

DISPOSITION OF OUT-OF-SCHOOL
TIME BY STUDENTS OF MANHATTAN
SENIOR HIGH SCHOOL

by

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DEFINITION OF THE PROBLEM

On the basis of native ability the students of the Manhattan Senior High School may be roughly classed into three groups, namely, high, average and low intelligence. While individuals in the same group have factors other than intelligence in common yet there are a number of factors which one would reasonably expect them to have in common but in which wide variations occur. Marked variation occurs among the individuals of each group in school grades, amount of time spent on school studies, work, amount of sleep, disposal of leisure time and like factors.

There are brilliant students who spend a large portion of their time on school duties outside of school time, who also work for pay. There are other equally brilliant students who seemingly have no responsibility outside of attending the classes of which they are members. These students make excellent grades with no special outlay of time and their out-of-school time is used altogether as leisure time. Some of these students take active part in extra-curriculars while others do not. While school duties are performed in a highly satisfactory manner, yet there seems to be a lack of motivation. Too large a number of students in the higher levels of intelligence fail to have an actual objective as

the directing agency in their school work. Some, it is true are in school because their parents insist on their being there or because their friends attend. There are individuals in this group also who are doing very poor work in spite of high native ability.

Falling in the group of students of average intelligence are students doing every grade of work from absolute failure to excellent; students who work many hours each day on outside work or outside study to those who spend no time at all in outside work or study; and students who show a high degree of motivation side by side with those who seemingly have no objective in the disposal of their time spent in school.

It would be logical to suppose that pupils whose mental level may be classed as low would not be found doing school work of a highly satisfactory nature or spending out-of-school time working, yet as in the other groups every quality of school work is found, as well as widely varying amounts of time spent on outside work and outside study.

Running through all these groups also are widely varying amounts of time for sleep, time spent at picture shows, parties and the number of evenings spent at home.

With so many combinations of the different factors involved it is impossible to the casual observer to see any general trends running through the whole. Yet there must be

such general tendencies present. There must be some reason to account for the fact, on the one hand, that one individual of medium intelligence from the average home can do successful work in school in spite of the fact that he spends several hours each day doing home tasks for which he is responsible or working outside for pay, while, on the other hand, another student of high intelligence, coming from a home equally good or better does his school work on the same grade level although he spends only a small portion of his time, or perhaps none at all, doing outside work or outside study.

The student of low ability whose work is acceptable may be taxing his physical and mental powers to a point beyond that which is best for his well-being. The student of average ability must be working nearly to his full capacity, at least much more nearly so than the average student of superior ability. Whether or not this is true, relatively speaking, the average superior student is not disposing his time as advantageously as the average student of average intelligence.

Some students then, motivated through some factor or group of factors are accomplishing very much more with a given level of intelligence from the standpoint of grades obtained in school and time spent doing personal service in their own home or for other people, than are other students

possessing an equal or superior intelligence level. It is evident that the former student through disposition of his out-of-school time is getting better training for adult living than is the student of average or high intelligence who does little or no outside work yet whose achievement measured in terms of school grades is near the mean. It is equally evident that one or more of the agencies responsible for the training of high school students, namely, the home, the school and the community is failing to provide adequate training for students at all levels of intelligence. The problem then is to find out if possible wherein the failure lies and to determine what changes are necessary to effect a remedy.

One step in the solution of this problem is to determine with as great a degree of accuracy as possible just how the students of Manhattan Senior High School are disposing their out-of-school time. The purpose of this study is not to make an accounting of all of the time of the student but rather to obtain some of the facts regarding the students' disposal of his out-of-school time and drawing from them conclusions that will perhaps be of aid to the community, the teacher, the parent and the student himself in making high school training more effective as preparation for adult living.

ACKNOWLEDGMENT

The writer wishes to acknowledge his indebtedness to Dr. W. H. Andrews, of the Department of Education, for most helpful suggestions and general direction of thought along fruitful lines; to Superintendent W. E. Sheffer, and Principals H. Leigh Baker and F. V. Bergman of the Manhattan City Schools for their fine spirit of cooperation and assistance in securing data; to Mr. Oliver B. Reed who very kindly offered the results of intelligence testing in Manhattan High Schools. Mr. Reed also assisted in obtaining the percentile rankings and scores.

SOURCE AND METHOD OF COLLECTION OF DATA

The questionnaire method suggested itself as being practical as a means of securing data from the individual student regarding his disposal of out-of-school time. Accordingly one was constructed and designed to be given to the individuals of an entire class of students simultaneously. This questionnaire is composed of forty-two separate questions some of which are subdivided. When accurately filled out the data so obtained gives a good picture of how the students' time is spent during the school day, on Saturday and during the summer's vacation period. A few of the questions

have no bearing on the problem, except perhaps in a general way and were included for other reasons at the suggestion of the Superintendent of Schools. The questionnaire follows:

Name _____ Age _____ Classification _____
Home Address _____ Telephone _____

A Record of Your School Day

1. At what hour do you usually get up? - - - - -
2. Is there regular work or chores that you have to do each day:
Before school? - - - - -
After School? - - - - -
3. Give the number of minutes spent daily helping at home:
(Include care of room, odd jobs, Before School?- - -, -
chores, etc.) After School?- - - -
4. Do you do odd jobs for other folks as you have opportunity?
Minutes per day? - - - - -
5. Do you have a steady job? - - - - -
If so, what hour of day? - - - - Minutes per day? - - - -
6. If working, what do you do? - - - - -
How much do you earn per week?- - - - -
What kind of work would you like to do? - - - - -
7. Put down number of minutes spent on studies:
Before school? - - - - -
After School? - - - - -
8. When do you leave home for school?- - - - -
9. How do you come to school? Walk? - - - - -
Drive a car- - - - -
10. How far do you come to school? Blocks? - - - - -
or miles? - - - - -
11. At what time do you usually get home from school? - - -
12. Do you stay after school to practice plays, basketball, etc.?
Designate activities - - - - -
Minutes per day? - - - - -
13. Do you have some time to spend as you please? - - - - -
Minutes per day? - - - - -
14. Do you spend a part of such time attending movies?- - -
Number per week? - - -
Reading stories? - - -
Minutes per day? - - -
Attending parties? - - -
Number per month?- - -
15. Do you spend some of your evenings at home? - - - - -
Number per week? - - -
16. At what hour do you usually retire? - - - - -
17. Do you like your school work? - - - - -

- Why you do or do not? - - - - -
18. Did your father complete Grade School? - - - - -
High School? - - - - -
College? - - - - -
 19. Did your mother complete Grade School? - - - - -
High School? - - - - -
College? - - - - -
 20. Give the occupation of Your father? - - - - -
Your mother? - - - - -
 21. Is it necessary for you to work in order to stay in school? - - - - -
 22. Are you paid for what you do at home? - - - - -
Or do you work because you feel you should help? - - - - -
 23. Do you buy your own clothes? - - - - -
Or do your parents buy them for you? - - - - -
 24. Do you live with relatives? - - - - -
Or with folks not related to your family? - - - - -
 25. Do you pay for your Board? - - - - -
Room? - - - - -
 26. If you are a boy, do other boys not your brothers stay in the same home? - - - - -
Number? - - - - -
 27. Do girls not your sisters stay in the same home? - - - - -
Number? - - - - -
 28. If you are a girl, do other girls not your sisters stay in the same home? - - - - -
Number? - - - - -
Do boys not your brothers stay in the same home? - - - - -
Number? - - - - -
 29. Do your parents or landlady expect you to be home at a certain hour each eveing? - - - - -
What hour? - - - - -
 30. Is your home - - - - - In the country? - - - - -
Or in town? - - - - -

On Saturdays

31. Is there regular work or chores that you do each Saturday? - - - - -
Minutes per day? - - - - -
Helping about home? - - - - -
Minutes per day? - - - - -
32. Time, if any, spent on lessons? - - - - -
33. Time, if any, spent doing odd jobs away from home? - - - - -
34. Do you have a steady job? - - - - -
Minutes per day? - - - - -
35. If your home is in town, and you do not have work, are you: usually at home? - - - - -
-Away from home? - - - - -
36. If your home is in the country and you do not have work, are you: usually at home? - - - - -
-Away from home? - - - - -

During the Summer Vacation

37. Do you have regular work at home for which you are responsible? (include gardening, odd jobs, housework)
38. Did you do odd jobs away from home last summer?-----
Number of days?- - - - -
39. Did you have a steady job? - - - - -Number of days?- -
40. If you worked last summer how much did you earn? - - -
41. Do you usually work during vacations? - - - - -
42. Did you want to work but fail to find work to do? - - -

The writer was present as each group filled out the blanks and attempted to make the procedure uniform. Each question was read in as nearly as possible the same way, each time and such comments as seemed necessary to make meanings clear were standardized. Upon inspection it was found that a few persons filled out the blanks in a spirit of levity but with these exceptions the answers recorded seemed to be a statement of facts. After being filled out, the copies were collected and the results tabulated in a available form for use.

