1964

Differences in Class Rank Between Boys and Girls in Graduating Classes of Iowa Public Secondary Schools

Dave John Cook

DIFFERENCES IN CLASS RANK BETWEEN BOYS

AND GIRLS IN GRADUATING CLASSES OF

IOWA PUBLIC SECONDARY SCHOOLS

A Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

STATE COLLEGE OF IOWA

by

Dave John Cook

May 1964

276155

This Study by: Dave John Cook

Entitled:

DIFFERENCES IN CLASS RANK BETWEEN BOYS

AND GIRLS IN GRADUATING CLASSES OF

IOWA PUBLIC SECONDARY SCHOOLS

has been approved as meeting the thesis requirement for the

Degree of Specialist in Education.

R. W. Johnson

Chairman, Thesis Committee

R. P. Brimm

Member, Thesis Committee

W. J. Poppy

Member, Thesis Committee

William C. Lang

Chairman, Graduate Council

June 3, 1964

Date

ACKNOWLEDGMENTS

The writer wishes to express his appreciation for the guidance given by the members of the Advisory Committee during the preparation of this study: Dr. Robert Johnson, Dr. Robert Brimm, and Dr. Willard Poppy. The writer also wishes to express his appreciation to the administrators and guidance personnel of public secondary schools in Iowa whose cooperation made this study possible.

TABLE OF CONTENTS

LIST OF TABLES

TABLE   PAGE

TABLE

TABLE

LIST OF FIGURES

FIGURE

CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS USED

For many years, educators have noted that girls seem to attain higher class rank than boys while attending secondary schools. It appears that this idea has been accepted a priori and that little research effort has been put forth to determine the magnitude of the differences which exist. It is a matter of conjecture at the present time as to how great the differences must be before they will be considered to be serious problems.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to determine whether significant differences existed between the class standing of boys and the class standing of girls in graduating classes of Iowa public secondary schools and (2) to apply these determinations to representative problems such as the admission requirements for freshman students at the State College of Iowa and to a recommendation of Conant in reference to the class standing of secondary school pupils for recruitment of teachers.

Importance of the study. The rapidly increasing number of pupils who annually desire to enter college has forced college officials to make decisions as to which

will be admitted and which will be denied admission. Accommodations are not available for all. There is reason to believe that the pressure for admission into college will increase as time passes; admission to college on the basis of class standing could ultimately result in acceptance of disproportionate numbers of boys and girls. This study contains data which may be applied to colleges in which class rank is used as a determinant for college admission.

In this study, the admission requirements of the State College of Iowa have been considered, since these requirements are representative of the requirements of many other colleges. In the State College of Iowa, if a pupil ranks in the upper one-half of his high school graduating class, his standardized test scores indicate probable success in college, and his health certificate from his local physician is approved by the Director of Student Health Service at the college, he is usually admitted by the Registrar of the college as soon as the necessary materials are submitted. However, applications from pupils who rank in the lower one-half of their high school classes are examined by an admissions committee consisting of the Registrar or Assistant Registrar, the Dean of Instruction or Assistant Dean of Instruction, and the Coordinator of Student Counseling. After the committee has examined the high school record, including class rank, standardized test scores, recommendations from high

school officials and the health certificate, it may or may not request a personal interview with the applicant depending upon the record and circumstances. The committee may (1) suggest that the student enroll for a tryout period during a summer session, (2) admit the applicant, or (3) deny admission. It seems apparent that a pupil who is in the upper one-half of his graduating class may expect much less difficulty in being accepted as a student than would a pupil in the lower one-half of his graduating class. Therefore, one interest of this study has been the composition of the top fifty per cent group of graduating senior pupils.

