotient	Mental Age Yr. Mo.	Grade Quotient.
<u>Gifted Group</u>				
1.	14- 1	1.07	20- 8	.72
2.	14- 0	1.07	19- 7	.76
3.	14- 4	1.05	19- 2	.78
4.	14-10	1.01	18-10	.79
5.	13- 9	1.09	18- 3	.82
6.	14- 5	1.04	18- 1	.83
7.	14-10	1.01	17- 5	.86
8.	15- 0	1.00	17- 3	.87
9.	13- 9	1.09	17- 1	.88
10.	14- 5	1.04	17- 1	.88
11.	13- 9	1.09	16-11	.88
12.	15- 3	.98	16-11	.88
13.	14- 7	1.03	16-10	.89
14.	15- 9	.95	16-10	.89
15.	15- 1	.99	16- 8	.90
16.	15- 2	.99	16- 8	.90
17.	14- 6	1.04	16- 6	.90
18.	13-10	1.08	16- 4	.92
<u>Control Group</u>				
1.	14- 6	1.04	18-10	.79
2.	13-11	1.08	15- 8	.95
3.	14- 7	1.03	15- 6	.97
4.	14- 6	1.04	15- 4	.98
5.	14- 2	1.06	13-11	1.07
6.	15- 6	.91	13- 3	1.13
7.	16- 0	.94	12- 9	1.11
8.	15- 4	.98	12- 9	1.11
9.	15- 2	.99	12- 9	1.11
10.	15- 5	.97	10- 6	1.43

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who are second semester freshmen was 15 years, and the chronological age used was the age at the time of taking the Haggerty Reading Examination Sigma 3. The P. Q.'s are shown in Table 19. Again the tendency to promote children with reference to their chronological ages is shown. The average of the P. Q.'s for the Alpha class is 1.03, while the average for the control group is 1.01. The difference in the mentality of the two groups as shown by the medians of the intelligence tests, and as shown by the ability of the Alpha class to obtain a higher grade average and a higher median score in the reading achievement test than the control group could obtain, would indicate that the progress of the gifted thru the school system has not been as rapid as the mentality of the children might warrant.

Mental Index.

A mental index was found from the scores in the Haggerty Intelligence Examination Delta in the manner previously described. It was found that the average mental index was 17 years and 7 months for the Alpha class and 14 years 9 months for the control group, (Table 19). Accordingly the achievements and the progress of the Alpha group should be 2 years 7 months in advance of the control group. It has been shown that in the reading achievement test there is fully that amount of difference in the medians for the two groups. Altho there is no standard by which school grades can be judged, it would seem that a difference of 30% in the medians of the two groups would be indicative of at least a difference of 2 years between the two groups. The P. Q.'s however show that in general the pupils of both class have been promoted rather regularly, one grade per year regardless of

achievements or mentality.

Grade Quotient.

The grade quotient was found by dividing the mental index by 15 years. These quotients appear in Table 19. No pupil in the Alpha group has a grade quotient of more than .90, while in the control group one pupil has a grade quotient of 1.43. The average G. Q. of the Alpha group is .85, while of the control group it is 1.07. This means that when mentality is considered, the Alpha class is retarded .15 while the control group is accelerated .07. Progress thru the grades then has not been much influenced by mentality.

Central High School, St. Paul.
First Semester Freshman Class.

Haggerty Intelligence Examination Delta 2.

The Haggerty Intelligence Test, Delta 2, was used as one of the bases for selecting the Alpha class in St. Paul as has been pointed out previously. The scores for the children in the Alpha class are shown in Table 20 A and for the children in the control group in Table 20 B. There is a wide difference in the medians for the two classes in this test, the Alpha class having a median score of 141 and the average class having only 114. The extent of the range for the Alpha class is from 131 to 158, while for the average class the range is 100-131. Judging from this intelligence test alone there is a considerable difference in the mentality of the two groups. In fact the median of the Alpha class approximates the 10th grade norm while the median of the control group approximates the 7th grade norm.

Haggerty Reading Examination, Delta 2.

The achievement of the Alpha class in reading was tested by means of the Haggerty Reading Examination, Delta 2. The scores run from 92 to 132, with a median of 109.5. (Table 20 A) The grade norms for Sigma 3 are for the 9th grade 84, for the 10th grade 90, for the 11th grade 96, and for the 12th grade 102. It is evident that the lowest score for this class is better than the norm for the 10th grade while the median is higher than the norm for the 12th grade. So far as this achievement test is concerned it would seem that the Alpha class has progressed in reading at a rate equal to their mentality.

Table 20a. Scores of the 23 Pupils of the First Semester Alpha Class in Central High School, St. Paul, Minn., in Haggerty Intelligence Examination, Delta 2, and in the Haggerty Reading Examination, Sigma 3, together with the Ages at the Time of Taking Each of the Tests.

Case	Delta 2		Sigma 3	
	Age Yr.Mo.	Score	Age Yr.Mo.	Score
1.	12-11	158	13- 3	127
2.	13- 1	153	13- 5	122
3.	12- 6	153	12-10	124
4.	13- 7	150	14- 0	125
5.	13- 7	148	14- 0	116
6.	14-11	146	14- 1	112
7.	13- 5	145	13- 9	105
8.	13- 1	144	13- 6	109
9.	13- 7	142	13- 9	110
10.	12-10	142	13- 3	98
11.	12-11	141	13- 1	112
12.	14- 2	141	14- 4	98
13.	13-11	140	14- 3	118
14.	13- 9	139	14- 0	94
15.	14- 4	138	14- 8	116
16.	11- 3	138	11- 7	108
17.	13- 6	136	13- 8	118
18.	13- 7	136	14- 0	97
19.	13- 3	135	13- 8	104
20.	14- 2	135	14- 7	96
21.	13- 1	131	13- 3	97
22.	13-11	131	14- 1	94
23.	13- 1	131	13- 6	92

Table 20b. Scores of 26 Pupils in the First Semester Control Group in Central High School, St. Paul, Minn., in the Haggerty Intelligence Examination, Delta 2, and in the Haggerty Reading Examination, Sigma 3, together with the Ages at the Time of Taking Each of the Tests.

Case	Delta 2		Sigma 3	
	Age Yr.Mo.	Score	Age Yr.Mo.	Score
1.	15- 2	131	15- 4	22
2.	13- 2	128	13- 5	38
3.	13- 6	127	13- 9	51
4.	13-11	127	14- 3	49
5.	13- 7	126	13-11	51
6.	13- 7	125	14- 0	65
7.	18- 5	125	13-10	51
8.	13- 5	124	14-10	51
9.	13- 6	117	13- 9	49
10.	13- 9	117	15- 2	31
11.	16- 4	115	16- 6	35
12.	13- 6	114	13- 8	51
13.	14-10	114	15- 3	45
14.	13- 1	113	13- 6	55
15.	14- 8	113	14-11	46
16.	13- 0	112	13- 5	49
17.	13- 7	110	13-10	62
18.	13- 9	110	14- 3	55
19.	13- 4	110	13- 7	55
20.	13- 7	109	13-11	29
21.	12-11	107	13- 5	45
22.	14- 0	106	14- 5	49
23.	14- 8	106	15- 2	38
24.	14- 5	103	14- 8	49
25.	14- 6	103	14- 8	47
26.	13- 1	100	13- 4	47

Table 21a. Records of 23 First Semester Freshmen in Central High School, St. Paul, Minn., Showing (1) Chronological Age at the Time of Taking the Haggerty Reading Examination, Sigma 3, (2) Pedagogical Quotient (14 years 6 months, grade age), (3) Mental Index, and (4) Grade Quotient.

Case	Chronological Age Yr.Mo.	Pedagogical Quotient	Mental Age. Yr.Mo.	Grade Quotient
<u>Gifted Group</u>				
1.	13- 3	1.10	20- 0	.73
2.	13- 5	1.09	19- 4	.75
3.	12-10	1.14	19- 4	.75
4.	14- 0	1.04	19- 0	.76
5.	14- 0	1.04	18-10	.78
6.	14- 1	1.04	18- 7	.79
7.	13- 9	1.06	18- 5	.79
8.	13- 6	1.08	18- 2	.80
9.	13- 9	1.06	18- 1	.80
10.	13- 3	1.10	18- 1	.80
11.	13- 1	1.12	18- 1	.80
12.	14- 4	1.02	18- 1	.80
13.	14- 3	1.03	17- 9	.82
14.	14- 0	1.04	17- 7	.82
15.	14- 8	.99	17- 7	.82
16.	11- 7	1.25	17- 7	.82
17.	13- 8	1.06	17- 3	.84
18.	14- 0	1.04	17- 3	.84
19.	13- 8	1.06	17- 1	.85
20.	14- 7	1.00	17- 1	.85
21.	13- 3	1.10	16- 8	.87
22.	14- 1	1.04	16- 8	.87
23.	13- 6	1.08	16- 8	.87

Table 21b. Records of 26 First Semester Freshmen in the Central High School, St. Paul, Minn., Showing (1) Chronological Age at the Time of Taking the Haggerty Reading Examination, Sigma 3, (2) Pedagogical Quotient (grade age, 14 years 6 months), (3) Mental Index, and (4) Grade Quotient.

Case	Chrono-logical Age Yr.Mo.	Pedagogical Quotient	Mental Age. Yr.Mo.	Grade Quotient
<u>Control Group</u>				
1.	15- 4	.95	16- 8	.87
2.	13- 5	1.01	16- 4	.89
3.	13- 9	.99	16- 2	.90
4.	14- 3	1.03	16- 2	.90
5.	13-11	1.05	16- 0	.91
6.	14- 0	1.04	15-10	.92
7.	13-10	1.05	15-10	.92
8.	14-10	.98	15- 8	.93
9.	13- 9	1.06	14-11	.97
10.	15- 2	.96	14-11	.97
11.	16- 6	.89	14- 8	.99
12.	13- 8	1.06	14- 5	1.01
13.	15- 3	.95	14- 5	1.01
14.	13- 6	1.08	14- 4	1.01
15.	14-11	.98	14- 4	1.01
16.	13- 5	1.09	14- 3	1.02
17.	13-10	1.05	13-11	1.04
18.	14- 3	1.03	13-11	1.04
19.	13- 7	1.07	13-11	1.04
20.	13-11	1.05	13-11	1.04
21.	13- 5	1.09	13- 7	1.08
22.	14- 5	1.01	13- 5	1.08
23.	15- 2	.96	13- 5	1.08
24.	14- 8	.99	13- 1	1.11
25.	14- 8	.99	13- 1	1.11
26.	13- 4	1.10	12- 8	1.14

North Carolina Reading Examination, Sigma 3.

The North Carolina Reading Examination, Sigma 3, can not be used for direct comparison with the Haggerty Sigma 3. A comparison can be made with reference to the relationship to the norms. There are two methods of scoring the N. Car. Sigma 3. Method A was used, in which the score consists of the percent of the whole test which was correct. The norms found in North Carolina for pupils in the large cities are for the 9th grade 48.3, for the 10th grade 60.4, for the 11th grade 67.2 and for the 12th grade 71.2. The scores of the control group extend from 22 to 65, with a median of 49. (Table 20 B) While the median of the class is a trifle above the norm for the grade, there is no such showing made by this class as is made by the Alpha class. The highest score made by any member of this group does not equal the norm for the 11th grade. It would appear that the achievement of the control group in reading as judged by the N. Car. Reading Examination, Sigma 3, is about what would be expected from the grade of intelligence they have as is shown by the Haggerty Intelligence Examination, Delta 2.

Pedagogical Quotient.

Since this class was a first semester class, 14 years and 6 months was used as the normal age for 1 pupil in March and on this basis the P. Q. was found. The result is shown in Tables 21 A and 21 B. In this class there seems to be a greater amount of so-called acceleration than in in any other class reported thus far. The average P. Q. for the Alpha class is 1.07 and for the average class it is 1.02. Still the tendency to consider the age in promoting children has apparently entered

Table 22a. Records of 15 pupils of the Second Semester Alpha Class in Central High School in St. Paul, Minn., showing (1) the Age at the Time of Taking the Haggerty Intelligence Examination, Delta 2, (2) Scores in The Delta 2 Test, (3) the Age at the Time of Taking the Haggerty Reading Examination, Sigma 3, (4) Scores in the Sigma 3 Test, and (5) the Averages of the Grades Received in the Subjects Studied in the High School during their First Semester in School.

Delta 2		Sigma 3		Grade Averages.
Age	Scores	Age	Score	
Yr.Mo.		Yr.Mo.		
13-10	152	14- 7	121	82
13- 3	150	14- 0	105	81
13-11	149	14- 7	113	80
13- 9	148	14- 3	111	85
13- 3	146	14- 0	118	88
12- 9	146	13- 6	117	90
13- 6	144	14- 3	124	86
13- 6	144	14- 4	100	87
14- 8	144	15- 4	100	82
12- 6	144	14- 4	100	87
13- 9	143	14- 4	118	105
14- 1	143	14- 9	111	90
12- 7	140	13- 4	92	79
14- 0	137	14- 9	110	89
13- 3	137	14- 0	104	90

Table 22b. Records of 19 pupils of the Second Semester control group in Central High School, St. Paul, Minn., showing (1) the Age at the Time of Taking the Haggerty Intelligence Examination, Delta 2, (2) Scores in the Delta 2 Test, (3) the Age of pupil at the Time of Taking the Haggerty Reading Examination, Sigma 3, (4) Scores in the Sigma 3 Test, and (5) the Averages of the Grades Received in the Subjects Studied in the High School during the First Semester in School.

Delta 2		Sigma 3		Grade Averages.
Age	Scores	Age	Score	
Yr.Mo.		Yr.Mo.		
12- 8	138	13- 6	71	97
12-10	136	13- 8	75	92
15- 6	134	16- 6	71	73
13- 8	132	14-11	73	83
10-10	128	14- 7	44	88
12- 8	127	13- 6	67	97
13- 1	125	14- 3	73	94
13- 5	123	14- 2	47	79
14- 8	120	15- 5	29	76
14- 9	118	15- 6	65	63
13- 7	116	14- 5	44	85
13-11	116	14- 9	31	60
13- 4	111	14- 2	60	78
13- 2	108	14- 0	65	79

Table 22b. (Continued)

Delta 2		Sigma 3		Grade Averages.
Age Yr.Mo.	Scores	Age Yr.Mo.	Score	
14- 2	106	15- 0	45	87
14- 2	105	16- 0	27	104
13-10	101	15- 0	69	94
14-10	100	15- 9	29	103
14- 7	96	15- 5	35	94

Tables 23a and 23b. Records of Second Semester Freshmen in Central High School, St. Paul, Minn., Showing (1) Chronological Age at the Time of Taking the Haggerty Reading Examination, Sigma 3, (2) the Pedagogical Quotient, (grade age, 15 years), and (3) Mental Index, and (4) Grade Quotient.