Since intelligence is a factor which affects all the other factors involved in the problem some means was necessary to obtain individual measurements of this factor. Dr. J. C. Peterson's Equation Completion Test, Form "A" was used as a measure of general intelligence, percentile rankings for each class and sex being made and subsequently changed to percentile scores through the use of Rugg's Table.

The determination of a suitable measure of achievement in school presented some difficulties. Since the results of as much as three years of work in school should be a fair sample of the students' ability, and as the choice of a longer period would have meant the elimination from the problem of many students due to natural turnover in school, pupils having a school record of three years or more were selected and each individual's average grade for the last three years taken as representative of that individual's level from the standpoint of school work. No account was taken of failures as the records do not show the cause for failing work. The different levels of school work are represented on the records of the Manhattan City Schools as follows:

I - Excellent

II - Good

III - Medium

IV - Poor

All work below IV is failing. The highest rating possible is therefore I and the lowest rating is IV. Since averages usually resulted in decimal fractions the measures obtained represent a continuous series from I to IV. As each pupil's record was examined the data required including the name, age, sex and nationality of the individual was recorded on cards suitable for filing.

As a means of confirming certain of the results shown in the tables and by the graphs, and as an added method of presenting certain of the results a part of the data obtained through the various sources indicated was treated statistically. Correlations were made between the following four factors:

- Intelligence (1)
- Grades (2)
- Work (3)
- Age (4)

The correlations were made by classes and by sexes in order to make comparisons with homogeneous groups. The raw coefficients or zero order r 's resulting from these correlations are shown in table VI. Partial r 's were made where the value of such coefficients seemed to warrant the expenditure of the time. As a check on these partials, the multiple R 1(254) was calculated. The multiple R 's together with the partials obtained and their corresponding zero order r 's are found in table VII.

For purposes of comparison the students in each class and of each sex were arranged into three groups namely, upper, lower and inner quartiles on the basis of intelligence. Graphs were made to assist in this comparison. The relations between the four factors, intelligence, grades, outside work and outside study for the different classes and

sexes at the three levels of intelligence chosen are shown by means of curves. The relations between the four factors, sleep, movies per week, parties per month and evenings at home per week for the average student at the three levels of intelligence are shown by means of blocks of different heights.

An explanation of the calculations by which the averages and percentages of some of the parts of the different tables were found may help in understanding their meaning:

Intelligence average -- the arithmetical average of the intelligence scores of the individuals falling in any given class for any given intelligence level.

Daily minutes on lessons -- the out-of-school time in minutes spent by the average student of a given group each day on any kind of school work or private lessons.

Daily minutes helping at home -- the out-of-school time in minutes spent by the average student of a given group each day doing chores or other forms of work at home. This measure does not include any time spent on lessons.

Total daily minutes working -- daily minutes helping at home; daily minutes devoted to a steady job for pay; and the time on Saturday spent working for pay or at home divided by five are included in this item.

Per cent having steady jobs -- Per cent of any given group having steady employment for which pay is received.

Weekly earnings -- earnings of the average student of those having steady employment in a given group.

Grade -- grade of the average student in any given group.

The meanings of the remaining headings are clear. Note the intelligence level each table represents.

RESULTS

The most satisfactory interpretation of the data which has been collected seems to be made by first studying the data for each intelligence level and making comparisons by class and by sex of a part or all of the factors considered, making use of the proper table at any given level. Comparisons may then be made of the significant factors at the three levels of intelligence considered. Certain of these factors at one or more of these levels are compared at the level of the average student. In comparisons between levels use is made of the graphs shown in figures 1 to 8 inclusive. Use is made also in this study of the correlation coefficients found in tables VI and VII.

A Study of Students in the Middle Quartiles.

Average Intelligence. This factor shows no definite

TABLE I

Distribution of average data for students in the Manhattan Senior High School. Middle Quartiles.

Classification	Number of cases	Average Intelligence	Average Sleep	Daily Minutes on Lessons	Daily Minutes Helping At Home	Total Daily Minutes Working	Percent Having Steady Jobs	Average Weekly Earnings	Percent Having Steady Jobs Last Summer	Days Worked	Total Earnings	Percent of Those Who Must Work	Percent Failing To Get Work	Movies Per Week	Parties Per Month	Evenings at Home	Grades	Age
Seniors																		
Boys	19	50.94	8.54	36.05	80.79	213.26	36.84	3.28	100.0	65.0	166.83	21.05	5.26	.526	1.47	3.78	2.508	17.63
Girls	25	55.16	8.70	59.0	99.20	196.26	12.0	2.00	24.0	41.16	27.25	8.0	44.00	.68	2.12	3.48	2.44	17.20
Juniors																		
Boys	12	57.50	8.72	44.67	43.75	210.66	25.0	3.50	83.33	68.0	146.11	8.33	0	.916	.66	3.08	2.07	16.91
Girls	22	53.68	8.67	104.77	52.73	122.27	4.54	2.33	18.18	37.5	19.0	0	54.54	.818	2.91	3.68	2.50	16.54
Soph.																		
Boys	19	52.26	9.28	52.36	76.05	181.26	10.52	4.92	52.63	73.12	130.36	10.52	26.31	1.16	.684	3.42	2.16	15.47
Girls	21	54.42	9.06	58.81	72.38	118.14	0	0	9.52	45.0	28.33	4.76	23.81	1.04	1.81	3.43	2.33	15.24