Dr. Conant for several years has been held in high esteem by lay citizens, as well as by some educators. In his most recent book, Conant makes the following statements in reference to the selection of teachers:

> I know it is often argued that there is no close correlation between teaching ability and intellectual ability (as measured by grades in courses or scholastic aptitude tests) and I am not unsympathetic to this argument. I realize that there are certainly many outstanding college students who for one reason or another would make poor school teachers and should be weeded out during the college course, and that there are other college students, relatively slow in their academic work, who would yet make good teachers. This I grant, but I still maintain that we should endeavor to recruit our teachers from the upper third of the graduating high school class on a national basis.[1]

Dr. Conant furnishes no clue in his book as to

---

[1]James Bryant Conant, The Education of American Teachers (New York: McGraw-Hill Book Co., 1963), p. 81.

how the upper third of the graduating high school class on a national basis would be determined; this study has determined it for one of the fifty states. Therefore, a second point of interest in this study will be on the sex composition of the upper third of the graduating seniors.

II. DEFINITIONS OF TERMS USED

Certificate of attendance. Many schools now recognize that not all students are capable of meeting academic requirements of secondary schools. These so-called non-achievers may make their contribution to society and succeed better as individuals when they are permitted to remain in schools where proficiencies other than those of a purely academic nature are stressed. For such pupils, it is becoming increasingly common for schools to award certificates of attendance upon completion of four years in the secondary school. Such certificates do not permit the pupil to enter college.

Class standing. This term, as used in this study, referred to the position of a pupil in a listing based upon grades achieved in a secondary school; the pupil who received the highest average in courses taken would be ranked as number one in the class. The term, as used, was synonymous with class rank.

Curriculum. The term curriculum was used to describe the school-connected learning experiences of pupils

as well as to indicate the arrangement of a group of courses to be taken by groups of pupils having a common objective, such as preparation for college.

Diploma. As used in this study, a diploma is a formal document given by a school certifying the completion of a program of studies. A pupil who receives a diploma is eligible to enter an institution of higher learning, while a pupil who receives a certificate of attendance is not usually eligible.

High school graduate. As used in this study, a high school graduate is a pupil who has completed a prescribed program of studies in a school for which he has received formal recognition. This definition includes pupils who receive certificates of attendance as well as pupils who receive diplomas.

Pupil. As used in this study, a pupil is any individual enrolled in a public or private school at the elementary or secondary level and receiving instruction in an educational program.

School. As used in this study, a school is a division of a school system consisting of a group of pupils in one or more grade groups, organized as one unit with one or more teachers to give instruction of a defined type, and housed in a school plant of one or more buildings.

Public school. A school operated by publicly
elected school officials in which the program and acti-
vities are under control of those officials and which is
supported by public funds.

Secondary school. A school above the elementary
level, consisting of the highest combination of grades
between 7 and 12, both inclusive. In Iowa, intermediate
grades of 7 and 8 are considered by the Department of
Public Instruction to be junior high school grades.

Student. Any individual enrolled in an educa-
tional institution at a level higher than the 12th grade.

III. LIMITATIONS OF THE STUDY

It was not the purpose of this study to determine
why boys rank lower than girls in their secondary school
graduating classes and no attempt was made to equate class
standing with performance in objective tests of academic
achievement, aptitude, or intelligence.

Initially, schools were requested to furnish data
on the class which would graduate in the Spring of 1964.
It was found that this would eliminate some schools from
participation in the study, since class standings were not
determined until late in the school year. Schools using
this plan were, therefore, requested to furnish data on
the class which graduated in 1963 and to annotate the
completed questionnaires to indicate the class reported

upon. The annotated forms were processed separately, as shown in Chapter IV of the study. However, since no significant differences were found between the reports for the two years, the 29 annotated forms were later combined with the reports for the current school year. The combined data were derived from reports from 449 of the 478 public secondary schools in the State of Iowa and included a total of 14,414 boys and 14,476 girls.