Table 23a.					:	Table 23b.			
No.	C. A. Yr.Mo.	P. Q.	M. I. Yr.Mo.	G. Q.	:	C. A. Yr.Mo.	P. Q.	M. I. Yr.Mo.	G. Q.
Alpha Class.					:	Control Group.			
1.	14- 7	1.03	19- 4	.78	:	13- 6	1.11	18- 1	.83
2.	14- 0	1.07	19- 1	.79	:	13- 2	1.09	17- 7	.85
3.	14- 7	1.03	19- 0	.79	:	16- 6	.91	17- 1	.88
4.	14- 3	1.06	18- 9	.80	:	14-11	1.01	16-10	.89
5.	14- 0	1.07	18- 7	.81	:	14- 7	1.03	16- 4	.92
6.	13- 6	1.11	18- 7	.81	:	13- 6	1.11	16- 2	.93
7.	14- 3	1.06	18- 3	.82	:	14- 3	1.06	15-10	.95
8.	14- 4	1.05	18- 3	.82	:	14- 2	1.06	15- 6	.97
9.	15- 4	.98	18- 3	.82	:	15- 5	.97	15- 2	.99
10.	14- 4	1.05	18- 3	.82	:	15- 6	.97	15- 0	1.00
11.	14- 4	1.05	18- 1	.83	:	14- 5	1.04	14- 9	1.02
12.	14- 9	1.02	18- 1	.83	:	14- 9	1.02	14- 9	1.02
13.	13- 4	1.13	17- 9	.85	:	14- 2	1.06	14- 1	1.07
14.	14- 9	1.02	17- 5	.86	:	14- 0	1.07	13- 9	1.09
15.	14- 0	1.07	17- 5	.86	:	15- 0	1.00	13- 5	1.12
16.					:	16- 0	.93	13- 3	1.13
17.					:	15- 0	1.00	12-10	1.17
18.					:	15- 9	.95	12- 8	1.18
19.					:	15- 5	.97	12- 2	1.23

into the result here also.

Mental Index.

The average mental index of the Alpha group, 18 years, is unusually high. There is a difference of 3 years and 4 months in the averages of the mental indexes of Alpha class and the control group. In the Sigma 3 reading test the Alpha class achieved a median fully an equivalent amount above norm of the 9th grade. On the other hand progress thru the grades, measured by the grade quotient, has been retarded for the Alpha class. The averages of the grade quotients for the Alpha class and the control group are .81 and .96 respectively.

Second Semester Freshman Class.

Haggerty Intelligence Examination, Delta 2.

The scores in the Haggerty Intelligence Examination, Delta 2, for the 2nd semester Alpha class extend from 137 to 152 with a median of 144, while those for the control group extend from 96 to 138 with a median of 119, (Table 22 A). Only 1 member of the average class received a score as high as the lowest score of the Alpha group, hence there is practically no overlapping in this class. The median of the control group is 1 point below the 7th grade norm while the median of the Alpha class is 14 points above the 9th grade norm.

Haggerty Reading Examination, Sigma 3.

The achievement of the Alpha class in reading was tested by means of the Haggerty Reading Examination, Sigma 3. The scores of pupils are shown in Table 22 A. It will be observed that the lowest score, 92, is 2 points above the norm for the 10th grade as previously given, while the median, 111, is 9

points above the norm for the 12th grade. So far as achievement in reading is concerned is concerned this class is quite as distinctly superior as they were shown to be in mental ability by the intelligence tests.

North Carolina Reading Examination, Sigma 3.

The achievement of the control group in reading was tested by means of the North Carolina Reading Examination Sigma 3 which has been previously discussed. The scores run from 27 to 75 with a median of 62.5, which is 2 points higher than the norm for the 10th grade. Apparently the pupils of this class have accomplished fully as much in reading as the index of their mentality given by the Delta 2 test would indicate they could.

Pedagogical Quotients.

The pedagogical quotients were found for the second semester freshmen in the Alpha class and the control group, using 15 years for the grade age of pupils at the close of February, and the chronological age at the time of taking the Sigma 3 test. The average of the P. Q.'s for the Alpha class was 1.05 and for the control group it was 1.02. This shows again that there is little difference between the time it requires for the average and for the bright pupils to pass thru the grades. The greatest amount of acceleration shown was .13 and the greatest amount of retardation shown was .09. (Tables 23 A and 23 B)

Grade Averages.

The averages for the grades obtained in the subjects studied were found by dividing the sum of the grades, (omitting the gymnasium and chorus grades) by 4. The averages for the Alpha group run from 79 to 105 with a median of 87, (Table 22 A) and

Table 24. Records of First Semester Sophomores in Central High School, St. Paul, Minn., Showing Scores in the Haggerty Intelligence Test, Delta 2, and in the Haggerty Reading Test, Sigma 3, with the Ages at the Time of Taking Each Test, the Averages of School Grades, and the Number of Subjects in which Each Pupil had Grades.

Case	Delta 2		Sigma 3		Grade Average.	No. of Grades
	Age Yr.Mo.	Score	Age Yr.Mo.	Score		
<u>Alpha Class</u>						
1.	13- 4	167	14- 6	132	78	8
2.	12-11	160	14- 1	128	90	8
3.	12- 4	159	13- 3	131	102	9
4.	12- 9	155	13-11	135	90	8
5.	13- 7	151	14- 9	126	89	8
6.	13- 7	145	14- 8	118	89	8
7.	13- 9	144	14-10	123	88	8
8.	13- 9	143	14-11	129	87	4*
9.	14- 1	141	15- 3	94	81	8
10.	12- 6	140	13- 9	120	90	8
11.	13- 8	138	14-10	132	89	4
12.	14- 3	138	15- 0	127	85	8
13.	11-11	136	13- 0	119	103	9

<u>Average Class</u>						
1.	12- 8	150	13-10	91	88	8
2.	13-11	149	15- 1	85	86	8
3.	13- 7	145	14- 8	85	89	8
4.	12- 6	140	13-10	78	90	8
5.	13- 6	134	14- 9	51	81	8
6.	13- 2	133	14- 4	71	84	0
7.	13- 5	130	14- 7	93	87	8
8.	13- 6	129	15- 1	64	78	8
9.	14- 2	127	15- 4	69	71	7
10.	12-10	126	14- 0	65	83	8
11.	14- 8	126	15-10	49	87	9
12.	14- 1	122	16- 2	58	82	4*
13.	14- 5	122	15- 7	49	79	8
14.	15- 1	121	16- 3	53	55	6
15.	14- 0	120	16- 2	76	103	5*
16.	14- 0	118	15- 2	53	82	8
17.	13- 5	115	14- 7	47	81	1
18.	14- 9	113	15-10	27	81	8
19.	14- 3	111	15- 5	40	77	8
20.	13- 5	108	14- 7	64	73	8
21.	15- 6	93	16- 8	40	77	8

* One semester.

for the control group the averages run from 60 to 104 with a median of 87.5 (Table 22 B). According to this the superior group are excelled by the average group in their school work. The fact needs to be kept in mind, however, that school grades do not always represent the amount of achievement in school subjects, but frequently school attitude and punctuality in regard to handing in assignments may have an influence.

First Semester Sophomore Classes.

Haggerty Intelligence Examination, Delta 2.

The scores for the Alpha class and for the control group of first semester sophomores, together with the ages at the time of taking each of the tests, and the averages of school grades are shown in Table 24. The range of the scores of the Alpha class in the Delta 2 test is from 136-167, while for the control group it is from 93 to 150. It is evident that some children who really belonged in the Alpha class have been shifted to an average class, but the median of the Alpha class, 144.5, is still considerably above the median, 126, for the control group.

Haggerty Reading Examination, Sigma 3.

In this group, too, the Haggerty Reading Examination, Sigma 3 was given to the Alpha class, while the North Carolina, Sigma 3 test was given to the average class. The range of the scores of the pupils in the Alpha class extend from 94 to 135. All save one of the scores are higher than the norm for the 12th grade. Apparently the attainment of this group, so far as the results of the achievement test in reading is concerned, is what should be expected when the mentality is taken into

Tables 25a and 25b. Records of Pupils of the First Semester Sophomore Class in Central High School, St. Paul, Minn., Showing (1) Chronological Age at the Time of Taking the Sigma 3 Reading Test, (2) Pedagogical Quotients, (3) Mental Index, and (4) Grade Quotient.

Table 25a.					Table 25b.			
No.	C. A. Yr.Mo.	P. Q.	M. I. Yr.Mo.	G. Q.	C. A. Yr.Mo.	P. Q.	M. I. Yr.Mo.	G. Q.
Alpha Group					Control Group			
1.	14- 6	1.07	21- 3	.73	13-10	1.19	19- 0	.82
2.	14- 1	1.10	20- 4	.76	15- 1	1.03	18-11	.82
3.	13- 3	1.17	20- 2	.77	14- 8	1.06	18- 5	.84
4.	13-11	1.11	19- 0	.82	13-10	1.12	17- 9	.78
5.	14- 9	1.05	19- 0	.82	14- 9	1.05	17- 1	.91
6.	14- 8	1.06	18- 5	.84	14- 4	1.09	17- 0	.91
7.	14-10	1.04	18- 2	.85	14- 7	1.06	14- 7	1.06
8.	14-11	1.04	18- 1	.86	15- 1	1.03	16- 4	.95
9.	15- 3	1.02	18- 1	.86	15- 4	1.01	16- 2	.96
10.	13- 9	1.13	17- 9	.78	14- 0	1.11	16- 0	.97
11.	14-10	1.04	17- 7	.88	15-10	.98	16- 0	.97
12.	15- 0	1.73	17- 7	.88	16- 2	.97	15- 4	1.01
13.	13- 0	1.19	17- 3	.90	15- 7	1.00	15- 4	1.01
14.					16- 3	.95	15- 4	1.01
15.					16- 2	.96	15- 2	1.02
16.					15- 2	1.02	15- 0	1.03
17.					14- 7	1.06	14- 8	1.06
18.					15-10	.98	14- 5	1.08
19.					15- 5	1.01	14- 1	1.10
20.					14- 7	1.06	13- 9	1.13
21.					16- 8	.93	11-10	1.31

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Table 26.

School	Test	Median: Gifted Group	Median: Control Group	Norms for Grades	Score	Grade
Douglas						
	Delta 2	113	85	96	6	120 8
	Nat. Int.	111	103	107.2	6	111 7
	Comb. Int.	222	190	203.2	6	226 7
	Sigma 3	77*	52*	50*	6	76* 8
	Spelling	90	70			
	Arithmetic	30	28	25	5	31 6
	Grades	88%	87%			
	P. Q.	1.08	.95			
	G. Q.	.80	.93			
Central High School Minneapolis, Minn.						
	Delta 2	136	121	120	8	130 9
	Sigma 3	A- 63*	B- 54*	C- 31*		48.3**9
				60.4**	10	67.2**11
	Grades	85%	82%	82%		
	P. Q.	1.05	1.03	1.01		
	G. I.	.83	.95	1.10		
Mechanic Arts High St. Paul, Minn.						
	Delta 2	135.5	107	102	12	120 8
	Sigma 3	108*	88**	84**	9	
	Grades	114%	84%			
	P. Q.	1.03	1.01			
	G. Q.	.85	1.07			
Central High School St. Paul, Minn.						
First Semester Freshmen						
	Delta 2	144	114			
	Sigma 3	102*	90**	102	12	
	P. Q.	1.07	1.02			
	G. Q.	.81	.96			
Second Semester Freshmen						
	Delta 2	144	119			
	Sigma 3	111*	60.5**	60.5**	10	102* 12
	Grades	87%	87.5%			
	P. Q.	1.02	1.02			
	G. Q.	.82	1.05			
First Semester Sophomore						
	Delta 2	144.5	126			
	Sigma 3	127.5*	64*	67**	11	
	Grades	89%	82%			
	P. Q.	1.08	1.03			
	G. Q.	.83	.99			

*Haggerty Reading Examination
**No. Car. Reading Examination

consideration.

The scores of the average class in the North Carolina Sigma 3 Reading Examination run from 27% to 93% with a median of 64, which exceeds the norm for the grade by about 4 points. The fact that a number of superior children happen to be in this grade is responsible for this high median. The achievement of the class in reading is satisfactory on the whole, however.

Grade Averages.

The averages of the grades for the Alpha class were from 78-103 with a median of 89, and for the average class they were from 55 to 103, median, 81. In this instance the Alpha class has the advantage. It is interesting to note, however, that the pupil in the Alpha class who had the highest score in the intelligence test, had the lowest grade average. His teachers report that he will not work. That he does master some of the work at least is shown by the fact that his score in the achievement test in reading is the highest in the class.

Pedagogical Quotient and Grade Quotient.

In finding the pedagogical quotients for the first semester sophomores, 15 years 6 months was the grade age used, (Tables 25-A-25-B). The average P. Q. for the Alpha class is 1.08 and for the control group 1.03. The average of the P. Q.'s for the Alpha class is .01 higher than any previous average. That the P. Q. is still low is shown by the reverse condition with the G. Q. The G. Q.'s for the Alpha and control groups are .83 and .(9 respectively. It is evident that the superior group is still badly retarded if considered from the point of view of mentality.

A summary of the results of the experiments conducted in all the schools is shown in Table 26. The medians of the scores in each test are shown with some grade norms for comparison. Averages of the G. Q.'s, P. Q.'s and grades are given. The results of all of these experiments show that there are in ordinary school grades quite a number of pupils who are mentally from 2 to 4 years in advance of their classmates. These superior children show their superiority not only in the superior scores in intelligence tests but also in the ability to make comparatively high scores in the achievement tests in reading. In the Douglass School, in which achievement tests in spelling and arithmetic were also given, the gifted group excelled the control group in all the achievement tests, tho the difference was not so marked in arithmetic. The school grades did not always show a balance in favor of the gifted children. It has been pointed, however, that school grades are not always trustworthy measures of achievement.

Furthermore the progress of gifted children thru the grades does not differ materially from that of ordinary children as shown by the P. Q.'s. The greatest difference found in the average P. Q.'s of a gifted group and a control group was .13. This is a small amount and especially so since .05 of the .13 represent the amount that the average of the control group was below normal. It may be concluded then that gifted children seldom are promoted ahead of their grades.

The grade quotients found in every school show that gifted pupils are not located in the grades for which they are fitted by their mentality. The greatest amount of retardation shown in any

school was 20 while the least amount was .15. Retardation of this type is especially harmful, since it is entirely uncalled for. In this case the pupils have the mental ability to do the work but they are not called upon to do it. Retardation here, then, represents just so much lost energy. The schools have failed to accomplish what was within their powers. Furthermore not only does this retardation represent wasted energies, but also it is a pretty sure indication that habits of idleness and carelessness are being established.

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INTERPRETATION AND CONCLUSION.