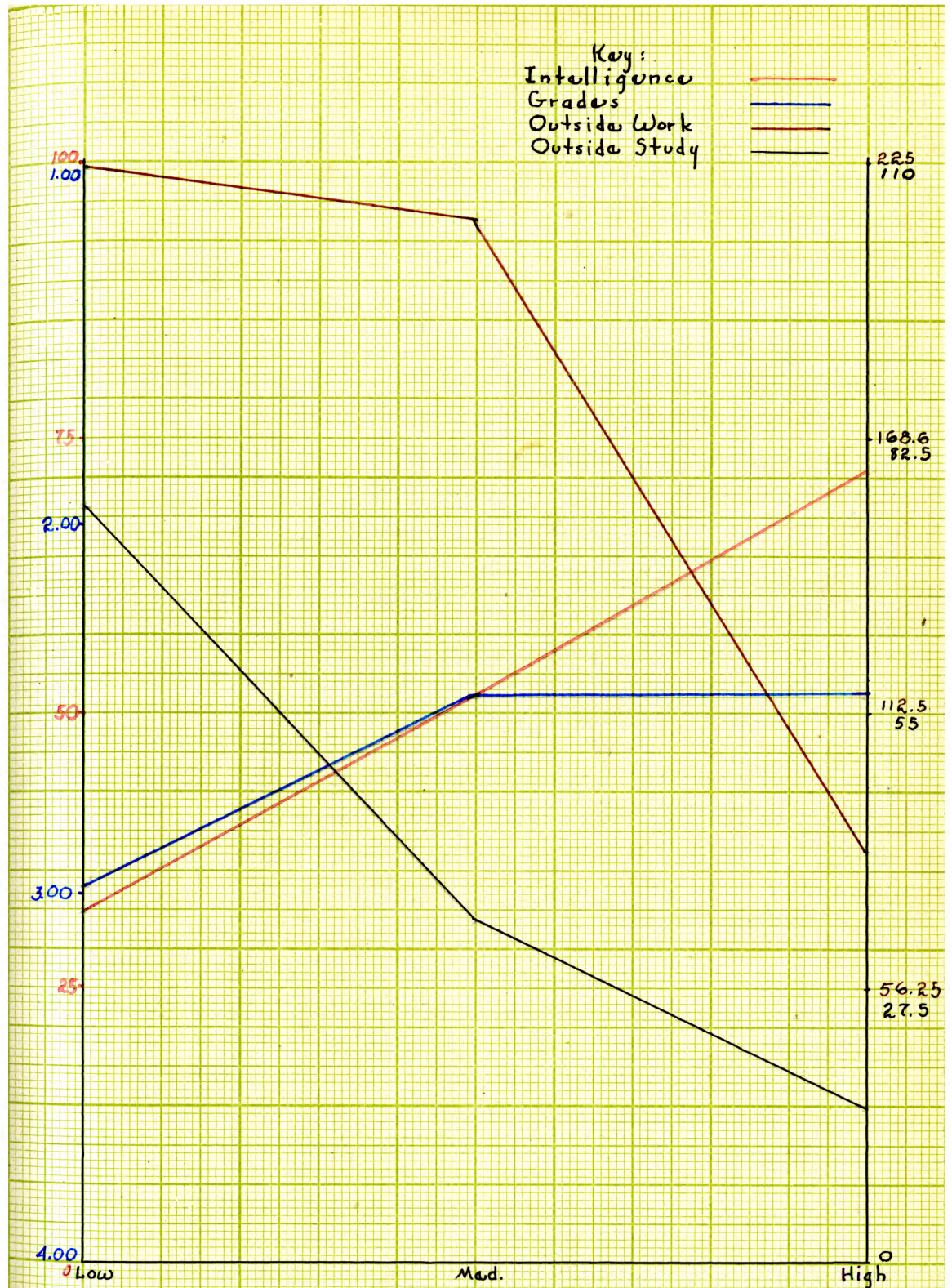


Fig. I. Graphical Representation of Intelligence, Grades, Work Out of School, and Work on School Subjects Outside of School Hours, of The Two Inner Quartiles at The Low, Mean, and High Levels of Intelligence. Senior Boys - Manhattan (Kan.) High School.

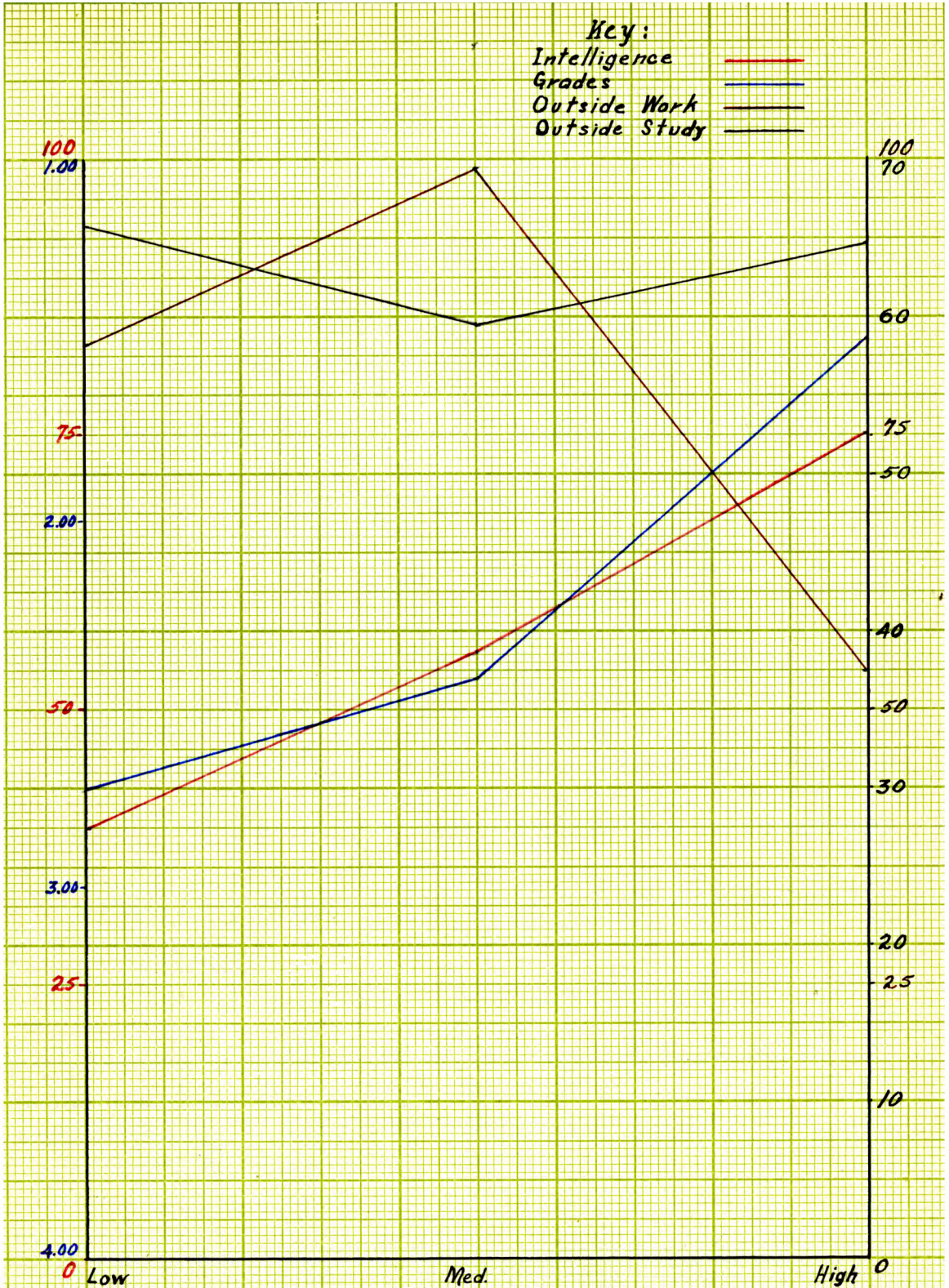


Fig. II. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects Outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence.
 Senior Girls - Manhattan (Kan.) High School.

trend either by classes or by sex. It is interesting to note however that grades follow intelligence closely. Senior girls show higher intelligence and higher grades than senior boys. Junior boys show higher intelligence and higher grades. Sophomore girls show a higher intelligence score and likewise a higher grade.

Daily Minutes on Lessons. Consistently more time is spent on outside study by the girls. There is also a slight tendency to do less outside study as advance is made by grades.

Working. Boys consistently spend more total time working than do girls, although girls do more work at home. It is apparently much easier for boys to obtain work than for girls. Large numbers of girls would work if work was to be found as signified by the data under "failure to get work". Both boys and girls increase the time spent working as they advance in school. It is significant to note that it becomes necessary for larger numbers of students to work in order to stay in school as advance is made in school.

Leisure Time. Younger students spend more time at the movies but less time at parties than do the upper classmen. It is natural to expect that social life will increase somewhat with increasing age and school advancement. Evenings spent at home are uniform but seem to be too few.

Age. Boys consistently reach a given class level at an

older age than do girls. This fact agrees with the facts that they mature both physiologically and psychologically at an older age.

Sleep. Students in the lower classes get more sleep than those more advanced. This is consistent with their needs.

A Study of Students in the Lower Quartile

Average Intelligence. Comparing boys and girls the latter show higher intelligence in the senior year while the score for the boys is higher in the sophomore year. This may be accounted for if it is true that the duller girls drop out before the senior year is reached while the duller boys remain in school.