IV. ORGANIZATION OF THE REMAINDER OF THE THESIS

The remainder of the study has been divided into four chapters. Chapter II contains a review of the literature and related research. Chapter III deals with the plan of investigation. It elaborates upon the procedure followed, the method used, and the results which were achieved. Chapter IV is a report of the investigation in which the data was presented and interpreted. Separate presentations were made in this chapter for each of the four size-groupings of schools, another for the total group, a sixth for the 29 schools which reported upon the class standing of their 1963 graduating classes, and a final presentation furnished information which was applicable to the upper third of the various graduating classes, as referred to by Dr. Conant, since the questionnaire forms were not designed to include that data.

A considerable amount of detail was included in

the study to explain the procedure and methods used in computations. This was done so that results would be more meaningful to individuals who might not want to study all parts of the investigation. It was also considered that inclusion of these details would assist other researchers in this area, if the problems shown may be the subject of further research.

CHAPTER II

REVIEW OF THE LITERATURE AND RELATED RESEARCH

I. REVIEW OF THE LITERATURE

Historical background. Problems related to the
class rank of boys and girls are relatively new. It is
necessary to take only a quick look over the history of
the past twenty-five centuries for one to realize that
for the most part women have been considered to be
innately inferior in intellect and not to be thought of
in the same terms as men. An exception to this was in
Sparta, which had a subsidized system for the education
of girls in public boarding schools. Even so, we remem-
ber the Spartans best for their training in fortitude
and courage, for rough clothing and plain diets, and
for having originated an educational system which served
as a model for dictators in later centuries.

Late in the Eighteenth Century, European writers
such as Locke and Rousseau suggested that women were the
intellectual equal of men; that what had appeared to be
inferior innate ability had been caused by the lack of
education, by subordination, and other unfavorable con-
ditions. It took another century to correct the conditions
which had handicapped women.

In 1821, the English Classical School, which soon
became the English High School, was founded in Boston.
This school was so successful that in 1826 a high school

for girls was established, also in Boston. The idea
spread, in spite of objections from taxpayers and from
organizations with investments in private schools. By
the time of the Civil War, many high schools were being
operated, mostly on a rate-bill basis, open to both boys
and girls. It remained for the decision in the Kalamazoo
Case, handed down by the Supreme Court of Michigan in 1874,
to establish the legal basis for operation of secondary
schools from tax money collected for that purpose.

The United States has served as an example to the
world in the education of women. Coeducational schools
at all levels are the rule and there are few differences
in the curriculums for boys and girls. This has allowed
American women to have a more complete life and to contri-
bute directly to the progress of civilization. One example
of this is in the teaching profession in which women filled
93 per cent of the elementary teaching positions and 60 per
cent of the secondary school positions in 1954.[2] During
the 1962-1963 school year, there were 12,779 women and
1,053 men in elementary school positions and 2,855 women
and 5,220 men in secondary classroom positions in the State
of Iowa.[3]

---

[2]Alonzo Grace, "Teachers of the World," Phi Delta
Kappan, 37:402, June, 1956.

[3]Department of Public Instruction, Iowa Educational
Directory for 1962-63 (Des Moines: State of Iowa, 1963)
p. 254.