This study has shown that among the children of every school in which experiments were carried on there were small groups of children who had superior mentality, and has led to the conclusion that gifted children exist in every school system, and that they may be selected by the use of standardized tests. That psychological tests are effective in selecting the superior pupils, was shown by the comparatively high correlations between the intelligence tests and the achievement tests.

The extent of the superiority of gifted children was found often to be as much as the amount represented by a difference of three or four years of age. In some of the groups of superior children selected there was an average superiority of two years, yet these gifted pupils had been doing work in the classes with ordinary and even inferior children.

The tests in reading showed that gifted children can and do usually achieve as much as their mental ages would indicate they might, tho they are still placed in classes with children of nearly their own chronological ages but who are several years below them mentally. What folly to force pupils who already can read better than high school seniors to loiter thru several years of simple English wherein their powers are not tested!

Tests in spelling and arithmetic showed a similar condition tho it was not so marked with the arithmetic. It is probable that if tests were given in all subjects, they would reveal the fact that gifted children are superior to their classmates in

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all their school work. Considering these differences in mentality and in achievements the gifted children ought not be kept in classes with ordinary or inferior children. What sheer idiocy to waste the precious hours of youth in needless repetition of already mastered facts! Habits of intense application should be formed in school. This goal can never be reached with gifted children so long as school work is suited to average mentality.

The time-honored custom of measuring school work by the amount of time put upon it is evidenced by the fact that tho there are many superior children in the groups studied and tho they ranked very high in achievement tests, yet there was very little acceleration shown by the P.Q.'s. Furthermore, the same condition is revealed by the large amount of retardation among the gifted pupils as shown by the G.Q.'s.

Finally, this study has shown that gifted pupils are capable of doing more work and more difficult work than ordinary children can do. In justice to superior children the opportunity to do such work should be offered them, and they should be encouraged to exert themselves. Promotions should occur whenever the pupils are prepared for them. This procedure would mean a breaking away from the old system and an individualizing of instruction. The fullest developement of the child with the least waste of time and energy should be the goal in education.

NATIONAL INTELLIGENCE TESTS

SCALE B — FORM 1

Prepared under the auspices of the National Research Council by M. E. Haggerty,
L. M. Terman, E. L. Thorndike, G. M. Whipple, and R. M. Yerkes, *Chairman*

Name Grade Boy or girl

First name Last name

Date of birth Age
Month Day Year Years Months

Birthplace of parents Race

Father Mother

Name of teacher

Name of school

Name of city

Date of examination

TEST	METHOD OF SCORING	R	W	SCORE
1	Rights × 2			
2	Rights			
3	Rights — wrongs			
4	Rights			
5	Rights — wrongs			
TOTAL	Sum			

Exercise 1

Do this work in arithmetic as quickly as you can without making mistakes. Try each example as you come to it. Look carefully at each one to see what you are to do.

Begin here	(1) Add	(2) Multiply	(3) Add	(4) Subtract
	$\begin{array}{r} 4 \\ 2 \\ \hline \end{array}$	$4 \times 5 =$	$\begin{array}{r} 32 \\ 25 \\ \hline 19 \end{array}$	$\begin{array}{r} 13 \\ 5 \\ \hline \end{array}$

(5) Divide	(6) Multiply	(7) Divide	(8) Subtract
$11 \div 3 =$	$\begin{array}{r} 5073 \\ 9 \\ \hline \end{array}$	$37 \overline{)14282}$	$\frac{2}{7} - \frac{1}{3} =$

(9) Divide	(10) Multiply
$\frac{3}{4} \div 5 =$	$\begin{array}{r} 358\frac{1}{2} \\ 26 \\ \hline \end{array}$

Test 1

Do this work in arithmetic as quickly as you can without making mistakes. Try each example as you come to it. Look carefully at each one to see what you are to do.

Begin here	(1) Add	(2) Multiply	(3) Subtract	(4) Divide	(5) Add	(6) Multiply
	$\begin{array}{r} 1 \\ 5 \\ \hline \end{array}$	$2 \times 3 =$	$\begin{array}{r} 5 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 2 \overline{)8} \end{array}$	$\begin{array}{r} 19 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 26 \\ 3 \\ \hline \end{array}$

(7) Add	(8) Subtract	(9) Divide	(10) Multiply	(11) Subtract	(12) Divide
$\begin{array}{r} 24 \\ 27 \\ 15 \\ \hline \end{array}$	$\begin{array}{r} 16 \\ 7 \\ \hline \end{array}$	$13 \div 4 =$	$\begin{array}{r} 6084 \\ 7 \\ \hline \end{array}$	$\begin{array}{r} 37344 \\ 14853 \\ \hline \end{array}$	$380 \div 7 =$

(13) Add	(14) Divide	(15) Subtract	(16) Add
$\begin{array}{r} \$ 80.41 \\ 1.00 \\ 10.20 \\ .04 \\ 203.00 \\ 3022.02 \\ \hline \end{array}$	$48 \overline{)1536}$	$126.16 - 23.88 =$	$\frac{5}{8} + \frac{3}{12} =$

(17) Divide	(18) Multiply	(19) Add
$\frac{2}{3} \div 4 =$	$\begin{array}{r} 249\frac{3}{4} \\ 25 \\ \hline \end{array}$	$\begin{array}{r} 1 \text{ hr. } 35 \text{ min.} \\ 47 \text{ min.} \\ \hline 2 \text{ hr. } 10 \text{ min.} \end{array}$

(20)	(21) Multiply	(22) Subtract
$12\frac{1}{2}\% \text{ of } 160 =$	$\begin{array}{r} 63 \text{ lb. } 8 \text{ oz.} \\ 6 \\ \hline \end{array}$	$8.3 - 3.00072 =$

Exercise 2

SAMPLES { Sheep eat mostly nuts grass fruits bread
 The number of cents in a dime is 2 5 10 25

In each sentence draw a line under the one word that makes the sentence true.

Begin here

- | | | |
|----|--|----|
| 1 | The number of days in a week is 5 6 7 12 | 1 |
| 2 | The kitten is the young of the dog cat lion sheep | 2 |
| 3 | The day before Thursday is Wednesday Tuesday Friday Monday . | 3 |
| 4 | Cheese comes from butter plants eggs milk | 4 |
| 5 | Leather comes from cotton wool skins bark | 5 |
| 6 | An animal that moves very slowly is the snail squirrel rabbit deer | 6 |
| 7 | The elm is a kind of bush flower vine tree | 7 |
| 8 | Soap is made from sugars fats pears lemons | 8 |
| 9 | Easter comes in fall winter spring summer | 9 |
| 10 | Figs grow on a bush stalk tree vine | 10 |
| 11 | America was discovered by Drake Hudson Columbus Raleigh . . . | 11 |
| 12 | Glass is made of sand gravel clay mica | 12 |
| 13 | The highest price per pound is usually paid for flour sugar coffee salt | 13 |
| 14 | Pearls are obtained from mines elephants reefs oysters | 14 |
| 15 | The tadpole is the young of the fish frog lizard crayfish | 15 |
| 16 | Cypress is a kind of machine food fabric tree | 16 |

Test 2

In each sentence draw a line under the one word that makes the sentence true, as shown in the samples.

SAMPLES { Sheep eat mostly nuts grass fruits bread
The number of cents in a dime is 2 5 10 25

Begin here

- | | | | | | | | |
|----|--|--------------|-------------|---------------|--------------|-------|----|
| 1 | The day before Sunday is | Friday | Monday | Saturday | Thursday | ..... | 1 |
| 2 | Ripe strawberries are | black | green | blue | red | ..... | 2 |
| 3 | Raisins are dried | cranberries | currants | gooseberries | grapes | ..... | 3 |
| 4 | The axle is a part of a | bed | ax | chair | wagon | ..... | 4 |
| 5 | Most spiders spin webs to catch | birds | fish | flies | snakes | ..... | 5 |
| 6 | A net is used in playing | croquet | football | golf | tennis | ..... | 6 |
| 7 | The buffalo looks most like a | cow | deer | sheep | wolf | ..... | 7 |
| 8 | New Year's Day is | April 1 | December 1 | January 1 | July 1 | ..... | 8 |
| 9 | "Hiawatha" was written by | Cooper | Longfellow | Poe | Whittier | ..... | 9 |
| 10 | A country that fought on Germany's side was | Greece | Holland | Roumania | Turkey | ..... | 10 |
| 11 | Diamonds are obtained from | mines | oysters | reefs | whales | ..... | 11 |
| 12 | An animal with a painful sting is the | cricket | hornet | locust | salamander | ..... | 12 |
| 13 | The month before October is | August | December | November | September | ..... | 13 |
| 14 | A guitar is played with | bow | fingers | mouth | sticks | ..... | 14 |
| 15 | The highest price per bushel is usually paid for | corn | oats | turnips | wheat | ..... | 15 |
| 16 | The incubator is useful in raising | cattle | chickens | corn | cotton | ..... | 16 |
| 17 | Boston is in | Connecticut | Maine | Massachusetts | Rhode Island | ..... | 17 |
| 18 | A state famous for oranges is | Alabama | California | Louisiana | Texas | ..... | 18 |
| 19 | The number of weeks in a month is about | 2 | 4 | 6 | 8 | ..... | 19 |
| 20 | Cambric is a | cloth | color | dance | food | ..... | 20 |
| 21 | A duet is sung by | one | two | four | six | ..... | 21 |
| 22 | The Arabian is a kind of | cow | goat | horse | sheep | ..... | 22 |
| 23 | Sirloin is a cut of | beef | mutton | pork | veal | ..... | 23 |
| 24 | Massachusetts was settled by the | Huguenots | Moors | Pilgrims | Quakers | ..... | 24 |
| 25 | A canteen is a kind of | cannon | cup | flask | musket | ..... | 25 |
| 26 | Of parsnips we eat the | flower | leaf | root | stem | ..... | 26 |
| 27 | Turquoise is usually | blue | green | red | yellow | ..... | 27 |
| 28 | A peck is a fourth of a | barrel | bushel | gallon | keg | ..... | 28 |
| 29 | Turpentine comes from | hides | ore | petroleum | trees | ..... | 29 |
| 30 | A man known for his strength was | Abel | David | Samson | Solomon | ..... | 30 |
| 31 | A lake that touches Ohio is | Erie | Huron | Ontario | Superior | ..... | 31 |
| 32 | James A. Garfield was a | poet | inventor | president | writer | ..... | 32 |
| 33 | The loom is used for | carding | sewing | spinning | weaving | ..... | 33 |
| 34 | Among Robin Hood's men was | Allan Breck | Natty Bumpo | Galahad | Friar Tuck | ..... | 34 |
| 35 | General Lee surrendered at Appomattox in | 1812 | 1886 | 1865 | 1832 | ..... | 35 |
| 36 | One of the first locomotives was made by | Fulton | Morse | Stephenson | Whitney | ..... | 36 |
| 37 | The aorta is a | blood vessel | bone | muscle | nerve | ..... | 37 |
| 38 | "The Secret Garden" tells about | Colin | Joan of Arc | Rebecca | William Tell | ..... | 38 |
| 39 | The humerus is a | bone | gland | muscle | nerve | ..... | 39 |
| 40 | A meter is nearest in length to the | inch | foot | yard | rod | ..... | 40 |

Exercise 3

- SAMPLES { Can cows eat? Yes No
 Do stones swim? Yes No

Read each question and draw a line under the right answer.

-
- Begin here
- | | | | |
|----|---|-----|----|
| 1 | Do flowers bloom? | Yes | No |
| 2 | Are apples good to eat? | Yes | No |
| 3 | Are some houses built of stone? | Yes | No |
| 4 | Is the sky ever gray? | Yes | No |
| 5 | Has our flag green stars? | Yes | No |
| 6 | Do trees ever grow on moist land? | Yes | No |
| 7 | Are newspapers printed in churches? | Yes | No |
| 8 | Is stealing a proper pastime? | Yes | No |
| 9 | Are steeples commonly found in barrels? | Yes | No |
| 10 | Is furniture usually visible? | Yes | No |
| 11 | Is a memorable publication often trivial? | Yes | No |
| 12 | Is a dromedary a curious implement? | Yes | No |
| 13 | May a reprimand cause poignant distress? | Yes | No |
| 14 | Are veracious statements frequently inconsistent? | Yes | No |
| 15 | Can acrimonious criticism be censorious? | Yes | No |

Test 3

Draw a line under the right answer to each question. Do as many as you can.

SAMPLES	{	Can cows eat?	<u>Yes</u>	No
		Do stones swim?	Yes	<u>No</u>

-
- | | | | | | |
|--|-------------------|----|--|-----|----|
| | Begin here | 1 | Have you a name? | Yes | No |
| | | 2 | Do apples have seeds? | Yes | No |
| | | 3 | Are all birds blue? | Yes | No |
| | | 4 | Are books useful? | Yes | No |
| | | 5 | Is it always morning? | Yes | No |
| | | 6 | Do bears have legs? | Yes | No |
| | | 7 | Do daisies bloom in meadows? | Yes | No |
| | | 8 | Does ice make water warmer? | Yes | No |
| | | 9 | Does a dollar have eyes? | Yes | No |
| | | 10 | Is red a color? | Yes | No |
| | | 11 | Are shawls made of brass? | Yes | No |
| | | 12 | Do children like pain? | Yes | No |
| | | 13 | Are handkerchiefs ever found useful? | Yes | No |
| | | 14 | Are avenues found in large cities? | Yes | No |
| | | 15 | Is a fish ever covered with scales? | Yes | No |
| | | 16 | Do some kitchens have cupboards? | Yes | No |
| | | 17 | Can you carry water in a sieve? | Yes | No |
| | | 18 | Do "herring" and "hereditary" mean the same? | Yes | No |
| | | 19 | Do ducks like corn? | Yes | No |
| | | 20 | Are accurate reports ever worth while? | Yes | No |
| | | 21 | Is medicine ever purchased by a physician? | Yes | No |
| | | 22 | Should a sentinel be trustworthy? | Yes | No |
| | | 23 | Do we desire serious trouble? | Yes | No |
| | | 24 | Do builders construct bridges? | Yes | No |
| | | 25 | Does money necessarily bring happiness? | Yes | No |
| | | 26 | Would you trust people who have malicious designs? | Yes | No |
| | | 27 | Is it an outrage to insult a well-behaved tourist? | Yes | No |
| | | 28 | Are chandeliers found inside stately mansions? | Yes | No |
| | | 29 | Is a traitor one who never betrays confidence? | Yes | No |
| | | 30 | Can all teachers ascertain with correctness the chemical properties of food? | Yes | No |
| | | 31 | Are measurements used in astronomy? | Yes | No |
| | | 32 | Does a conscientious commander mourn the loss of his men? .. | Yes | No |
| | | 33 | Are "synthesis" and "analysis" synonyms? | Yes | No |
| | | 34 | Do disastrous consequences sometimes succeed defiance of authority? | Yes | No |
| | | 35 | Does manual labor always terminate in cerebral hemorrhages? .. | Yes | No |
| | | 36 | Is alliteration a form of pentameter? | Yes | No |
| | | 37 | Is a penurious man averse to a policy of hoarding money? | Yes | No |
| | | 38 | Do those evincing modesty and virtue behave in an indecorous manner? | Yes | No |
| | | 39 | Is the cessation of belligerency ever desirable? | Yes | No |
| | | 40 | Is a natatorium a place for swimming? | Yes | No |

Exercise 4

SAMPLES	{	<u>shoe</u> — <u>foot</u> ——— <u>hat</u> — coat nose see <u>head</u>
		<u>sky</u> — <u>blue</u> ——— <u>grass</u> — grows summer green tall
		<u>bird</u> — <u>sing</u> ——— <u>dog</u> — tail bark walk kennel
		<u>bird</u> — <u>fly</u> ——— <u>dog</u> — tail bark walk kennel
		<u>dress</u> — <u>cloth</u> ——— <u>hat</u> — head wear band straw

Read carefully the first three words in each line. Then read the last four and draw a line under the right one.