Grades. Grades follow intelligence closely except in the sophomore class when the boys with a higher score in intelligence have a much lower grade. This may be due to the facts that they do much less outside study, much more outside work, and spend fewer evenings at home. Also, generally speaking they respond less slowly to motivation.

Working. Time spent on outside study is fairly constant throughout the three years. At this level boys spend more time helping at home than do girls although there is no great difference here. This is very likely due to the fact

TABLE II

Distribution of Average Data for Students in the Manhattan Senior High School.
Lower Quartile

Classification	Number of Cases	Average Intelligence	Average Sleep	Daily Minutes At Lessons	Daily Minutes Helping At Home	Total Daily Minutes Working	Percent Having Steady Jobs	Average Weekly Earnings	Percent Having Steady Jobs Last Summer	Days Worked	Total Earnings	Percent of Those Who Must Work	Percent Failing to Get Work	Movies Per Week	Parties Per Month	Evenings At Home	Grades	Age
Seniors																		
Boys	10	31.20	7.93	75.0	88.0	224.20	30.0	5.50	50.0	61.0	181.66	30.0	10.0	1.20	3.6	3.62	2.97	18.30
Girls	13	39.46	8.66	66.54	83.46	149.38	7.69	15.00	30.77	36.75	56.83	15.38	38.46	0.92	1.69	4.00	2.70	17.38
Juniors																		
Boys	4	26.25	8.50	53.75	93.75	206.25	25.0	2.25	25.0	75.0	140.0	0	0	1.00	1.75	4.75	3.16	17.50
Girls	11	34.09	8.31	66.36	75.00	205.18	27.27	6.25	36.36	71.25	96.25	9.09	18.18	1.09	1.18	4.12	3.14	17.09
Soph.																		
Boys	11	36.27	8.87	53.18	26.18	156.19	0	5.50	63.63	66.42	236.15	9.09	27.27	0.81	.81	3.60	3.22	16.00
Girls	10	30.05	8.93	87.00	29.50	74.40	10.0	2.00	-- --	-- --	24.75	0	40.00	0.70	1.00	5.00	2.96	15.60

that generally speaking these people come from the less desirable homes and it is necessary for all the members of the family to assist in home work. Upper classmen do more total work than lower classmen. More of these students indicate that work is necessary in order that they remain in school. A large per cent of the girls in each grade fail to find work after attempting to find it.

Leisure Time. Boys attend more movies, parties and spend fewer evenings at home than do the girls; consequently giving a reason other than lower intelligence for the fact that they do poorer work in school.

Age. There is a wide spread in age between students in the sophomore class and those in the senior class.

A Study of Students in the Upper Quartile

Intelligence and Grades. Intelligence scores for the different classes and between the boys and girls are constant though the scores for grades vary widely. The grades of the girls are very high and show a consistent relation with the corresponding mental score. Relatively speaking, the boys grade scores are very low and show a decided tendency downward as advancement is made in school. The data fail to show any reason why this is true except that less time is spent on study outside of school. Very few of this

TABLE III

Distribution of average data for students in the Manhattan Senior High Schools.
Upper Quartile

Classification	Number of Cases	Average Intelligence	Average Sleep	Daily Minutes at Lessons	Daily Minutes Helping at Home	Total Daily Minutes Working	Percent Having Steady Jobs	Average Weekly Earnings	Percent of Steady Jobs Last Summer	Days Worked	Total Earnings	Percent of Those Who Must Work	Percent Failing to Get Work	Movies Per Week	Parties Per Month	Evenings at Home	Grades	Age
Seniors																		
Boys	9	72.44	8.55	17.77	39.44	84.77	33.33	12.66	77.77	62.14	125.00	0	33.33	.88	1.33	3.66	2.48	17.44
Girls	11	75.18	8.83	64.54	54.09	120.18	9.09	5.00	27.27	58.33	65.00	0	18.18	.72	3.09	4.09	1.50	17.0
Juniors																		
Boys	8	73.62	8.12	42.5	29.37	123.62	50.0	6.00	75.0	72.50	312.50	12.5	25.00	1.50	1.75	3.33	2.41	16.75
Girls	11	72.09	8.55	68.18	117.72	166.82	9.09	3.00	--	--	31.00	0	18.18	.81	2.09	4.09	1.70	16.09
Soph.																		
Boys	7	73.0	8.87	21.43	49.28	104.71	28.57	--	42.85	63.0	42.50	0	28.59	1.28	1.71	3.50	1.93	15.38
Girls	11	72.45	9.00	58.18	61.36	70.27	0	0	9.09	20.0	50.00	0	9.09	1.00	1.54	4.2	1.54	15.36

group indicated that it was necessary for them to work although quite a large per cent made efforts to find work and failed.

Leisure Time. More than the average time is spent by this group attending movies and parties. At the same time more evenings per week are spent at home.

A Study of the Average Student In Manhattan Senior High School

Grades. The scores for the average student among the girls and boys of the different classes are quite consistent and about what one would expect of the child of high school age.

Intelligence. This factor shows no definite trend in any direction either for boys or girls. Grades follow such variations as do exist quite closely. The high correlation between these factors is shown clearly by noting the curves shown in figure 7.

Sleep. The younger students are getting more sleep than members of the upper classes as they should, and the average in each class is sufficient for the needs of the pupils represented.

Work. The average boy spends more total time working while the average girl spends more time on work in the home

TABLE IV

Distribution of average data for students of the Manhattan Senior High School; the four quartiles combined

	Number	Average Intelligence	Average Sleep	Daily Minutes at Lessons	Daily Minutes Helping At Home	Total Daily Minutes Working	Percent Having Steady Jobs	Work Earnings	Percent Having Steady Jobs Last Summer
Senior									
Boys	38	50.84	8.48	40.10	74.10	188.34	28.2	6.21	81.5
Girls	49	55.40	8.71	64.10	84.79	164.69	8.33	3	22.9
Junior									
Boys	24	57.66	8.61	44.79	47.29	176.75	33.33	3.65	75.
Girls	44	53.36	8.42	82.52	74.54	146.77	11.36	4.10	20.4
Soph.									
Boys	37	51.43	8.68	48.57	55.65	150.64	8.57	5.79	43.5
Girls	42	53.45	9.14	64.43	54.20	97.54	2.27	2.00	11.0
		Days Worked	Total Earnings	Percent of Those Who Must Work	Percent Failing to Get Work	Movies Per Week	Parties Per Month	Evenings At Home	Grades
Senior									
Boys		63.70	165.29	21.1	13.1	.81	2.23	3.69	2.65
Girls		49.00	49.61	6.1	36.7	.77	2.30	3.88	2.29
Junior									
Boys		66.66	175.77	8.3	16.6	1.04	1.20	3.61	2.34
Girls		59.33	47.38	2.2	34	.95	3.56	4.02	2.46
Soph.									
Boys		71.58	121.68	8.1	27.0	.94	.91	3.92	2.75
Girls		51.00	28.80	2.3	23.8	.97	1.50	4.44	2.27