The problem of college enrollment. One purpose
for this study was to throw some light upon a problem of
education and the nation, that of selection of freshmen
students for enrollment in our institutions of higher
learning. Since the turn of the century, enrollments have
increased sixteen fold and there is evidence that still
greater increases will occur during this and subsequent
decades. The growth in college attendance is illustrated
in the following figure.[4]
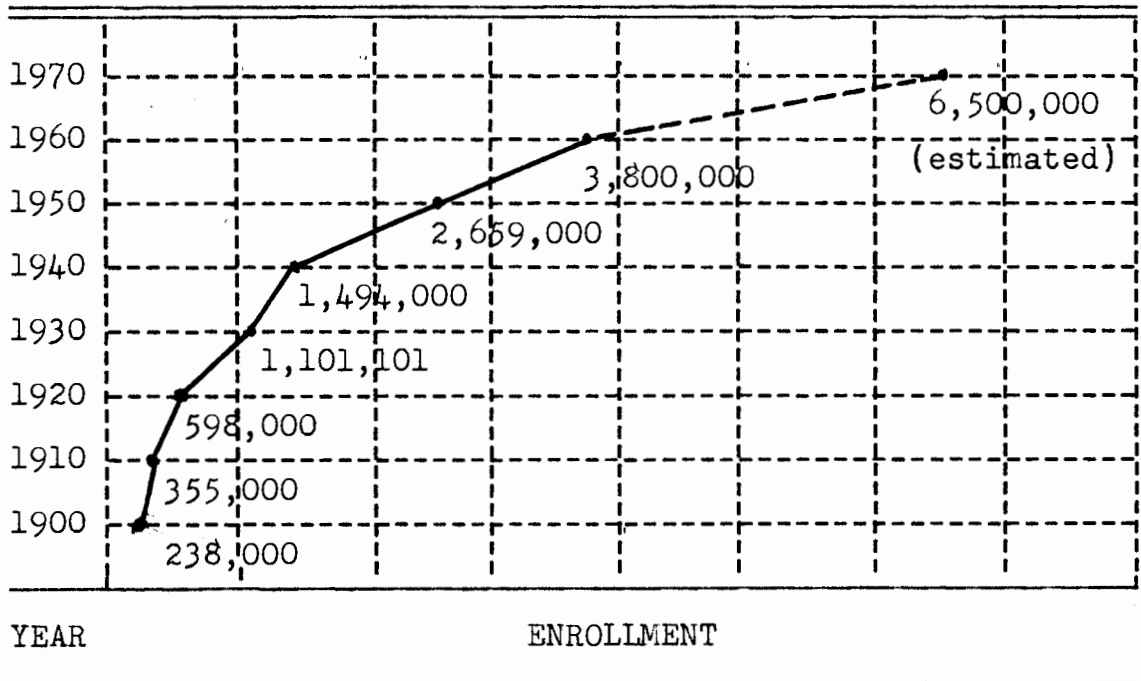
FIGURE 1

ENROLLMENTS IN COLLEGES AND UNIVERSITIES IN
THE UNITED STATES FOR YEARS INDICATED

---

[4]H. B. DeYoung (ed.), American Education (New York:
McGraw-Hill Book Company, Inc., 1960), p. 168.

Expanded enrollment brings many problems. These are not limited to funds and building space. The sheer mass of students may cause academic quality to suffer and may impair the individual relationships between the professor and the student. One professor, distressed by the long line of students waiting to register at a large university, asked, "What is to become of the genius or two in this crowd?"[5] As enrollments grow, admission to college becomes increasingly difficult, especially in those schools which do not wish to, or are unable to, become larger. Our colleges and universities were able to accept almost every high school graduate who applied in 1940, when the total enrollment was approximately one and one-half million students. In 1960, when the enrollment was almost four million, only about one half of the high school graduates could be considered. By 1970, when it is estimated that six and one half million students will be in institutions of higher learning, it seems probable that pupils may have to be in the upper third of their high school graduating classes to be considered for college enrollment. This will place additional pressure upon pupils at a younger age and will tend to enhance rather than to eliminate many of the defects of our secondary education. We may well wonder what is to become of the genius in the crowds trying to get into college, and whether by default, they may not get there.

---

[5]Ibid.

Selection of teachers. This study was concerned
also with the selection of teachers. Mention was made of
the comparative numbers of men and women teachers in recent
years. Table I, which may be found immediately below,
illustrates this relationship during the past 90 years.