Begin here

1	<u>baby</u> — <u>cries</u> ——— <u>cat</u> — mews hole little dog.....	1
2	<u>dog</u> — <u>hair</u> ——— <u>fish</u> — cat water scales pole.....	2
3	<u>chew</u> — <u>teeth</u> ——— <u>smell</u> — sweet strong odor nose.....	3
4	<u>book</u> — <u>paper</u> ——— <u>dress</u> — worn cloth fruit tree.....	4
5	<u>sailor</u> — <u>ship</u> ——— <u>preacher</u> — pray church preach read..	5
6	<u>go</u> — <u>come</u> ——— <u>sell</u> — leave papers money buy.....	6
7	<u>ball</u> — <u>hand</u> ——— <u>football</u> — play game field foot.....	7
8	<u>paddle</u> — <u>canoe</u> ——— <u>sail</u> — ocean boat wind steam.....	8
9	<u>city</u> — <u>houses</u> ——— <u>forest</u> — trees dark country birds....	9
10	<u>hat</u> — <u>brim</u> ——— <u>house</u> — high sun porch chair.....	10
11	<u>reward</u> — <u>hero</u> ——— <u>punish</u> — God whip pain traitor.....	11
12	<u>100</u> — <u>90</u> ——— <u>10</u> — 6 7 8 9.....	12

Test 4

Read carefully the first three words in each line. Then read the last four and draw a line under the right one.


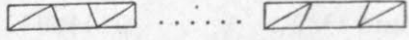
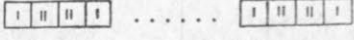

SAMPLES	{	<u>shoe</u> — <u>foot</u> ——— <u>hat</u> — coat nose see <u>head</u>
		<u>sky</u> — <u>blue</u> ——— <u>grass</u> — grows summer <u>green</u> tall
		<u>bird</u> — <u>sing</u> ——— <u>dog</u> — tail <u>bark</u> walk kennel
		<u>bird</u> — <u>fly</u> ——— <u>dog</u> — tail bark <u>walk</u> kennel
		<u>dress</u> — <u>cloth</u> ——— <u>hat</u> — head wear <u>band</u> <u>straw</u>

Begin here

1	<u>finger</u> — <u>hand</u> ——— <u>toe</u> — box foot doll coat.....	1
2	<u>cannon</u> — <u>shoots</u> ——— <u>bell</u> — rings door metal maid.....	2
3	<u>sweet</u> — <u>sugar</u> ——— <u>sour</u> — sweet cake vinegar man.....	3
4	<u>handle</u> — <u>hammer</u> ——— <u>knob</u> — key room shut door.....	4
5	<u>suitcase</u> — <u>clothing</u> ——— <u>purse</u> — purchase money string stolen.....	5
6	<u>Wednesday</u> — <u>day</u> ——— <u>July</u> — August hot month year.....	6
7	<u>clothes</u> — <u>man</u> ——— <u>fur</u> — dress warm soft animal.....	7
8	<u>razor</u> — <u>beard</u> ——— <u>saw</u> — cloth tool wood sharp.....	8
9	<u>feather</u> — <u>float</u> ——— <u>rock</u> — ages hill sink break.....	9
10	<u>packing</u> — <u>pack</u> ——— <u>lifting</u> — lifter lift lifted lifts.....	10
11	<u>pan</u> — <u>tin</u> ——— <u>table</u> — chair wood legs dishes.....	11
12	<u>strength</u> — <u>boldness</u> ——— <u>weakness</u> — woman run cry timidity.....	12
13	<u>fish</u> — <u>salmon</u> ——— <u>bird</u> — robin sing nest bushes.....	13
14	<u>violin</u> — <u>bow</u> ——— <u>drum</u> — loud parade stick march.....	14
15	<u>man</u> — <u>Adam</u> ——— <u>woman</u> — girl Eve dress female.....	15
16	<u>12</u> — <u>36</u> ——— <u>8</u> — 24 88 16 48.....	16
17	<u>above</u> — <u>below</u> ——— <u>top</u> — spin bottom surface side.....	17
18	<u>second</u> — <u>minute</u> ——— <u>minute</u> — time week day hour.....	18
19	<u>June</u> — <u>May</u> ——— <u>August</u> — July March October November.....	19
20	<u>establish</u> — <u>begin</u> ——— <u>abolish</u> — end slavery wrong abolition.....	20
21	<u>food</u> — <u>costly</u> ——— <u>air</u> — breathe gas free oxygen.....	21
22	<u>success</u> — <u>joy</u> ——— <u>failure</u> — sadness luck fail work.....	22
23	<u>quarrel</u> — <u>enemy</u> ——— <u>agree</u> — friend disagree agreeable foe.....	23
24	<u>hinge</u> — <u>door</u> ——— <u>joint</u> — bone fasten stiff open.....	24
25	<u>devil</u> — <u>angel</u> ——— <u>bad</u> — mean disobedient defamed good.....	25
26	<u>dead</u> — <u>lifeless</u> ——— <u>danger</u> — peril accident wreck run.....	26
27	<u>floor</u> — <u>ceiling</u> ——— <u>ground</u> — earth sky dirt grass.....	27
28	<u>water</u> — <u>fish</u> ——— <u>air</u> — nose man blame breathe.....	28
29	<u>snake</u> — <u>adder</u> ——— <u>dog</u> — black bark cat spaniel.....	29
30	<u>person</u> — <u>crowd</u> ——— <u>one</u> — all many few large.....	30
31	<u>1</u> — <u>10</u> ——— <u>1</u> — 2 4 6 8.....	31
32	<u>almost</u> — <u>entirely</u> ——— <u>rarely</u> — ever often never seldom.....	32

Exercise 5

If the two things in a pair are the same, write **S** on the dotted line between them.
If they are different, write **D** on the dotted line between them. Do each one as you come to it.

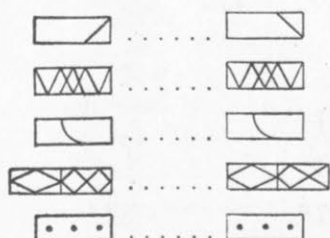
- Begin here** 273 273
 3861 3854
 Roland R. C. Rollan R. C.

 2579 2397
 38657 38657
 926745 926145
 Rapen J. D. Rapon J. O.
 Paltaser F. Paltaser F.



 468225 468235
 920379 923079
 5218861 5218861
 3238734 3328734
 21059876 21059876
 Singleton O. J. Singleton O. J.
 Siegel P. D. Seigel P. D.
 Richards W. E. Richards W. E.

Test 5

If the two things in a pair are the same, write S. If they are different, write D.
Do each one as you come to it.

Begin here 561 560
 493 493
 5172 5172
 9432 9342
 19037 19037

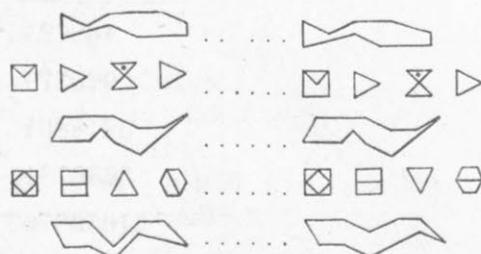
Capline J. F. Caplein J. F.
 Carlson B. O. Carlson B. O.
 Abbott J. V. Abbett J. V.
 Barnum O. L. Barman O. L.
 Beakes E. W. Beakes E. W.



70090 71090
 276431 267431
 5307251 5307257
 23544636 23445636
 57216472 57216472

Basler A. H. Basler A. H.
 Aspinwall G. Aspinwald G.
 Armand J. P. Armand J. P.
 Castleman F. Castleman F.
 Barsk C. P. Barks C. P.

40246586 40246586
 875012534 975012534
 388132902 388123902
 742138694 742138694
 8566607362 8656607362
 3371089340 3371089344
 2986751243 2986751243
 7649266315 7649366215
 5144667210 5144667210
 4046169289 4046169289



Anderson L. B. Andersen L. B.
 Johnson G. W. Johston G. W.
 Reynolds F. J. Reynolds F. J.
 Saunders D. E. Saunders D. E.
 Whittaker S. P. Whithaker S. P.

280587204 380587204
 479124079 479124079
 7949623615 7949623615
 3652881365 3562881365
 9655834821 9655834821

Go to the other column at the top of the page and do as many as you can.

	R	W	SCORE
Vocabulary			
Sentences			
Paragraphs			
TOTAL			

Haggerty Reading Examination

SIGMA 3

FOR GRADES 5-12

Arranged and standardized by M. E. HAGGERTY and LAURA C. HAGGERTY, University of Minnesota

My name is..... I am a.....
First name Last name Write boy or girl

This is the..... day of..... 19..... I am..... years old.

My next birthday will be..... 19..... I am in..... half of Grade.....

The name of my school is..... The name of my city (county) is.....

The name of my state is.....

Directions for Test 1


- On the following pages are some words — each word is written like the word *red* in the next line, with some other words and phrases in parentheses.
red (apple, color, to shine, green)
- One of the words in the parentheses is a definition of the first word. You are to draw a line under the word or phrase which is the best definition, like this:
red (apple, color, to shine, green)
- Here are some words for practice. Look at the first word and then look at the words and phrases in the parentheses and draw a line under the word or phrase which is the best definition of the first word. The first one is marked as it should be. Mark all the others.
 - orange (round, a fruit, sour, to eat)
 - coffee (black, liquid, drink, bitter)
 - soldier (man, man who fights, animal, gun)
 - pupil (school child, boy, school, teacher)
 - juggler (engineer, plowman, butcher, one who throws balls)
- Now turn to page 2 and mark all the definitions correctly. Mark the definitions in order.

TEST 1

VOCABULARY

Draw a line under the best definition for each word.

1	minister (servant, preacher, agent, to assist).....	1
2	student (one who seeks knowledge, teacher, paper, book).....	2
3	pardon (forgive, hinder, condemn, smile at).....	3
4	island (section, part of the ocean, land surrounded by water, peak).....	4
5	float (sail, sink, to fly, to stay on top of the water).....	5
6	cataract (rushing, a waterfall, a basin, a spray).....	6
7	aisles (houses, passages, churches, length).....	7
8	parliament (a conference, to propose, to palliate, foreigners).....	8
9	perilous (precious, dangerous, to spy, to invest).....	9
10	fleet (navy, engineer, group of vessels, effective).....	10
11	armor (metal, protective covering, soldiers, knights).....	11
12	wharf (person who has no parents, landing place for ships, edge, animal).....	12
13	brandy (wine, liquid, liquor, medicine).....	13
14	noose (midday, a loop with knot, a gallows, a moose).....	14
15	bristling (stubby, standing stiff, long, thin).....	15
16	descend (to move downwards, to fall, to speed, to climb).....	16
17	retort (a charge, to speak back, civility, to control).....	17
18	calm (quiet, sleepy, night, restful).....	18
19	cupola (church, high, schoolhouse, rounded dome).....	19
20	swain (a prince, a country lover, swing, a student).....	20
21	coast (shore line, outside, near the sea, boundary).....	21
22	value (prize, worth, cost, amount).....	22
23	deceitful (trustworthy, misleading, sincere, careful).....	23
24	lapwing (flapping, crest, a bird, to waver).....	24
25	dubious (certain, unsettled, determined, in danger).....	25
26	pallid (morose, darkness, pale, placid).....	26
27	dwindled (swindled, decreased, to consume, dwarflike).....	27
28	derision (amazement, mockery, decision, to succumb).....	28
29	navies (commerce, navigation, fleets of warships, canoes).....	29
30	crevice (tiny, a fissure, rocky, mountains).....	30
31	ardent (praise, passionate, relative, to wed).....	31
32	scrupulous (populous, scrappy, conscientious, sacred).....	32
33	steel (metal, mineral, hard substance, a kind of iron).....	33
34	revive (to remember, to call back, to have life again, to return).....	34
35	zinc (stove, to wash dishes in, soft lead, mineral).....	35

 Go to top of next page.

36	hypothesis (a supposition, relation, provision, reflex).....	36
37	apathy (pathetic, cold, indifference, dislike).....	37
38	appreciate (lovely, to esteem duly, likable, to listen to).....	38
39	epaulets (dresses, boy's garments, shoulder ornaments, apparel).....	39
40	chalice (bowl, dew, a flower cup, vase).....	40
41	blithe (springlike, juicy, joyous, full of melody).....	41
42	accuracy (positive, necessary, mistakes, exactness).....	42
43	extricate (liberal, entangle, set free, to fasten to).....	43
44	primitive (forests, first, to postpone, to abolish).....	44
45	sagacious (lacking in judgment, improved, wise, a remark).....	45
46	phantom (a delight, like a phaeton, delusion, paltry).....	46
47	facetious (friendly, morose, witty, stupid).....	47
48	avidity (to vow, harshness, eagerness, to avoid).....	48
49	dispel (to expend, to distrust, to scatter, to relieve).....	49
50	delectable (eatable, expensive, delicious, fancy).....	50

Score.....

Directions for Test 2

1. In the following pages are some sentences. Each sentence asks a question which can be answered by YES or NO. The sentences are written like this :

Are all men soldiers?.....YES NO

2. You are to draw a line under the right answer, like this :

Are all men soldiers?.....YES NO
 Are some men soldiers?.....YES NO

3. Mark the right answer to these sentences by drawing a line under the YES or the NO. Do not mark both YES and NO. Mark only the right answer.

- a. Is snow white?.....YES NO
- b. Are elephants plants?.....YES NO
- c. Can a pupil respond to a question?.....YES NO
- d. Are multitudinous defects desirable?.....YES NO
- e. May a hamlet be located in a province?.....YES NO

4. Now turn to page 4 and mark all the sentences correctly. Mark the sentences in order.

TEST 2

SENTENCE READING

Draw a line under the right answer to each question.