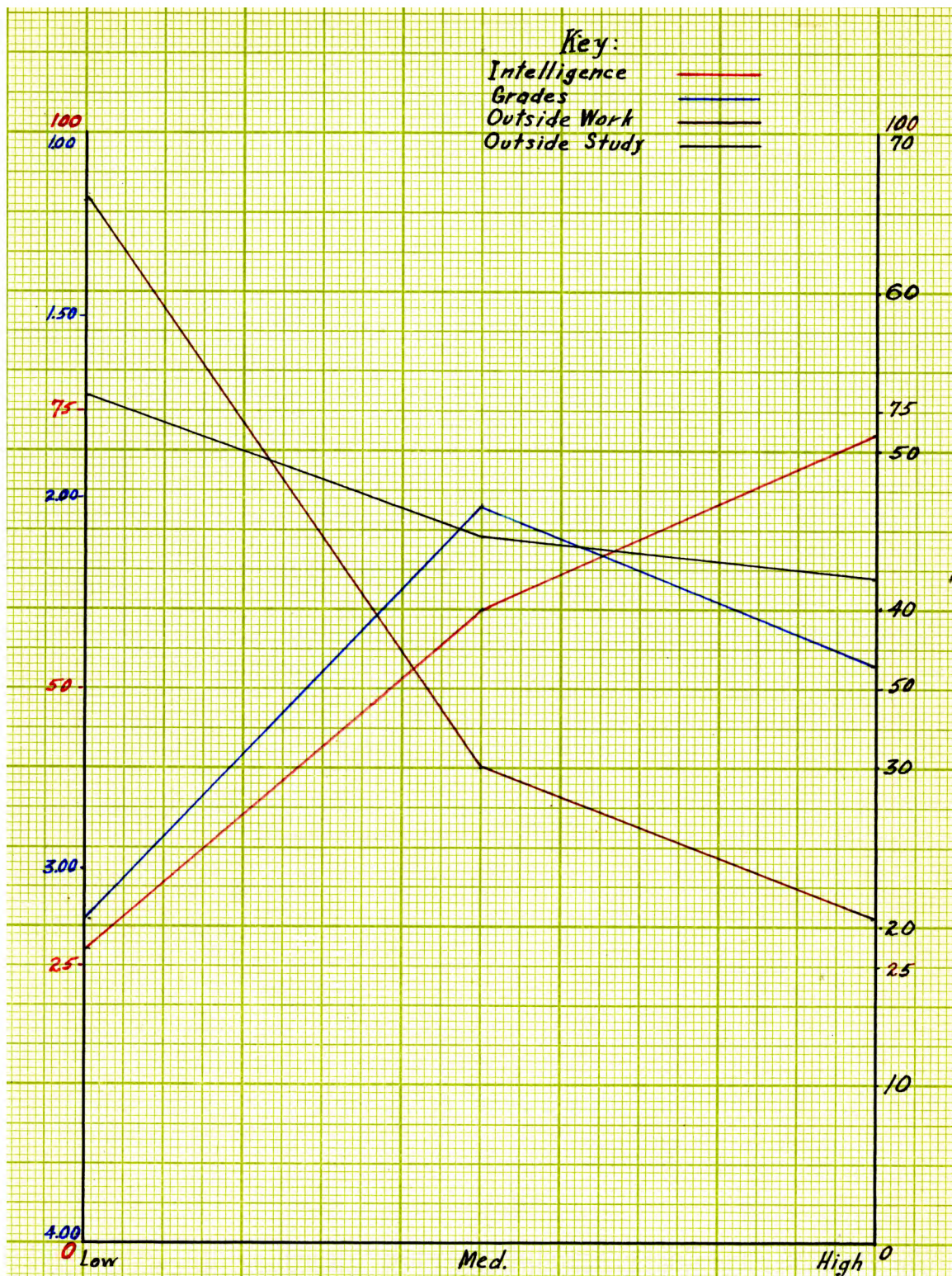


Fig. III. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects Outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence. Junior Boys - Manhattan (Kan) High School.

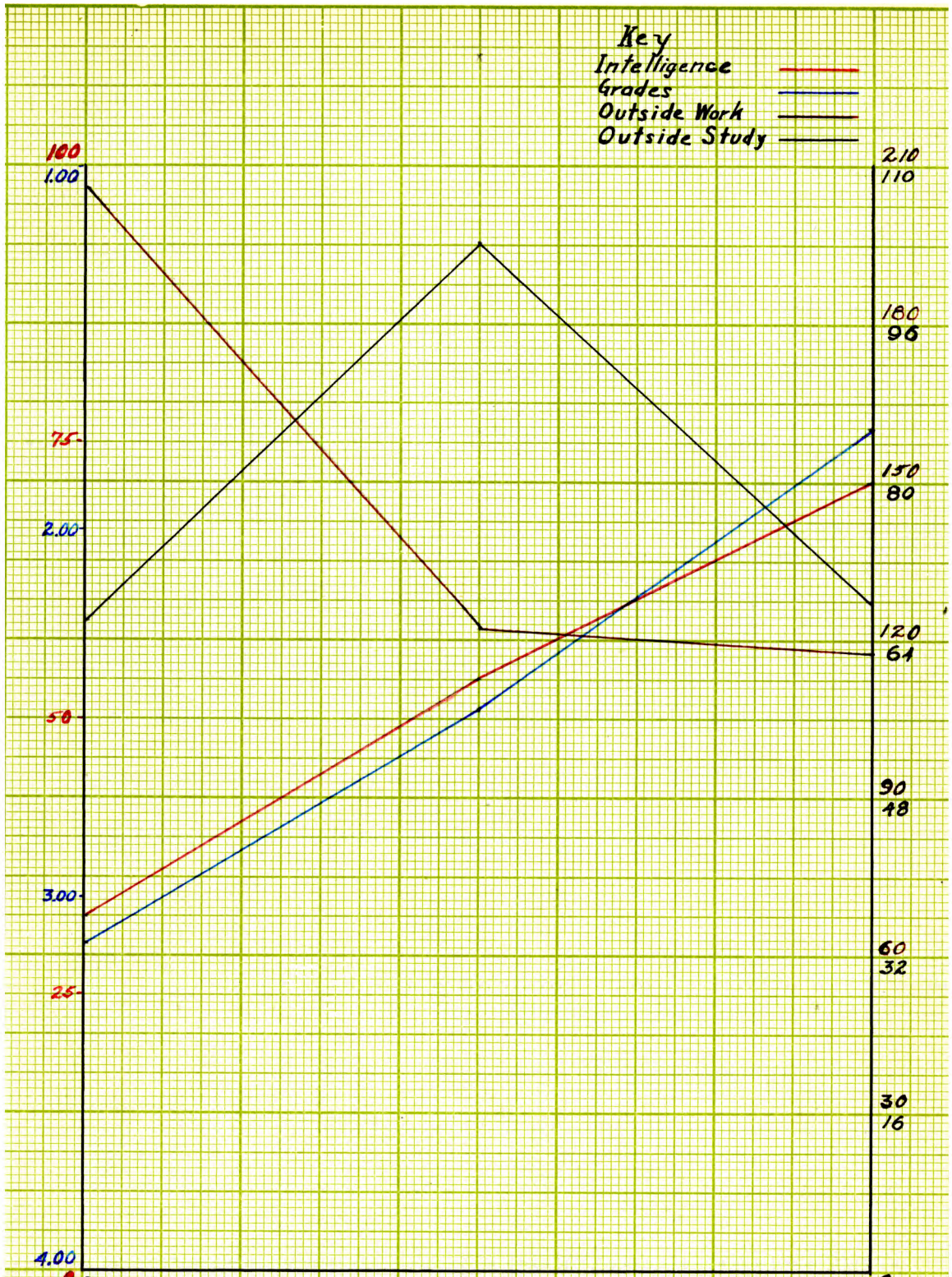


Fig. II. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects Outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence. Junior Girls - Manhattan (Kan.) High School.

and on study outside of school. The per cent having steady jobs is much greater for boys and more boys have to work in order to stay in school. However in checking whether or not it is necessary to work in order to stay in school, it is quite possible that often-times girls, through hesitancy in admitting such facts, failed to make the proper check. This supposition is strengthened by the fact that a very large per cent of girls try to find work and fail.

Leisure Time and Evenings at Home. The averages for these factors show no special trend in any particular direction and in general are satisfactory, except that the number of evenings spent at home where the child comes most closely under parental influence seems too small.