TABLE I

COMPARISON OF THE NUMBER OF MEN AND THE NUMBER OF
WOMEN TEACHERS, LIBRARIANS, AND OTHER NON-
SUPERVISORY INSTRUCTIONAL STAFF IN PUBLIC
ELEMENTARY AND SECONDARY SCHOOLS OF THE
UNITED STATES AT TEN-YEAR INTERVALS
BETWEEN 1869 AND 1959[6]

School Year	Women Teachers	Men Teachers	Percentage of Men
1869-1870	123,000	78,000	38.7
1879-1880	164,000	123,000	42.8
1889-1890	238,000	126,000	34.5
1899-1900	296,000	127,000	29.9
1909-1910	413,000	110,000	21.1
1919-1920	565,000	93,000	14.1
1929-1930	703,000	140,000	16.6
1939-1940	681,000	195,000	22.2
1949-1950	719,000	195,000	21.3
1959-1960	985,000	402,000	29.0

The information contained in Table I, above, has
been shown graphically in Figure 2, page 14. No material
benefit would result from a discussion of the relative

[6]Carol Joy Hobson and Samuel Schloss, Statistics of
State School Systems, United States Department of Health,
Education and Welfare, Circular OE-20020-60, Circular
No. 691 (Washington: Government Printing Office, 1963),
p. 21.
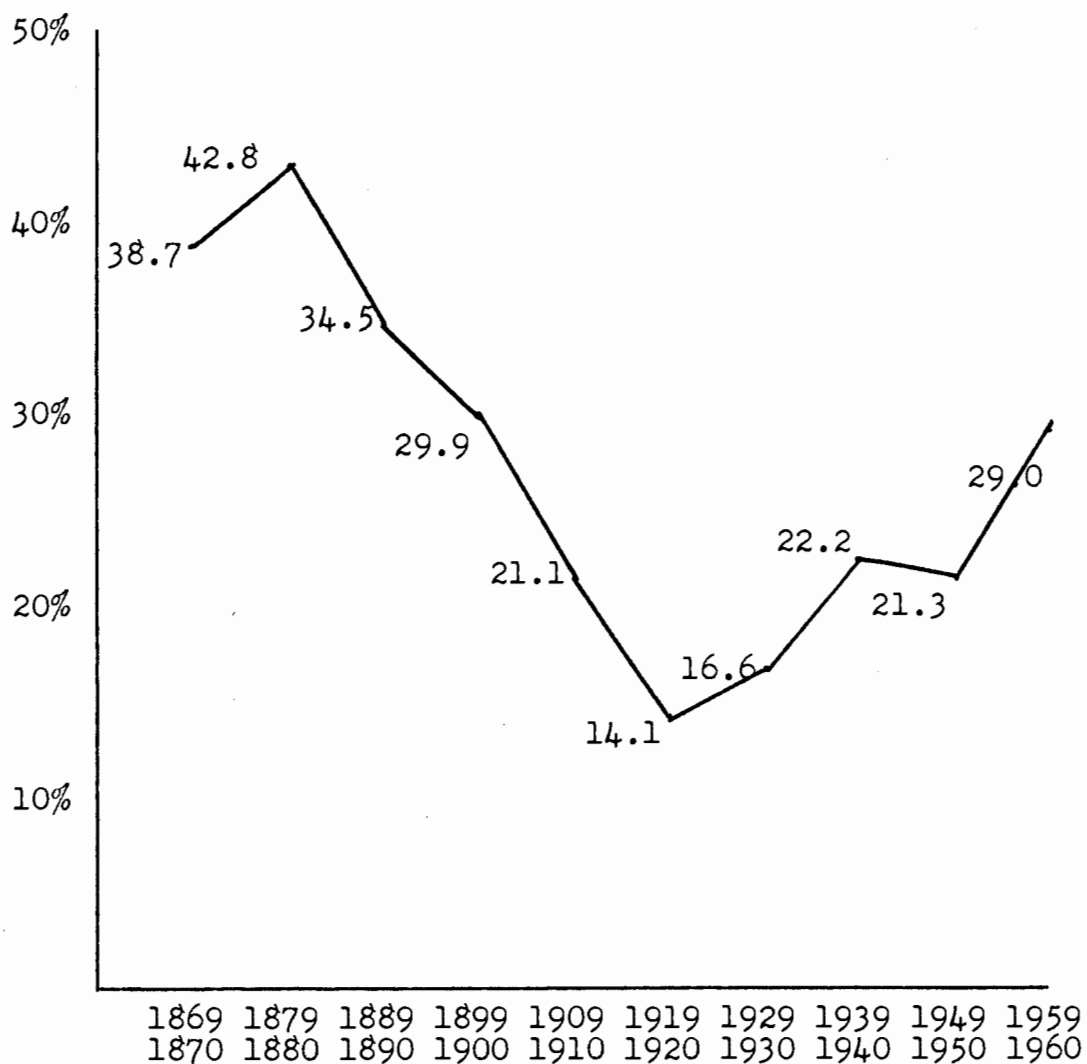
FIGURE 2