-
- | | | | |
|-----|--|-----|----|
| 1. | Can good children make promises ?..... | YES | NO |
| 2. | Do all people rent houses ?..... | YES | NO |
| 3. | Do laborers ever become exhausted ?..... | YES | NO |
| 4. | Are compasses used by mariners ?..... | YES | NO |
| 5. | Can children act in a serviceable manner ?..... | YES | NO |
| 6. | Do caravans always move with great speed ?..... | YES | NO |
| 7. | Is day always preceded by night ?..... | YES | NO |
| 8. | Can a boy be absorbed in a performance ?..... | YES | NO |
| 9. | Do vicious men plan revenge ?..... | YES | NO |
| 10. | Are all experiences humiliating ?..... | YES | NO |
| 11. | Are all sources of information reliable ?..... | YES | NO |
| 12. | Do some people have bright prospects ?..... | YES | NO |
| 13. | Do histories consist chiefly of prophecies ?..... | YES | NO |
| 14. | Are brazen persons the best companions ?..... | YES | NO |
| 15. | Can a man possess both valor and vigor ?..... | YES | NO |
| 16. | Are continuous sounds always harmonious ?..... | YES | NO |
| 17. | Are armed cruisers vessels of war ?..... | YES | NO |
| 18. | Is a battery a place where transports are made ?..... | YES | NO |
| 19. | Are venerable people sometimes invincible ?..... | YES | NO |
| 20. | Do lunatics render great service to their country ?..... | YES | NO |
| 21. | Are inquiring friends sometimes courteous ?..... | YES | NO |
| 22. | Should evildoers make amends ?..... | YES | NO |
| 23. | Do autumnal showers occur in the winter ?..... | YES | NO |
| 24. | Can prominent people administer relief ?..... | YES | NO |
| 25. | Are devices used in measuring time ?..... | YES | NO |
| 26. | Do ravenous monsters respond to persuasion ?..... | YES | NO |
| 27. | Are arsenals primarily for civic meetings ?..... | YES | NO |
| 28. | Are stalactites parts of dwellings ?..... | YES | NO |
| 29. | Are the prospects of good crops always remote ?..... | YES | NO |
| 30. | Do financial transactions involve monetary considerations ?..... | YES | NO |
| 31. | Are the adherents of law and order sometimes orthodox ?..... | YES | NO |
| 32. | May popular distrust be evident to a sovereign ?..... | YES | NO |
| 33. | Can a challenge to a duel be accepted ?..... | YES | NO |
| 34. | Is it mutinous to give succor to the helpless ?..... | YES | NO |
| 35. | Can the confidence of a discouraged man be restored ?..... | YES | NO |
| 36. | Are insidious people usually deceptive ?..... | YES | NO |
| 37. | May candidates live in hamlets ?..... | YES | NO |
| 38. | Does fidelity denote faithfulness ?..... | YES | NO |
| 39. | Do conciliating parties have pacific interests ?..... | YES | NO |
| 40. | Are assiduity and frugality undesirable characteristics ?..... | YES | NO |

Score.....

Directions for Test 3

Read these directions in order and do what they say to do.

1. The following pages contain a series of paragraphs with directions. You are to read the paragraphs and do what the directions tell you to do.

2. There are two kinds of directions. The first direction is to "underline." Where this direction occurs, you are to draw a line under the correct word or phrase, as in this sample:

He was an old-fashioned scholar who made the boys learn the Latin grammar by heart, and who flogged them when they failed.

1. Underline the correct word to complete this sentence:

The "old-fashioned scholar" was
young
jolly
severe
ignorant

"Severe" is the correct word, and so you should draw a line under the word "severe." Do it before you read the next line.

3. The second direction is to "check." Where this direction occurs, you are to put a check like this \checkmark in front of the correct statement, as in this sample:

2. Check the true sentence:

- a. — The scholar was a boy.
- b. — The scholar taught history.
- c. — The scholar taught Latin.

4. The first and second statements are clearly false. The third one is true. So a check mark should be put in front of the third sentence. Put it on the line between the letter *c* and the first word of the sentence. Do it.

5. On the following pages read each paragraph as you come to it. Then read directions which follow the paragraph and do what the directions tell you to do. The correct answers to all questions are to be found by reading the paragraphs. Read the paragraphs as often as you need to.

6. Now turn the page. You will have about twenty minutes to work. Do all you can in that time, but work carefully. Make the correct mark for each direction.

TEST 3

PARAGRAPH READING

I

A carriage, drawn by four horses, dashed 'round the turn of the road. Within it, thrust partly out of the window, appeared the face of a little old man, with a skin as yellow as gold. He had a low forehead, small, sharp eyes puckered about with innumerable wrinkles, and very thin lips, which he made still thinner by pressing them forcibly together.

1. Underline the correct phrase :

The carriage was drawn by	two mules
	a fancy team
	four horses
	a gray mare

2. Check the sentence which is true :
- a. — The carriage was slowly drawn around the turn.
 - b. — The carriage was turned over as it rounded the turn.
 - c. — The carriage was hurried violently around the turn.
3. Check the false statements :
- a. — The man was large and bony.
 - b. — The man was middle-aged.
 - c. — The man was little and old.

II

There was the greatest interest throughout the ship, and not an eye was closed that night. As the evening advanced, Columbus took a position in the cabin of his vessel and kept up a continuous watch. About two o'clock he thought he beheld a light, glimmering at a great distance. Fearing his eager eyes might deceive him, he called a gentleman of the King's bedchamber, to inquire whether he saw such a light, and he admitted that he saw it.

1. Underline the word that shows what time it was :
- | |
|-----------|
| midday |
| forenoon |
| night |
| afternoon |

2. Underline the correct phrase :

Columbus was	riding on a train
	walking on land
	living in a house
	traveling in a boat

3. Check the statement which is true :
- a. — Columbus called the King.
 - b. — The gentleman saw a light.
 - c. — All were asleep except Columbus.
4. Check one statement which is not true :
- a. — Columbus watched continuously.
 - b. — Columbus first saw the light.
 - c. — No one except Columbus was interested.
 - d. — Columbus saw the light after midnight.

III

In the anteroom he found his attendant Anwold, who, taking the torch from the hand of the waiting-maid, conducted him with more haste than ceremony to an exterior and ignoble part of the building, where a number of small apartments, or rather cells, served for sleeping places to the lower order of domestics and to strangers of mean degree.

1. Check the true sentences :
- a. — Anwold was in the basement.
 - b. — Anwold was in a waiting-room.
 - c. — Anwold was not to be found.
2. Check the true statements :
- a. — The attendant took the light from the maid.
 - b. — The attendant led the way.
 - c. — Anwold held high his torch.
3. Underline the phrase making this sentence true :
- | | |
|---------------------------|-----------------|
| The poorest servants | the downstairs |
| | apartments |
| had sleeping quarters in: | the worst part |
| | of the building |
| | the attic |
4. Underline the words which describe the strangers :
- | |
|-----------------------|
| fashionable |
| guests of high repute |
| of low manner |
| poorly clad |

Go to top of next page.

IV

The great error in Rip's composition was an insuperable aversion to all kinds of profitable labor. It could not be for the want of assiduity or perseverance; for he would sit on a wet rock, with a rod as long and heavy as a Tartar's lance, and fish all day without a murmur, even though he should not be encouraged by a single nibble. He would carry a fowling-piece on his shoulder for hours together, trudging through woods and swamps, and up hill and down dale, to shoot a few squirrels or wild pigeons. He would never refuse to assist a neighbor, even in the roughest toil, and was a foremost man at all country frolics for husking Indian corn, or building stone-fences; the women of the village, too, used to employ him to run their errands, and to do such little odd jobs as their less obliging husbands would not do for them. In a word, Rip was ready to attend to anybody's business but his own; but as to doing family duty, and keeping his farm in order, he found it impossible.

1. Underline the one phrase which tells what Rip did not like to do:

run errands
work at home
hunt
fish

2. Check the one of the following sentences which is true:

a. — Rip never showed perseverance.
b. — Rip's neighbors disliked him.
c. — Rip was an obliging neighbor.

3. Check the one of the following sentences which is true:

a. — Rip owned a well-kept farm.
b. — Rip disliked profitable labor.
c. — Rip always avoided rough work.

4. Underline the words which describe Rip's character:

careless
good-natured
thrifty

V

Yet, unless I greatly deceive myself, the general effect of this chequered narrative will be to excite thankfulness in all religious minds, and hope in the breasts of all patriots. For the history of our country during the last hundred and sixty years is eminently the history of physical, of moral, and of intellectual improvement. Those who compare the age on which their lot is fallen with a golden age which exists only in their imagination may talk of degeneracy and decay; but no man who is correctly informed as to the past will be disposed to take a morose or desponding view of the present.

1. Underline the phrase necessary to complete this sentence:

The author believes _____ discourage the
his narrative will: _____ people
inspire hope in the
_____ people
leave the people
_____ indifferent

2. Check all the true statements among the following:


a. — By "chequered narrative" the author refers to a historical narrative.
b. — The author believes his country has improved in the past century.
c. — The author believes all persons will accept his conclusions.

3. Check all the true statements among the following:

a. — The author believes there has been degeneracy and decay in his country.
b. — Well-informed persons will take a hopeful view of the present.
c. — The "golden age" exists in imaginative minds.

4. Check the true statement:

a. — The country had improved physically but not morally.
b. — Correctly informed persons will take a morose view of the present.
c. — The history of "our country" is encouraging to religious minds.

 Go to top of next page.

VI

The champions were therefore prohibited to thrust with the sword, and were confined to striking. A knight, it was announced, might use a mace or battle-ax at pleasure, but the dagger was a prohibited weapon. A knight unhorsed might renew the fight on foot with any other on the opposite side in the same predicament; but mounted horsemen were in that case forbidden to assail him. When any knight could force his antagonist to the extremity of the lists, so as to touch the palisade with his person or arms, such opponent was obliged to yield himself vanquished, and his armor and horse were placed at the disposal of the conqueror. A knight thus overcome was not permitted to take further share in the combat. If any combatant was struck down, and unable to recover his feet, his squire or page might enter the lists and drag his master out of the press; but in that case the knight was adjudged vanquished, and his arms and horse declared forfeited.

1. Underline the word which names the weapon that could not be used :
 - sword
 - mace
 - dagger
 - battle-ax
2. Check the one of these statements which is false :
 - a. — A knight could fight on foot.
 - b. — One knight could not injure another knight.
 - c. — Mounted horsemen could fight only mounted horsemen.
3. Check the false statements :
 - a. — A knight could be vanquished without being killed.
 - b. — A knight's page could fight.
 - c. — A vanquished knight retained his horse.
4. Check the true statements :
 - a. — Champions were prohibited to use the sword.
 - b. — An unhorsed knight could renew the fight.
 - c. — An opponent was vanquished if his arms touched the palisade.
 - d. — A knight dragged from the lists by his page was beaten.

VII

The speech of Judge Hoar was perfect, and to that handful of people, who heartily applauded it. When a good man rises in the cold and malicious assembly, you think, "Well, it would be more prudent to be silent. Why not rest on a good past? Nobody doubts your talent and power; and, for the present business, we know all about it, and are tired of being pushed into patriotism by people who stay at home." But he, taking no counsel of past things, but only of the inspiration of his today's feelings, surprises them with his tidings, his better knowledge, his larger view, his steady gaze at the new and future event, whereof they had not thought, and they are interested like so many children, and carried off out of all recollection of their malignant nonsense, and he gains his victory by prophecy, where they expected repetition. He knew beforehand that they were looking behind, and that he was looking ahead, and therefore it was wise to speak. What a godsend are these people to a town! and the Judge, what a faculty! — he is put together like a Waltham watch, or like a locomotive just finished from the Tredegar Works.

1. Check all true statements, if any :
 - a. — The audience was inclined to look backward.
 - b. — At the end of the speech the audience was hostile.
 - c. — The speaker had a forward-looking mind.
2. Check all false statements, if any :
 - a. — The author admires Judge Hoar.
 - b. — The speaker surprised his audience.
 - c. — The audience changed its attitude.
 - d. — The speech was a failure.
3. Underline the words which best describe Judge Hoar :
 - talented
 - sagacious
 - retrospective
 - prophetic
4. Check the false statements :
 - a. — The Judge talked about an old subject in a new way.
 - b. — The audience was wiser than the Judge.
 - c. — The Judge was a burden to his community.

TERMAN GROUP TEST OF MENTAL ABILITY

For Grades 7 to 12

Prepared by Lewis M. Terman, Stanford University, California

EDITION I

EXAMINATION: FORM B

1. Name
First name
Last name
2. Boy or girl Grade High or Low
3. Age last birthday Date of birthday
Month
Day
4. Name of city (or county)
5. Name of school
6. Name of teacher
7. Date of this examination 19.....
Month
Day
Year

Do not turn the page until you are told to.

TEST	SCORE	REMARKS OR FURTHER DATA
1. Information		
2. Best Answer		
3. Word Meaning		
4. Logical Selection		
5. Arithmetic		
6. Sentence Meaning		
7. Analogies		
8. Mixed Sentences		
9. Classification		
10. Number Series		
Total		

TEST 1. INFORMATION

FORM B

Draw a line under the ONE word that makes the sentence true, as shown in the sample.

- SAMPLE. Our first President was
Adams Jefferson Lincoln Washington
- 1 The most gold is produced in
Alaska Tennessee Texas New York 1
 - 2 A peck is a fourth of a
barrel bushel gallon keg 2
 - 3 The Yale is a kind of
screw lock hammer wrench 3
 - 4 Chalk is a kind of
flour limestone slate marble 4
 - 5 Among birds that migrate are
eagles hawks owls robins 5
 - 6 Sonata is a term used in
drawing football mathematics music 6
 - 7 Socrates was a
politician philosopher scientist general 7
 - 8 "Treasure Island" tells about
Micawber Uncas Long John Mowgli 8
 - 9 The Pharaohs were kings of
Babylon Egypt Jerusalem Rome 9
 - 10 Long-distance running most often injures the
heart legs stomach nerves 10
 - 11 The dynamo produces
dynamite electricity powder gas 11
 - 12 Polo is a kind of
disease firearm game work 12
 - 13 A barometer measures
air-pressure distance electricity time 13
 - 14 Asbestos comes from
bones cotton mines wool 14
 - 15 An eight-sided figure is called a
trapezium scholium parallelogram octagon .. 15
 - 16 Tweed is a kind of
cloth drink instrument weed 16
 - 17 The turquoise is usually
blue brown red yellow 17
 - 18 The bat is most closely related to the
butterfly mouse owl swallow 18
 - 19 Perjury is a term used in
pedagogy law theology medicine 19
 - 20 "Robinson Crusoe" was written by
Stevenson Hawthorne Defoe Cooper 20

Right

TEST 2. BEST ANSWER

FORM B

Read each question or statement and make a cross before the BEST answer, as shown in the sample.