A Study of Students Who Vary Widely From the Average

As may well be expected in a group of three or four hundred pupils of high school age a few individuals are always present whose scores fail to conform to the scores of the majority of individuals in the group. This is true in the Manhattan Senior High School. No attempt was made to follow these individuals who in one or more respects show wide variation to determine if they show the same variation in a large number of respects. The findings of such an investigation would be interesting and enlightening. Table V

TABLE V

Distribution of data for students in the Manhattan Senior High School who vary widely from the Average Measures

	Intelligence		Sleep		Daily Minutes On Lessons		Daily Minutes Helping At Home		Total Daily Minutes Working		Movies Per Week		Parties Per Month		Evenings At Home		Grade	
	Highest 10%	Lowest 10%	% more than 9	% less than 8	% more than 90	% None	% Over 90	% None	% Over 3 hours	% None	% Over 2	% None 3	% Over 3	% None 4	% Less than 4	Highest 10%	Lowest 10%	
Senior																		
Boys	38	79.50	23.50	15.8	5.2	7.8	31.5	23.9	15.7	2.6	73.6	2.6	39.4	29.0	31.6	39.4	1.60	3.46
Girls	49	81.60	34.80	6.1	4.0	24.5	18.3	28.5	14.2	- 0	89.7	2.0	36.7	24.5	18.3	22.5	1.04	3.60
Junior																		
Boys	24	86.00	20.50	8.3	16.6	16.6	29.1	12.5	25.0	4.1	66.6	8.3	25.0	8.3	41.7	45.8	1.29	3.34
Girls	44	81.25	28.00	9.9	9.9	40.9	22.7	29.5	18.1	4.5	88.6	4.5	31.8	22.7	27.2	22.7	1.19	3.71
Soph.																		
Boys	37	77.00	29.25	18.9	2.7	13.5	10.8	21.6	24.3	5.2	86.4	5.4	37.8	5.4	67.6	30.0	1.33	3.70
Girls	42	76.75	21.00	28.5	2.3	38.0	26.1	14.2	7.1	- 0	97.6	2.3	26.2	11.9	38.1	26.2	1.07	3.46

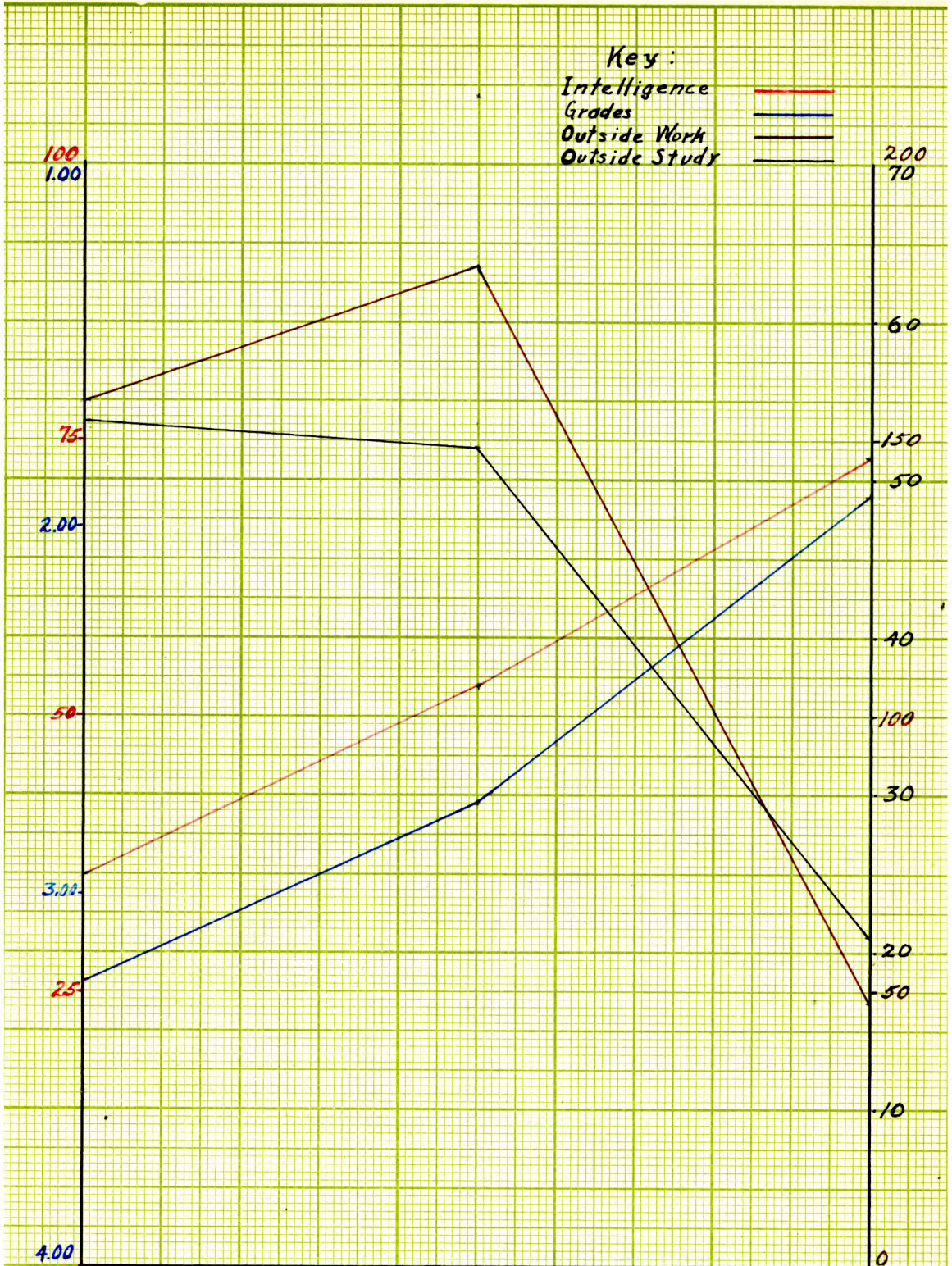


Fig. V. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects Outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence. Sophomore Boys - Manhattan (Kan.) High School.

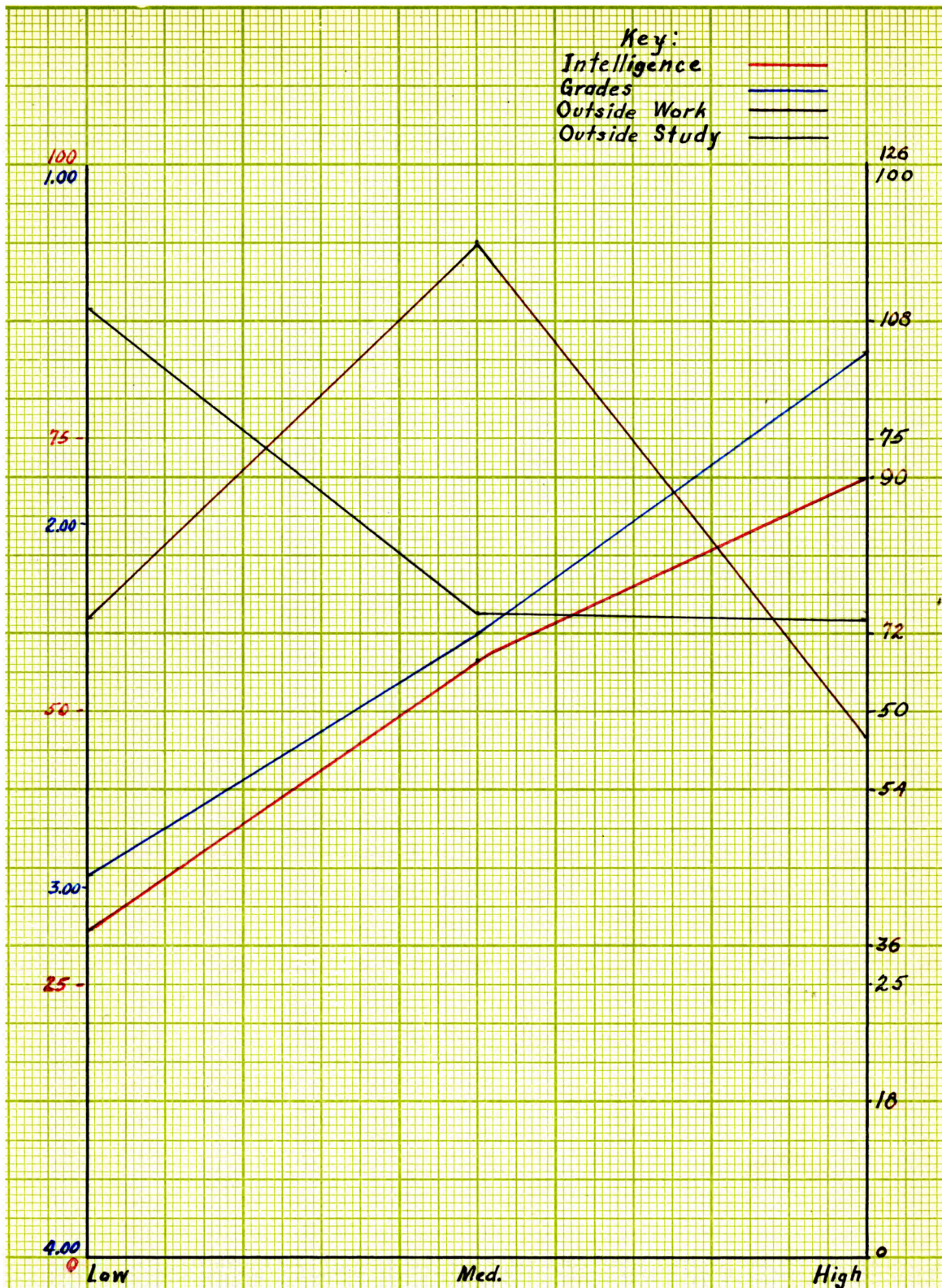


Fig. VI. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects Outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence. Sophomore Girls - Manhattan (Kan.) High School.

shows the per cent of those in any given group who show marked divergence from general trends. A few of the more striking facts shown by this table follow:

There is a wide range in intelligence and grades among students in all classes.

A small per cent of students work more than three hours every day.

A large per cent of girls spend more than ninety minutes each day on outside study.

A small group attend more than two movies per week.

A large group spend less than four evenings at home each week.

The exact numbers may be found by turning to table V.

A Comparison of Certain of the Factors in the Problem at the Different Levels of Intelligence

The main facts in this comparison are brought out by noting the accompanying graphs.

Intelligence. In the upper quartile the scores representing this factor show very little variation among the different classes and between boys and girls. Considerable variation in this respect occurs in the inner quartiles and marked variation is present in the lower quartile. This general tendency is accompanied by a like tendency in the

TABLE VI

Raw correlation coefficients between certain data obtained from students
in the Manhattan Senior High School

	Intelli- gence Grades	Intelli- gence Work	Intelli- gence Age	Grade Work	Grade Age	Work Age	Number of Cases
	r 12	r 13	r 14	r 23	r 24	r 34	
7-Girls	.4693	-.1024	-.3489	-.1830	-.1786	.0999	43
7-Boys	.6540	-.03750	-.3851	-.1874	-.2673	-.01108	42
8-Girls	.5834	-.03761	-.4501	.1292	-.1150	.1162	47
8-Boys	.6627	.1853	-.4312	-.3679	-.3404	.1319	27
9-Girls	.5008	-.2007	-.5775	-.3849	-.3927	.4337	44
9-Boys	.6671	-.0655	-.3748	-.08664	-.3455	.1184	41
10-Girls	.6438	-.000160	-.1383	-.1827	-.2315	.2228	42
10-Boys	.6736	-.1129	-.5178	-.4106	-.2670	-.07499	37
11-Girls	.6899	-.1572	-.4224	-.1986	-.3420	.4137	44
11-Boys	.4665	-.09329	-.3970	-.0253	-.4545	.0841	24
12-Girls	.5461	-.14012	-.32008	-.2412	-.3498	.1585	49
12-Boys	.3346	-.3895	-.30504	-.30003	-.2457	.05786	38

TABLE VII

Refined correlation coefficients for the data in Table VI with the indicated measures omitted.

Classi- fication	Number of cases	Intelligence Grades		Multiple R 1 (234)	Intelligence Work		Intell- igence Age r 14	Grades Work		Grades Age		Work Age r 34
		Partial			r 13	Partial r 13.2		Partial		Partial		
		r 12	r 12.34					r 23	r 23.1	r 24	r 24.3	
10-Girls	42	.6438	.6719	.4942	-.000169	.1560	-.1383	-.1827	-.2386	-.2315	-.1990	.2228
10-Boys	37	.6736	.6476	.5936	-.1129	.1805	-.5178	-.4106	-.4555	-.2670	-.3274	-.07499
11-Girls	44	.6899	.6433	.5532	-.1572	-.0284	-.4224	-.1986	-.1260	-.3429	-.2921	.4137
11-Boys	24	.4665	.3562	.3827	-.09329	-.1187	-.3970	-.0253	.0780	-.4545	-.4583	.0841
12-Girls	49	.5461	.4819	.4169	-.1401	-.0092	-.32008	-.2412	-.1985	-.3498	-.3250	.1585
12-Boys	38	.3346	.1642	.3516	-.3895	-.3217	-.30504	-.3000	-.1955	-.2457	-.2397	.05786