- SAMPLE { Why do we buy clocks? Because
1 We like to hear them strike.
2 They have hands.
X 3 They tell us the time.
- 1 We should "think twice before we speak," because
1 We may think of more things to say.
2 We are then more sure to say the right thing.
3 If we speak too quickly, we may stammer.
 - 2 The saying, "Idle brains are the devil's workhouse," means
1 The devil works with his brains.
2 People should not work for the devil.
3 People who are idle get into trouble.
 - 3 The saying, "It's an ill wind that blows nobody good," means that
1 People often profit from the misfortunes of others.
2 Winds do great damage.
3 Winds never do any good.
 - 4 The saying, "Destroy the lion while it is young," means
1 It is wicked to kill lions when they are old.
2 Young lions are most dangerous.
3 Weed out bad habits before they are too firmly established.
 - 5 The saying, "The proof of a pudding is in the eating," means
1 Puddings are made to be eaten.
2 Puddings should be tested before they are served.
3 We can only tell what a thing is like by trying it.
 - 6 Why are electrical engineers highly paid? Because
1 Their ability is much in demand.
2 They have a college education.
3 They work long hours.
 - 7 Freezing water bursts pipes because
1 Cold makes the pipes weaker.
2 Water expands when it freezes.
3 The ice stops the flow of water.
 - 8 Why should we have Congressmen? Because
1 The people are too many to meet and make their laws.
2 The people must be ruled.
3 Congressmen are usually honest.
 - 9 The cause of echoes is
1 The reflection of sound waves.
2 The presence of electricity in the air.
3 The presence of moisture in the air.
 - 10 If a man had a million dollars he ought to
1 Pay off the national debt.
2 Contribute to various worthy charities.
3 Give it all to some poor man.
 - 11 The saying, "A bad workman quarrels with his tools," means
1 A bad workman is usually quarrelsome.
2 If the workman loses his temper, he is likely to break his tools.
3 A bad workman often excuses himself by blaming his tools.

Right X 2 = Score

TEST 3. WORD MEANING

FORM B

When two words mean the SAME, draw a line under "SAME."
When they mean the OPPOSITE, draw a line under "OPPOSITE."

SAMPLES	{	fall — drop	same — opposite	
		north — south	same — opposite	
1		alert — sluggish	same — opposite	1
2		active — passive	same — opposite	2
3		procure — obtain	same — opposite	3
4		minimum — maximum	same — opposite	4
5		kindle — quench	same — opposite	5
6		hazardous — dangerous	same — opposite	6
7		exit — entrance	same — opposite	7
8		chasm — abyss	same — opposite	8
9		agile — nimble	same — opposite	9
10		remote — near	same — opposite	10
11		expand — contract	same — opposite	11
12		abhor — detest	same — opposite	12
13		competent — qualified	same — opposite	13
14		entice — allure	same — opposite	14
15		concave — convex	same — opposite	15
16		gravity — levity	same — opposite	16
17		sacred — hallowed	same — opposite	17
18		con — pro	same — opposite	18
19		adversary — opponent	same — opposite	19
20		optional — compulsory	same — opposite	20
21		defile — purify	same — opposite	21
22		senile — aged	same — opposite	22
23		illustrious — exalted	same — opposite	23
24		profuse — scanty	same — opposite	24
25		inert — energetic	same — opposite	25
26		heinous — atrocious	same — opposite	26
27		caprice — whim	same — opposite	27
28		apathy — indifference	same — opposite	28
29		acid — alkaline	same — opposite	29
30		indict — arraign	same — opposite	30

Right.....Wrong.....Score.....

TEST 4. LOGICAL SELECTION

FORM B

In each sentence draw a line under the TWO words that tell what the thing ALWAYS has. Underline TWO, and ONLY TWO, in each line.

SAMPLE. A man always has
body cap gloves mouth money

1	A snake always has	poison rattle stripes tail tongue	1
2	A bicycle always has	brakes frame rubber pump wheels	2
3	A box always has	depth hinge lid sides wood	3
4	Food always has	nutriment salt starch sweetness taste	4
5	A soldier always has	bayonet commander duty flag tent	5
6	An automobile always has	battery motor top wheels wind-shield	6
7	A policeman always has	authority cap club duty uniform	7
8	A newspaper always has	advertisements cartoons editor news pictures	8
9	An official always has	badge duties rights salary uniform	9
10	A nation always has	army inhabitants laws navy rivers	10
11	A debtor always has	creditor freedom honesty obligation property	11
12	Night always has	darkness hours moon stars stillness	12
13	A wheel always has	center circumference spokes tire wood	13
14	Anxiety always involves	awe dread grief insomnia uneasiness	14
15	Admiration always involves	esteem flattery humility love respect	15
16	A store always has	bookkeeper cash-box clerks keeper supplies	16
17	An invention always has	inventor machinery newness patent value	17
18	A gentleman is always	considerate educated honest wise witty	18
19	A duet always has	accompaniment instruments performers music voices	19
20	Antipathy always involves	antagonism disgust dislike fear jealousy	20

Right.....

TEST 5. ARITHMETIC

FORM B

Find the answers as quickly as you can.
Write the answers on the dotted lines.
Use the bottom of the page to figure on.

- 1 Frank has 12 marbles. He bought 3 more, and then lost 6.
How many had he left? *Answer*
- 2 What number multiplied by 16 equals 24×2 ? *Answer*
- 3 A man bought some sheep for \$150. He sold them for \$200, gaining \$5 per head. How many did he buy? *Answer*
- 4 John earns \$2.50 per day, James \$3.75 per day. How much more does James earn than John in forty days? *Answer*
- 5 How many quarts of water will a can $6 \times 10 \times 12$ inches hold if a quart is 60 cubic inches? *Answer*
- 6 A boy had $\frac{3}{8}$ of a bushel of nuts and sold half of them. What fraction of a bushel had he left? *Answer*
- 7 A man bought a horse for \$160 and sold it for \$200. What per cent did he gain? *Answer*
- 8 If $2\frac{1}{2}$ dozen eggs cost \$2, what is the price per dozen? *Answer*
- 9 Half of what number equals $\frac{1}{3}$ of 21? *Answer*
- 10 A borrows \$500 at $7\frac{1}{4}$ per cent, and B borrows \$500 at $6\frac{1}{4}$ per cent. How much more interest does A pay in a year than B? *Answer*
- 11 $\frac{3}{4}$ of a bushel of nuts is divided equally among five people. What fraction of a bushel does each get? *Answer*
- 12 If $4\frac{1}{2}$ tons of hay cost \$36, what will $2\frac{1}{2}$ tons cost? *Answer*

Right $\times 2 =$ *Score*

TEST 6. SENTENCE MEANING

FORM B

Draw a line under the right answer, as shown in the samples.

- SAMPLES { Is coal obtained from mines? Yes No
Are all men six feet tall? Yes No
- 1 Are cartoons made by cameras? Yes No 1
 - 2 Are transparent substances used in windows? Yes No 2
 - 3 Do hoboes ever wear dilapidated garments? Yes No 3
 - 4 Is burlap a kind of lumber? Yes No 4
 - 5 Do hermits usually live in seclusion? Yes No 5
 - 6 Can time be measured with a barometer? Yes No 6
 - 7 Are invalids usually elated? Yes No 7
 - 8 Is a hypocrite usually insincere? Yes No 8
 - 9 Do all birds have instincts? Yes No 9
 - 10 Are conspicuous objects readily seen? Yes No 10
 - 11 Does a quotient result from multiplication? Yes No 11
 - 12 Do lagoons migrate periodically? Yes No 12
 - 13 Do novelists ever prefer realism? Yes No 13
 - 14 Is astigmatism a form of religion? Yes No 14
 - 15 Does an anæsthetic allay pain? Yes No 15
 - 16 Are prostrate forms often vertical? Yes No 16
 - 17 Are divergent aims usually harmonious? Yes No 17
 - 18 Do sovereigns owe allegiance to their subjects? Yes No 18
 - 19 Are discreet persons usually trustworthy? Yes No 19
 - 20 Have enfranchised people the right to vote? Yes No 20
 - 21 Do retrograde movements lead to progress? Yes No 21
 - 22 Is a parasite a living organism? Yes No 22
 - 23 Does synthesis mean putting together? Yes No 23
 - 24 Should deleterious habits be emulated? Yes No 24

Right *Wrong* *Score*

TEST 7. ANALOGIES

FORM B

SAMPLES { Ear is to hear as eye is to
 table see hand play
 Hat is to head as shoe is to
 arm coat foot leg

Do them all like samples.

- 1 Picture is to see as sound is to
 noise music hear bark 1
- 2 Uncle is to nephew as aunt is to
 brother sister niece cousin 2
- 3 Add is to subtract as multiply is to
 add divide arithmetic increase 3
- 4 Shell is to nut as skin is to
 person soft white coarse 4
- 5 Tree is to forest as person is to
 couple men women crowd 5
- 6 Stone is to marble as wood is to
 tall cut oak pile 6
- 7 10 is to 100 as 12 is to
 16 24 144 288 7
- 8 Abide is to depart as stay is to
 over home play leave 8
- 9 Food is to man as fuel is to
 engine burn coal wood 9
- 10 Author is to book as artist is to
 painter brush picture easel 10
- 11 Complex is to simple as hard is to
 brittle money easy work 11
- 12 Imitate is to copy as invent is to
 originate study Edison machine 12
- 13 Bad is to worse as worse is to
 worst better best good 13
- 14 Wolf is to sheep as cat is to
 fur kitten dog mouse 14
- 15 Past is to present as yesterday is to
 today tomorrow Christmas gone 15
- 16 Go is to went as rise is to
 fall rose rising fell 16
- 17 Square is to cube as circle is to
 line round square sphere 17
- 18 Policeman is to officer as dictionary is to
 words book large school 18
- 19 $\frac{1}{2}$ is to $\frac{1}{3}$ as 8 is to
 10 6 4 2 19
- 20 Seldom is to never as little is to
 small none large often 20

Right.....

TEST 8. MIXED SENTENCES

FORM B

The words in each sentence below are mixed up. If what a sentence means is TRUE, draw a line under "TRUE." If what it means is FALSE, draw a line under "FALSE."

- SAMPLES { hear are with to ears true false
 eat gunpowder to good is true false
- 1 countries several produced wheat in is true false 1
 - 2 pays cautious it be to often true false 2
 - 3 north all railroads south and run true false 3
 - 4 men industrious pay good should get true false 4
 - 5 temperatures freezes water high at true false 5
 - 6 birds on their nests ground the some make true false 6
 - 7 to is it easy a mud deep through drive car true false 7
 - 8 sleepy work is is hard it to when one true false 8
 - 9 friends in us disaster often false desert true false 9
 - 10 is it all away throw wisest money to one's true false 10
 - 11 wind when the the all blows fall trees true false 11
 - 12 feeling is of painful exaltation the true false 12
 - 13 seldom birds' diamonds nests are in found true false 13
 - 14 inflict men pain needless cruel sometimes true false 14
 - 15 always sleeplessness clear causes a conscience true false 15
 - 16 rich rich have born all men been true false 16
 - 17 and emotions sorrow similar grief are true false 17
 - 18 knows than pupil a teachers always his more true false 18

Right.....Wrong.....Score.....

TEST 9. CLASSIFICATION

FORM B

SAMPLES { 1 bullet cannon gun sword pencil
2 Canada Chicago China India France

In each line cross out the word that does not belong there.
Cross out JUST ONE WORD in each line.

- 1 elm brier maple oak poplar 1
- 2 needle pan stitch thimble thread..... 2
- 3 Governor King Mayor President Priest..... 3
- 4 baby calf colt doll kitten 4
- 5 Democrat Methodist Republican Tory Whig..... 5
- 6 Cæsar Grant Napoleon Shakespeare Washington..... 6
- 7 Anna Emma John Lucy Sarah 7
- 8 heart ears eyes nose tongue 8
- 9 close distant far loud near 9
- 10 author essay novel poem story 10
- 11 cat cow dog pig wolf..... 11
- 12 blackboard chalk crayon pen pencil..... 12
- 13 clay pebble rock stone wood 13
- 14 automobile barometer clock speedometer thermometer 14
- 15 algebra arithmetic geometry history trigonometry 15
- 16 alfalfa clover corn grass timothy..... 16
- 17 carefulness forethought industry poverty thrift..... 17
- 18 beg borrow earn inherit lend..... 18

Right.....

TEST 10. NUMBER SERIES

FORM B

SAMPLES { 5 10 15 20 25 .30. .35.
20 18 16 14 12 .10. .8.

In each row try to find out how the numbers are made up,
then on the two dotted lines write the TWO numbers that
should come next.

- 1st Row 3 4 5 6 7 8
- 2d Row 3 6 9 12 15 18
- 3d Row 10.8 9.7 8.6 7.5 6.4 5.3
- 4th Row 5 6 8 9 11 12
- 5th Row 27 27 23 23 19 19
- 6th Row 0 $\frac{2}{3}$ $1\frac{1}{3}$ 2 $2\frac{2}{3}$ $3\frac{1}{3}$
- 7th Row 576 288 144 72 36
- 8th Row 2 10 50
- 9th Row 30 33 34 37 38 41
- 10th Row 23 22 21 19 18 17 15 14
- 11th Row $\frac{3}{32}$ $\frac{3}{16}$ $\frac{3}{8}$ $\frac{3}{4}$ $1\frac{1}{2}$ 3
- 12th Row 81 27 9 3 1 $\frac{1}{3}$

Right..... $\times 2 =$ Score.....

SCHOOL BULLETIN

Minneapolis Public Schools

No. 40

January 13, 1921

1920-1921

Meetings

Principals' Meeting. Friday, January 21st, Music Room, West High, at 2:30 p. m. Dr. Horn and Dr. Ashbaugh, of Iowa State University, will discuss the results of their investigation in the selection of vocabulary for spelling.

General Teachers' Meeting. (Optional.) All Grades, Auditorium, West High, Friday, January 21st at 3:30. Dr. Horn and Dr. Ashbaugh will address the teachers on the subject: "Spelling" as indicated for Principal's Meeting above.

Home Economics. Meeting of Home Makers' Section of State Home Economics Association in the Cafeteria, University Farm, Tuesday, January 18th, 5:30 p. m.

Manual Arts Club. All Grade and High School Manual Training teachers will meet at the Vocational High, Wednesday, January 19th, at 4:00 p. m.

Special Tests. Teachers of 5C and 5A giving achievement and intelligence tests, will meet at Vocational High School, Room 28, Wednesday, January 19th, at 3:30 p. m.

Minneapolis Choral Society. The Civic Music League of Minneapolis is now organizing a choral society which it is hoped will do for choral music of the city what the Symphony Orchestra now does for orchestral music. All teachers and their friends who sing are invited to join. The voice test will be held Monday evening at 7:30 at the Cable Piano Company, corner 8th and Nicollet, January 17th. First rehearsal, Monday evening, January 24th. First concert about the middle of April.

Children's Crusade. The first rehearsal of the Children's Chorus of the Children's Crusade will be held Wednesday, January 19th, at 4:00 p. m., in the Music Room of Central High School.

Physical Education. (Repeated from Bulletin No. 37.) Grade and Junior High School Instructors, Monday, January 17th, at 4:00 p. m., in the Vocational High School Gymnasium. Senior High School Instructors (men) Wednesday, January 19th at 6 p. m., at Y. M. C. A.

Life Saving Demonstration. L. C. Albro, life saving expert, will give a series of lessons in life saving at Riverside Municipal Baths, under the auspices of the American Red Cross. All instruction is free. The classes will be held on the following dates, from 7:30 to 8:30 p. m.:

For High School Boys: Thursday, January 20th; Thursday, January 27th; Thursday, February 3rd; Thursday, February 10th; Thursday, February 17th; Thursday, February 24th.

For High School Girls: Friday, January 21st; Friday, January 28th; Friday, February 4th; Friday, February 11th; Friday, February 18th; Friday, February 25th.

High School Teachers please read to pupils.

Teachers' League Activities. The second of the series of dancing parties to be given by the Minneapolis Teachers' League will be held on Saturday evening, January 22nd, at the Royal Arcanum Hall, First Avenue and Lake Street. All League members invited.

School Nurses. A School Nurses' meeting will be held in Room 125, City Hall at 10:30 a. m. on the following dates: Saturday, January 15th; Saturday, February 12th; and Saturday, March 12th.

Civil Service League. Regular Quarterly Meeting Friday, January 14th, at South High School. Buffet lunch, business meeting and social program beginning at six o'clock. There will be no charge for the lunch and all members who will attend are urged to notify Miss Barber at the main office before noon of Thursday, January 13th.

General Notices

The 1920-1921 School Directory. The new directory is more than a list of names and addresses. It contains much general information regarding the school system. School people are asked to familiarize themselves with the following topics so they may talk convincingly:

Table of Contents, page 150; Schools, pages 19 to 70 (notice types of buildings, dates of erection, boundaries, and sizes of districts); Origin of School Names, page 146; Special Activities, pages 126 to 134; Statistics, page 142; Finances, page 144.

Drawing Supervisors' Office Hours

In order to make Miss Lathe's office hours more definitely helpful to teachers, the following experiment will be tried until further notice: The Monday hours will remain as formerly, open to anyone, but the Wednesday office hours of each school month will be specially dedicated as follows:

First Wednesday, to Departmental teachers.

Second Wednesday, to Sixth Grade teachers.

Third Wednesday, to Fifth Grade teachers.

Fourth Wednesday, to Fourth Grade teachers.

Vaccinations

Owing to the demand for vaccinations in the schools the medical inspectors will devote their entire time to this work until it is completed.

The school principals and nurses are requested to call Geneva 4691, Hygiene Department, as soon as their schools are ready for the doctor's visit. Through this arrangement it will be possible to send notification to school principals at least a day before the doctor's visit. Those children who were absent at the time of the first vaccinations, those whose vaccinations did not "take," as well as those who have not applied heretofore will be vaccinated with all the expedition possible.

—F. E. HARRINGTON,
Director Hygiene.

Bulletin of the Superintendent of Schools
Minneapolis, Minnesota

B. B. JACKSON, *Superintendent*

Published every Wednesday from the offices of the
Board of Education

*Copy must be received in the Superintendent's
Office before the closing hour on Monday preceding
issue.*

Printed in the West High School Print Shop

Lost Pupils

The following children have not been located:
Esther and Helen Lewis and Paul Erickson. Please
refer any information in regard to the above named
children to the Attendance Department.

Enunciation, Gutturals, g, k and ng

At one of the class plays given by the high schools in December, I was late and was compelled to stand at the back of the auditorium. Yet to my great pleasure, I heard every word, though no player was apparently making any effort. Clear, forceful enunciation accomplished what a volume of sound could not accomplish. And what a pleasure not to have to lean forward and strain to catch the words! In class plays, in recitations, in the home, or in the store or bank—everywhere, distinctness of speech gives the hearers pleasure. A delightful voice is within the grasp of every child, yet is not attained without thought and labor. Every teacher should accept nothing less.

Gag, goggles, gewgaw, cragged, bugle, back, cattle, bulk, whack, stocking, attack, wing, ringing, longing, lacking, bedecking, logging, Afghan, Bergen, Kamchatka.

INTELLIGENCE TESTS

The following tables show the scores made in the Haggerty Intelligence Test given to all 8A pupils during the first quarter. They are arranged by schools in the various high school districts.

Scores above 125 show pupils of superior intelligence, scores from 115-124 show normal intelligence, scores below 95 indicates probable failures in high school work as now organized.

MINNEAPOLIS PUBLIC SCHOOLS INTELLIGENCE TESTS—DELTA 2
SOUTH HIGH, GRADE 8A

Score	Adams	Corcoran	Bancroft	Greeley	Irving	Jackson	Johnson	Min'haha	Sim'ns	Longf'low	Total
169-165											1
164-140											1
159-155		1									1
154-150							1				1
149-145	1	1						1			3
144-140		4	1		2	1		2			10
139-135	1	2	2	3	1	1		1	1	1	13
											— 28
134-130	6	3	3	2	1	3		3			21
129-125	1	2	1	4	4	6		5	4	4	31
124-120	1	4	1	2	7	4	2	2	2	3	28
119-115	2	4	1	7	4	10	3	2	1	6	40
											—120
114-110	4	6	3	3	4	6	5			4	35
109-105	5	2		7	14	7	2		1	4	42
104-100	10	2	1		6	6	2	1		3	31
99- 95		2	4		4	7	1		1	4	23
											—131
94- 90	2	2	2	1	2	4	3			1	17
89- 85	3		1		3		3			1	11
84- 80	1	1	1				1		2		6
79- 75	1				1	1					3
74- 70		1				1	1				3
69- 65	1										1
64- 60											
59- 55											
54- 50											
											— 41
Total	39	37	21	29	52	57	23	18	12	31	320
Median Score	105	117	112	117	108.5	111	105	129	121.5	112	

MINNEAPOLIS PUBLIC SCHOOLS INTELLIGENCE TESTS—DELTA 2
 WEST HIGH, GRADE 8A

Score	Calhoun	Douglas	Emerson	L.Harriet	Lyndale	R. Fulton	Rosedale	Whittier	C.Barton	Total
169-165										
164-160										
159-155					1			1		2
154-150					1		2			3
149-145		3				1		1		5
144-140		1	1	1	4	1				8
139-135	1	3		1	8	1	2		1	17
										— 35
134-130	3	2	1		7	2	1			16
129-125	5	3	4	2	4	1	4	2	2	27
124-120	3	1	7	2	8		2	8	3	34
119-115	3	2	9	1	5	1	1	5	1	28
										—105
114-110	2	3	3	2	2			2	1	15
109-105	2		2	1	5	2	2	2	1	17
104-100	1	1			4	3	1	3		13
99- 95	2		4		1	2		1	1	11
										— 56
94- 90	1			1		1			1	4
89- 85	1	1	1		1	1				5
84- 80			1	1		1				3
79- 75					1	1				2
74- 70			1							1
69- 65										
64- 60						1				1
59- 55										
54- 50										
										— 16
										212
Total	24	20	34	12	52	19	15	25	11	
Median Score	120	126.5	117.5	118	124	104	126	117	120	

 MINNEAPOLIS PUBLIC SCHOOLS INTELLIGENCE TESTS—DELTA 2
 CENTRAL HIGH, GRADE 8A

Score	Bryant	Clinton	Garfield	Horace Mann	Madison	M. Fuller	Rosedale	Total
169-165								
164-160								
159-155					1			1
154-150	3	1					2	6
149-145	2			2	2			6
144-140	1	1	1	3				6
139-135	5	5				1	2	13
								— 32
134-130	2	3	2	5	4	2	1	19
129-125	9	2	2	2	3	4	4	26
124-120	7	3	2	3		5	2	22
119-115	9	3	3	1	3	1	1	21
								— 88
114-110	3	1	2	1	3	3		13
109-105	5	1	1	2	1	3	2	15
104-100	6	1	1	3	1	1	1	14
99- 95	6	1	2		1	2		12
								— 54
94- 90	1	1	1			2		5
89- 85	1	5				1		7
84- 80	1	1						2
79- 75								
74- 70								
69- 65	2							2
64- 60								
59- 55								
54- 50								
								— 16
								190
Total	63	29	17	22	19	25	15	
Median Score	119	120	118	126.5	125	116	126	

THE SCHOOL BULLETIN

MINNEAPOLIS PUBLIC SCHOOLS INTELLIGENCE TESTS—DELTA 2
NORTH HIGH, GRADE 8A

Score	Grant	Hamilton	Harrison	Lincoln	Wm. Penn	Lowell	Total
169-165							
164-160							
159-155							
154-150							
149-145							
144-140	1				1		2
139-135	2		1	2	1	1	7
							— 9
134-130	4		1	1		2	8
129-125	2	1	14	2		4	23
124-120	1		7	4	2	5	19
119-115	1		6	3	3	2	15
							— 65
114-110	7	1	8	5	4	1	26
109-105	7	4	10	2	3	1	27
104-100	4		7	1	3	1	16
99- 95	3	3	3	1	2		12
							— 81
94- 90	2		5	2	2	1	12
89- 85					1		1
84- 80			4		1		5
79- 75			1		1		2
74- 70							
69- 65			2				2
64- 60							
59- 55							
54- 50							
							— 22
Total	34	9	69	23	24	18	177
Median Score	110.5	106	112	115	107	122.5	

MINNEAPOLIS PUBLIC SCHOOLS INTELLIGENCE TESTS—DELTA 2
EAST HIGH SCHOOL, GRADE 8A

Score	Holland	Marcy	Motley	Schiller	Sheridan	S. Pratt	Tuttle	Webster	Prescott	Arnold	Total
169-165											
164-160					1						1
159-155											
154-150					1						1
149-145					1						1
144-140	1										1
139-135		3	4	1	3						11
											— 15
134-130		2			6	2			2		12
129-125		2	2	1	5	2		1	5	1	19
124-120	3	4	2	3	2	3	4		5	1	27
119-115	2	2	1		5		2	5	2		19
											— 77
114-110	1	2	3	2	1		5	2	4		20
109-105	1	2	1	5	2	1		3	4		19
104-100	2	1			1		3	1	2	1	10
99- 95	3			3	1	1			4	1	13
											— 62
94- 90		2						1			3
89- 85	1			2					1		4
84- 80	1	2					1				4
79- 75		2									2
74- 70	2										2
69- 65								1			1
64- 60					1						1
											— 17
59- 55								1			1
54- 50					1						1
											— 2
Total	17	24	13	17	30	9	15	15	29	4	173
Median Score	104	117	124	109	125.5	123	113	112	114	114	

READ THESE DIRECTIONS IN ORDER AND DO WHAT IT SAYS TO DO

1. Do what the printed instructions tell you to do.
2. Do not ask the examiner any questions about the test.
3. Do not ask any other person who is taking the test any questions or watch any one to see what he or she does.
4. The following pages contain a series of paragraphs with directions. You are to read the paragraphs and do what the directions tell you to do.
5. There are two kinds of directions. The first direction is "to underline." Where this direction occurs you are to draw a line under the correct word or phrase as in this sample:

He was an old-fashioned scholar who made the boys learn the Latin grammar by heart, and who flogged them when they failed.

1. Underline the correct word to complete this sentence: The "old-fashioned scholar" was

young
jolly
severe
ignorant

"Severe" is the correct word, and so you should draw a line under the word "severe." Do it before you read the next line.

6. The second direction is "to check." Where this direction occurs you are to put a check like this \checkmark in front of the correct statement as in this sample:

Columbus was not ignorant of the mutinous disposition of his crew; but he still maintained a serene and steady countenance, soothing some with gentle words, endeavoring to stimulate the pride or avarice of others, and openly menacing the refractory with signal punishment, should they do anything to impede the voyage.

1. Check all true statements in the following:
 - a. ---- Columbus punished all discontented members of his crew.
 - b. ---- Columbus did not know his crew was mutinous.
 - c. ---- Columbus kept a steady purpose.

The first and second statements are clearly false. The third one is true. So a check mark should be put in front of the third sentence. Put it on the line between the letter "c" and the first word of the sentence. Do it.

7. All questions are to be answered from your reading of the paragraphs.
8. Do not skip pages. Follow the directions in order.
9. Now turn the page and do what it says to do. You will have about forty (40) minutes to work. Do all you can in that time.

I

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

There was the greatest interest throughout the ship, and not an eye was closed that night. As the evening advanced, Columbus took a position on the cabin of his vessel and kept up a continuous watch. About two o'clock he thought he beheld a light, glimmering at a great distance. Fearing his eager eyes might deceive him, he called a gentleman of the King's bedchamber, to inquire whether he saw such a light, and he admitted that he saw it.

1. Underline the word that shows what time it was:
 - midday
 - forenoon
 - night
 - afternoon.

2. Underline correct phrase: Columbus was
 - riding on a train
 - walking on land
 - living in a house
 - traveling in a boat.

3. Check the one of the following statements which is true:
 - a. ----Columbus was afraid of what he saw.
 - b. ----The gentleman saw a light.
 - c. ----All were asleep except Columbus.
 - d. ----Columbus called the King.

4. Check the true statements:
 - a. ----Columbus watched continuously.
 - b. ----Columbus first saw the light.
 - c. ----No one except Columbus was interested.
 - d. ----Columbus saw the light after midnight.

II

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

Old Sandy seemed to know that this was his last opportunity. With a marvelous burst of speed he plunged through the belated dogs that were hunting for the lost drag, slipped through the fence, and went back by the spectators like a flash. There was a tremendous outburst of music from the dogs as they sighted him, and for one brief moment Joe was afraid that Jonah would be thrown out. The next instant the dog appeared on the fence, and there he sighted the fox. It was then that the courage and speed of Jonah showed themselves. Nothing could have stood up before him. Within a hundred yards he ran into the fox. Realizing his fate, Old Sandy leaped into the air with a squall, and the next moment the powerful jaws of Jonah had closed on him.

1. Underline the word that tells what "Old Sandy" was:
 - dog
 - man
 - fox
 - horse.

2. Underline the word that tells what Joe was:
 - dog
 - man
 - fox
 - horse.

3. Check each of these sentences which is true:
 - a. ----Joe caught a fox.
 - b. ----Old Sandy escaped.
 - c. ----More than one person saw the chase.
 - d. ----Jonah was a poor runner.