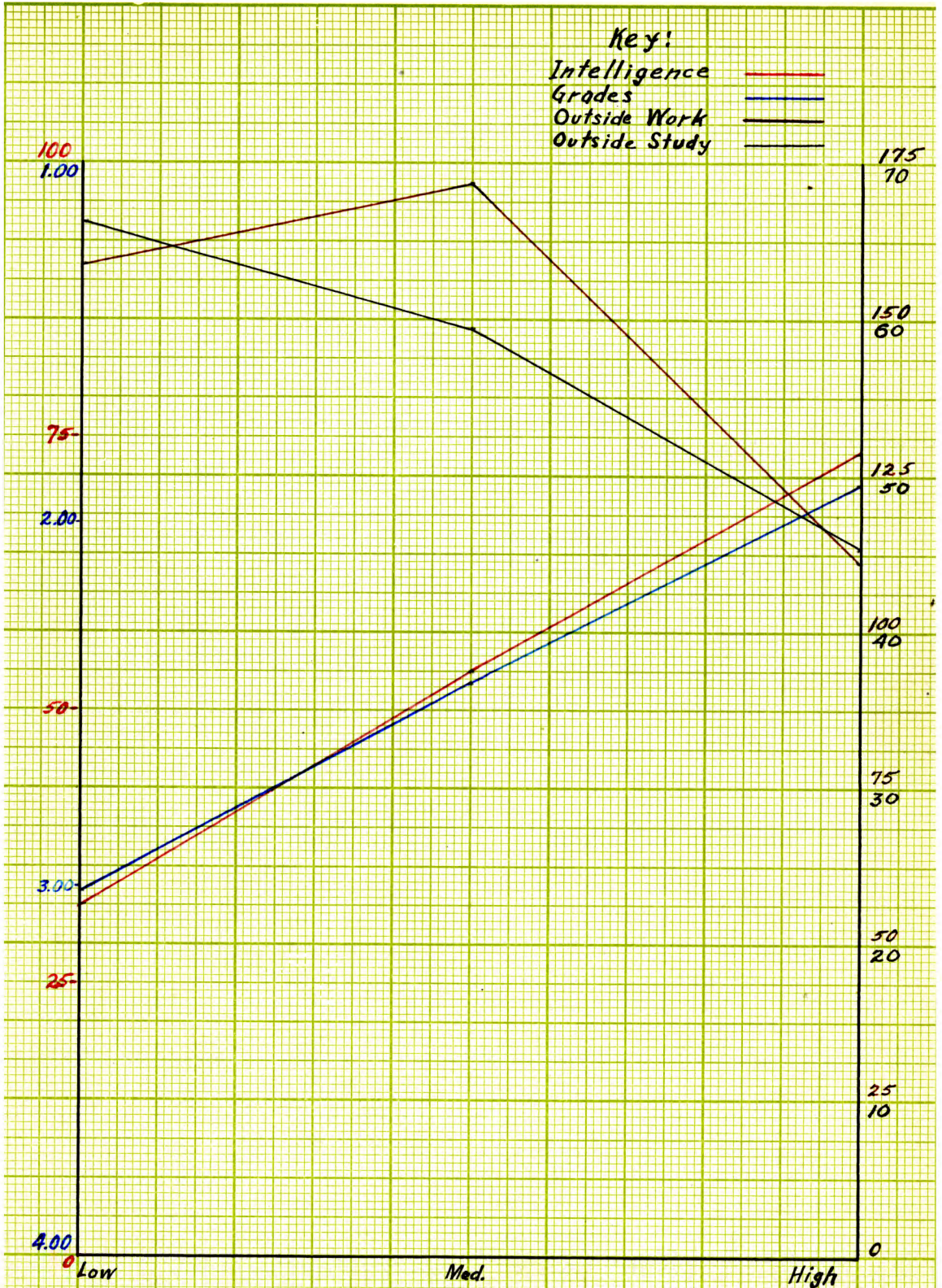


Fig. VIII. Graphical Representation of Intelligence, Grades, Work out of School, and Work on School Subjects outside of School Hours, of the Two Inner Quartiles at the Low, Mean and High Levels of Intelligence. Average for Manhattan (Man.) High School.

factor of age. These facts agree with the common knowledge that the more intelligent students reach a given grade at a comparatively early age. The intelligence curves are all practically straight lines showing a steady rise from low to high intelligence.

Grades. This factor as shown by the curves indicate a marked parallelism with intelligence excepting in the case of junior and senior boys in the upper quartile. Grades for junior boys in this quartile are lower than those for junior boys in the inner quartiles. Grades for senior boys in the upper quartile are practically equal to those for senior boys in the inner quartiles. These facts are shown also by the correlations given in table VI. At the same time the time spent on work by the average senior boy in school is one hundred eighty-eight minutes per day. The time spent on work by senior boys in the upper quartile is only eighty-five minutes per day. The average senior boy in school spends forty minutes per day on study outside of school while the senior boy in the upper quartile spends only eighteen minutes studying outside of school. Approximately the same facts may be shown for junior boys in these quartiles.

Further light may be thrown on the problem by a study of graph 8 giving comparisons of the factors of sleep, movies per week, parties per month, and evenings at home per week. The average boy and girl in the inner quartiles of

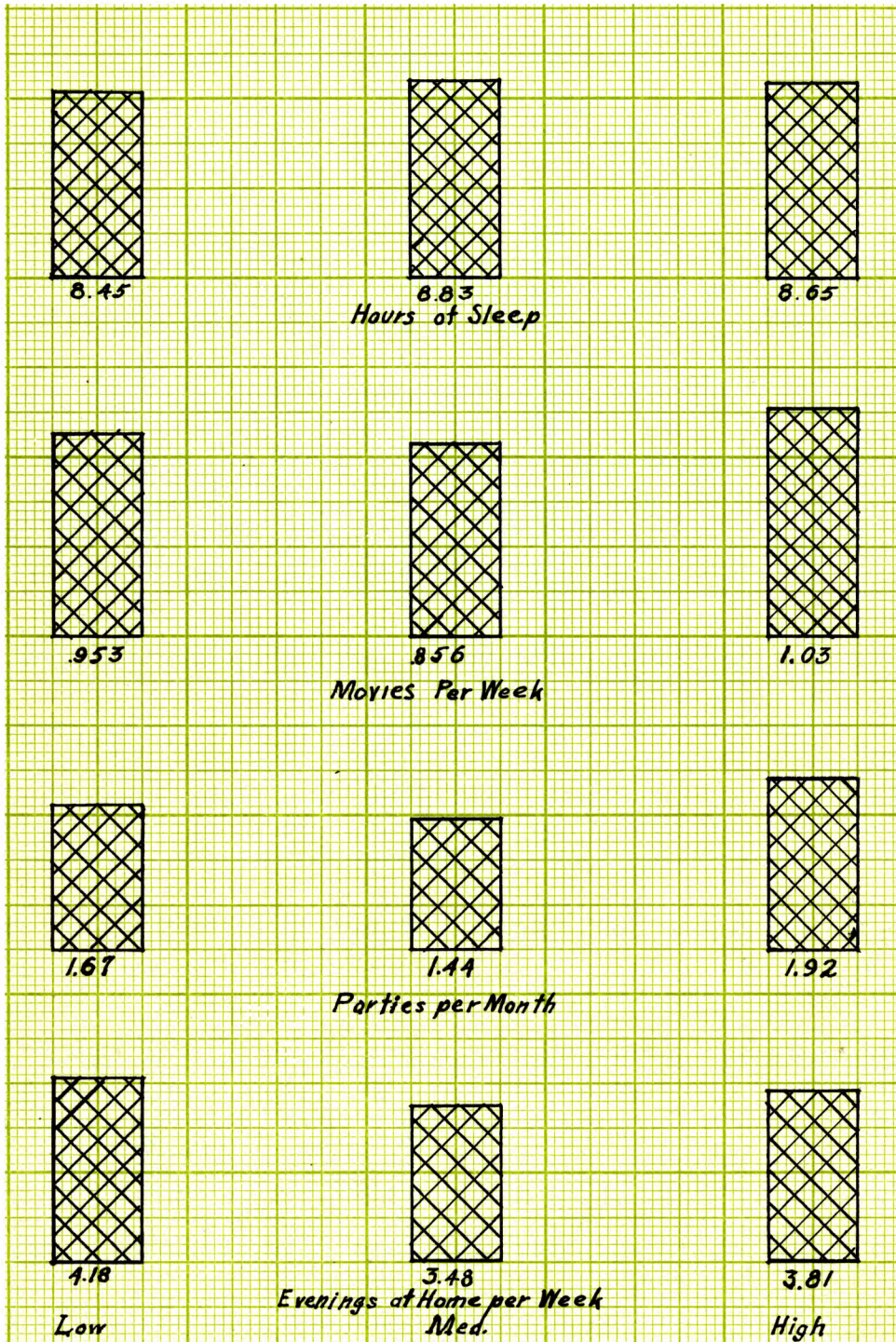


Fig. VIII. Graphical Representation of Sleep, Movies per Week, Parties per Month, and Evenings at Home per Week of the Two Inner Quartiles of the Low, Mean and High Levels of Intelligence.

Average for Manhattan (Kan.) Senior High School.

intelligence get more hours of sleep, spend fewer nights at the movies, and attend fewer parties each month than does the student of low or high intelligence. It is true that he also spends fewer nights at home but this may be accounted for by the fact that he also does more outside work than either of the other groups.

A Summary of the Principal Results of the Study

1. Girls in comparison with boys do an equal or superior type of school work at a given intelligence level.
2. A high correlation exists between intelligence and grades for girls in all classes and in all the quartiles.
3. The correlation between intelligence and school grades of boys is lowered as advance is made in school.
4. Girls spend relatively much more time studying outside of school hours than do boys.
5. More students must work in order to stay in school as advancement is made in school.
6. A rapid decrease in the number of students who must work in order to stay in school is found as the higher levels of intelligence is reached.
7. Boys and girls in the lower and inner quartiles of intelligence desire work but are often unable to find it.

8. Students in the lower quartile of intelligence do school work at a level that correlates closely with their intelligence and at the same time do a considerable amount of outside work.

9. Students in the middle level of intelligence do school work at a level that correlates closely with their intelligence and at the same time do a comparatively large amount of outside work.

10. Students in the upper quartile of intelligence do school work at a level much below what their level of intelligence warrants and at the same time do relatively only a small amount of work or study outside of school hours.

11. The data show that the student in the upper quartile of intelligence come in the main from homes of economic independence. It is also indicated that homes of lower economic efficiency either do not produce students of the highest intellectual quality or economic pressure is keeping out of school a major portion of intellectual students from these homes.