4. Check each of these sentences which is false:
 - a. ----Old Sandy was too tired to run.
 - b. ----Jonah ran under the fence.
 - c. ----None of the dogs barked.
 - d. ----Jonah caught the fox.

III

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

In Grandfather's chair sits a man of strong and sturdy frame, whose face has been roughened by the northern tempests and blackened by the burning sun of the West Indies. He wears an immense wig, flowing down over his shoulders. His coat has a wide embroidery of golden braid; and his waistcoat, likewise, is all flowered over with gold. His red, rough hands, which have done many a good day's work with the hammer and adz, are half covered with delicate ruffles at his wrists. On a table lies his silver-hilted sword; and in a corner of the room stands his golden-headed cane of beautifully polished West India wood.

1. Underline the words which describe the grandfather:
 - strong
 - pale
 - stylish
 - rough
2. Check the statements which are true:
 - a. ----Grandfather is rich.
 - b. ----Grandfather did outdoor work.
 - c. ----Grandfather had always lived in Europe.
3. Check the statement which is true:
 - a. ----Grandfather had long white hair.
 - b. ----Grandfather's vest was solid black.
 - c. ----Grandfather wore fine clothes.
4. Check the false statements:
 - a. ----Grandfather is feeble.
 - b. ----Grandfather's cane has a silver head.
 - c. ----Grandfather's sword has a silver hilt.
 - d. ----Grandfather has always lived in one place.

IV

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

The great error in Rip's composition was an insuperable aversion to all kinds of profitable labor. It could not be for the want of assiduity or perseverance; for he would sit on a wet rock, with a rod as long and heavy as a Tartar's lance, and fish all day without a murmur, even though he should not be encouraged by a single nibble. He would carry a fowling-piece on his shoulder for hours together, trudging through woods and swamps, and up hill and down dale, to shoot a few squirrels or wild pigeons. He would never refuse to assist a neighbor, even in the roughest toil, and was a foremost man at all country frolics for husking Indian corn, or building stone-fences; the women of the village, too, used to employ him to run their errands, and to do such little odd jobs as their less obliging husbands would not do for them. In a word, Rip was ready to attend to anybody's business but his own; but as to doing family duty, and keeping his farm in order, he found it impossible.

1. Underline the one phrase which tells what Rip did not like to do:
 - to run errands
 - to work at home
 - to hunt
 - to fish
2. Check the one of the following sentences which is true:
 - a. ----Rip never showed perseverance.
 - b. ----Rip's neighbors disliked him.
 - c. ----Rip was an obliging neighbor.
3. Check the one of the following sentences which is true:
 - a. ----Rip owned a well-kept farm.
 - b. ----Rip disliked profitable labor.
 - c. ----Rip always avoided rough work.
4. Underline the words which describe Rip's character:
 - careless
 - good-natured
 - thrifty
 - jolly

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

For my own part, as the gondola slipped away from the blaze and bustle of the station down the gloom and silence of the broad canal, I forgot that I had been freezing two days and nights; that I was at that moment very cold and a little homesick. I could at first feel nothing but that beautiful silence, broken only by the star-silvered dip of the oars. Then on either hand I saw stately palaces rise gray and lofty from the dark waters, holding here and there a lamp against their faces, which brought balconies, and columns, and carven arches into momentary relief, and threw long streams of crimson into the canal. I could see by that uncertain glimmer how fair was all, but not how sad and old; and so, unhaunted by any pang for the decay that afterward saddened me amid the forlorn beauty of Venice, I glided on.

1. Underline the one of these words which shows in what the writer was riding:

train
boat
automobile
carriage.

2. Underline the one of these phrases which shows how light it was:

very light
very dark
dimly lighted.

3. Check the one of the following sentences which is true:
 - a. ----The scene made the author sad.
 - b. ----The scene was commonplace.
 - c. ----The author enjoyed the scene.
 - d. ----The author was warm and comfortable.

4. Check the true statements:
 - a. ----The canal was very noisy.
 - b. ----The buildings were low and brilliantly lighted.
 - c. ----The writer saw how old and decayed the city was.
 - d. ----There were lofty houses on both sides of the canal.

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

I confess I did not much like this decision of the gipsy; I felt very slight inclination to leave the town behind, and to venture into unknown places in the dark night, amidst rain and mist, for the wind had now dropped, and the rain began again to fall briskly. I was, moreover, much fatigued, and wished for nothing better than to deposit myself in some comfortable manger where I might sink to sleep, lulled by the pleasant sound of horses and mules dispatching their provender. I had, however, put myself under the direction of the gipsy, and I was too old a traveler to quarrel with my guide under the present circumstances. I therefore followed close at his crupper; our only light being the glow emitted from the gipsy's cigar; at last he flung it from his mouth into a puddle, and we were then in darkness.

1. Underline the correct phrase required to complete this sentence:

to leave town for unknown parts
to stay in town
to return to a known place
to leave town alone.

2. Underline all the words which describe the traveler:

tired
sleepy
joyous
doubtful

3. Check the true statements:
 - a. ----The writer fully approved the decisions of the gipsy.
 - b. ----The writer desired to sleep in a well-kept room.
 - c. ----The writer followed closely after the gipsy.
 - d. ----The writer directed the gipsy to go forward.

4. Check the true statements:
 - a. ----The writer had perfect confidence in the gipsy.
 - b. ----The writer was an old traveler.
 - c. ----The writer did not know where the gipsy was going.
 - d. ----The gipsy did not carry a lantern.

VII

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

The champions were therefore prohibited to thrust with the sword, and were confined to striking. A knight, it was announced, might use a mace or battle-axe at pleasure, but the dagger was a prohibited weapon. A knight unhorsed might renew the fight on foot with any other on the opposite side in the same predicament; but mounted horsemen were in that case forbidden to assail him. When any knight could force his antagonist to the extremity of the lists, so as to touch the palisade with his person or arms, such opponent was obliged to yield himself vanquished, and his armor and horse were placed at the disposal of the conqueror. A knight thus overcome was not permitted to take farther share in the combat. If any combatant was struck down, and unable to recover his feet, his squire or page might enter the lists, and drag his master out of the press; but in that case the knight was adjudged vanquished, and his arms and horse declared forfeited.

- | | |
|---|------------------------------|
| | sword |
| 1. Underline the word which names
the weapon that could not be used: | mace
dagger
battle-axe |
| 2. Check the one of these statements which is false: | |
| a. ----A knight could fight on foot. | |
| b. ----One knight could not injure another knight. | |
| c. ----Mounted horsemen could fight only mounted horsemen. | |
| 3. Check the one of these statements which is true: | |
| a. ----A knight could be vanquished without being killed. | |
| b. ----A knight's page could fight. | |
| c. ----A vanquished knight retained his horse. | |
| 4. Check the true statements: | |
| a. ----Champions were prohibited to use the sword. | |
| b. ----An unhorsed knight could renew the fight. | |
| c. ----An opponent was vanquished if his arms touched the palisade. | |
| d. ----A knight dragged from the lists by his page was beaten. | |

VIII

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

All this was said apart. Perhaps a germ of love was springing in their hearts, so pure that it might blossom in Paradise, since it could not be matured on earth; for women worship such gentle dignity as his; and the proud, contemplative, yet kindly soul is oftenest captivated by simplicity like hers. But while they spoke softly, and he was watching the happy sadness, the lightsome shadows, the shy yearnings of a maiden's nature, the wind through the Notch took a deeper and drearer sound. It seemed, as the fanciful stranger said, like the chorál strain of the spirits of the blast, who in old Indian times had their dwelling among these mountains, and made their heights and recesses a sacred region. There was a wail along the road, as if a funeral were passing. To chase away the gloom, the family threw pine branches on their fire, till the dry leaves crackled and the flame arose, discovering once again a scene of peace and humble happiness. The light hovered about them fondly, and caressed them all. There were the little faces of the children, peeping from their bed apart, and here the father's frame of strength, the mother's subdued and careful mien, the high-browed youth, the budding girl, and the good old grandma, still knitting in the warmest place. The aged woman looked up from her task and, with fingers ever busy, was the next to speak.

- | | |
|---|---|
| 1. The event described in this
paragraph occurred in the | spring
summer
winter |
| 2. The event described in this
paragraph occurred in | England
Japan
France
United States |
| 3. Underline the words which
best describe the stranger: | gentle
proud
dignified
crude |
| 4. Underline the word which
best describes the home: | simple
grand
luxurious
irreverent |
| 5. The number of persons in
this home on this night was | two
three
five
seven |

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

With a profound sense of the solemn and even tragical character of the step I am taking and of the grave responsibilities which it involves, but in unhesitating obedience to what I deem my constitutional duty, I advise that the Congress declare the recent course of the Imperial German Government to be in fact nothing less than war against the Government and people of the United States; that it formally accept the status of belligerent which has thus been thrust upon it, and that it take immediate steps not only to put the country in a more thorough state of defense, but also to exert all its power and employ all its resources to bring the government of the German Empire to terms and end the war.

1. Check all of the following statements which are obviously true regarding the author of the above paragraph:
 - a. ----He was a merchant.
 - b. ----He was a major-general.
 - c. ----He was President of the United States.
 - d. ----He was an Englishman.
 - e. ----He recommends that Congress avoid war if possible.
 - f. ----He recommends that the United States use force.
 - g. ----He recommends that Congress formally declare war.
 - h. ----He believes that the German Empire had treated the United States fairly.
 - i. ----He did not believe the United States should end the war.
 - j. ----He thought the country was adequately defended.
 - k. ----He believed the Constitution required him to recommend a declaration of war.
 - l. ----He thought the United States had thrust "the status of belligerent" upon Germany.

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

Yet, unless I greatly deceive myself, the general effect of this chequered narrative will be to excite thankfulness in all religious minds, and hope in the breasts of all patriots. For the history of our country during the last hundred and sixty years is eminently the history of physical, of moral, and of intellectual improvement. Those who compare the age on which their lot is fallen with a golden age which exists only in their imagination may talk of degeneracy and decay; but no man who is correctly informed as to the past will be disposed to take a morose or desponding view of the present.

1. Underline the phrase necessary to complete this sentence:

The author believes	discourage the people
his narrative will	inspire hope in the people
	leave the people indifferent.
2. Check all the true statements among the following:
 - a. ----By "chequered narrative" the author refers to an historical narrative.
 - b. ----The author believes his country has improved in the past century.
 - c. ----The author believes all persons will accept his conclusions.
3. Check all the true statements among the following:
 - a. ----The author believes there has been degeneracy and decay in his country.
 - b. ----Well informed persons will take a hopeful view of the present.
 - c. ----The "golden age" exists in imaginative minds.
4. Check the true statement:
 - a. ----The country had improved physically but not morally.
 - b. ----Correctly informed persons will take a morose view of the present.
 - c. ----The history of "our country" is encouraging to religious minds.

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

The speech of Judge Hoar was perfect, and to that handful of people, who heartily applauded it. When a good man rises in the cold and malicious assembly, you think, "Well, it would be more prudent to be silent. Why not rest on a good past? Nobody doubts your talent and power; and, for the present business, we know all about it, and are tired of being pushed into patriotism by people who stay at home." But he, taking no counsel of past things, but only of the inspiration of his today's feelings, surprises them with his tidings, his better knowledge, his larger view, his steady gaze at the new and future event, whereof they had not thought, and they are interested like so many children, and carried off out of all recollection of their malignant nonsense, and he gains his victory by prophecy, where they expected repetition. He knew beforehand that they were looking behind, and that he was looking ahead, and therefore it was wise to speak. What a godsend are these people to a town! and the Judge, what a faculty! —he is put together like a Waltham watch, or like a locomotive just finished from the Tredegar Works.

1. Check the true statement:

The occasion of Judge Hoar's speech was:

- a. ---- A religious meeting.
- b. ---- A meeting to urge support of the country.
- c. ---- A meeting to raise money for a town hall.

2. Check all true statements, if any:

- a. ---- The audience was inclined to look backward.
- b. ---- At the end of the speech the audience was hostile.
- c. ---- The speaker had a forward-looking mind.

3. Check all false statements, if any:

- a. ---- The author admires Judge Hoar.
- b. ---- The speaker surprised his audience.
- c. ---- The audience changed its attitude.
- d. ---- The speech was a failure.

4. Underline the words which best describe Judge Hoar:

talented
sagacious
retrospective
prophetic

5. Check the false statements:

- a. ---- The Judge talked about an old subject in a new way.
- b. ---- The audience was wiser than the Judge.
- c. ---- The Judge was a burden to his community.

Read this paragraph. Then read the directions below and do what it says to do. The correct answers are to be found by reading the paragraph. Read the paragraph as often as you need to.

This government, the offspring of our own choice, uninfluenced and unawed, adopted upon full investigation and mature deliberation, completely free in its principles, in the distribution of its powers, uniting security with energy, and containing within itself a provision for its own amendment, has a just claim to your confidence and your support. Respect for its authority, compliance with its laws, acquiescence in its measures, are duties enjoined by the fundamental maxims of true liberty. The basis of our political systems is the right of the people to make and to alter their constitution of government; but the constitution which at any time exists, till changed by an explicit and authentic act of the whole people, is sacredly obligatory upon all. The very idea of the power and the right of the people to establish government presupposes the duty of every individual to obey the established government.

1. Check each of the following statements which is true:

- a. ---- The author speaks of a government ruled by a monarch.
- b. ---- The author speaks of a government controlled by the people.
- c. ---- The author does not believe in constitutional government.

2. Check each of the following which is true according to the author:

- a. ---- The people should not make their own laws.
- b. ---- True liberty demands that people obey the law and respect authority.
- c. ---- The people have no right to change the constitution of their government.

3. Check the statement which is false:

- a. ---- "Our political systems" are founded on the right of the people to alter their constitution.
- b. ---- The government of which the author speaks makes no provisions for being changed.
- c. ---- The people are obligated to be loyal to the government.

4. Check all true statements:

- a. ---- This government was forced on the people.
- b. ---- This government has power.
- c. ---- This government was adopted deliberately.

5. Check the statement which is false:

- a. ---- The people have the right to establish government.
- b. ---- The people have duties to the government.
- c. ---- A minority may change the constitution.

DO NOT TURN THIS PAPER OVER UNTIL THE EXAMINER GIVES THE SIGNAL

NORTH CAROLINA EDUCATIONAL COMMISSION

EXAMINATION IN READING, SIGMA 3

1. Write the name of your State here.....
2. Write the name of your city or county here.....
3. Write the name of your school here.....
4. Write your name here.....
5. Write the date of your next birthday here....., 192.....
(Day) (Month)
6. Write the present date here....., 1920.
(Day) (Month)
7. Write your age here.....yearsmonths.
8. Underline the words which tell the class to which you belong:

First year { First half
 { Second half

Second year { First half
 { Second half

Third year { First half
 { Second half

Fourth year { First half
 { Second half

When the examiner gives the signal, turn the test over to the front page and
DO WHAT IT SAYS TO DO