PERCENTAGE OF MEN TEACHERS TO TOTAL NUMBER OF
TEACHERS, LIBRARIANS, AND OTHER NON-
SUPERVISORY INSTRUCTIONAL STAFF IN
PUBLIC ELEMENTARY AND SECONDARY
SCHOOLS OF THE UNITED STATES
AT TEN-YEAR INTERVALS
BETWEEN 1869-1870
AND 1959-1960

merit of men and women teachers in elementary and secondary

schools in the United States. For that reason, discussion

has been limited to a few observations. It is noted that

the low-tide in the percentage of men teachers occurred

during the 1919-1920 school year. This date also marked

the approximate time that the mass education motive took

over as the controlling influence in the development of

American education.[7] The enactment of compulsory attend-

ance laws, achieved by all states by 1918, brought into the

schools many children who otherwise would not have been

there.[8] Not only were schools overcrowded, but teachers

who were qualified to teach were not available to fill the

minimum need of the school. Langdon commented upon the

1920's as follows:

> . . . Indeed, so concentrated was the attention on
> children and their characteristics, the causes of their
> behavior, the conditions necessary to their welfare,
> the methods most effective for their rearing that the
> decade might properly be designated as being "child
> centered," a term frequently applied at the time to
> schools where the "old order changeth."[9]

Another low period in the percentage of men who

taught schools occurred in 1939-1940, and during World

War II. This period is remembered by many millions of

---

[7] J. Minor Gwynn, Curriculum Principles and Social Trends (New York: The MacMillan Company, 1960), p. 14.

[8] Calvin Grieder et al., Public School Administration (New York: The Ronald Press Co., 1961), p. 136.

[9] Grace Langdon and Irving W. Stout, The Discipline of Well-Adjusted Children (New York: The John Day Co., 1952), p. 25.

people in the United States as being a most trying period for our schools. Bent and McCann explains the problems of the 1940's in the following way:

> The situation changed during the 1940's. The war removed many men from the homes and the classrooms; a new philosophy pertaining to pupil control, discipline, and punishment became popular, and the tensions of the war and the postwar period affected all persons. To fill the vacancies in classrooms, the services of many women who had taught years before, or who had no previous experience, were sought. They either did not know good classroom techniques, or were out of practice, or were of the "old school" with respect to classrom management and control. Many pupils attended twelve years of school without having a man for a teacher. These conditions were followed by a new wave of acute discipline problems.[10]

The conditions in our schools during World War II may have had a bearing upon the conduct of prisoners of war taken by the Chinese in the Korean Police Action. Many of the prisoners readily accepted the propaganda of the enemy and made no effort to escape or to help their fellow prisoners. This phase of our national history is considered by many, especially those in the army, to have been disgraceful. While no attempt is made here to place the blame entirely upon the schools, it seems probable that the homes and the schools must, in fairness, assume some of blame. There is no way of determining whether defective school philosophy or the absence of men teachers during the formative years in the lives of the young

---

[10]Rudyard K. Bent and Lloyd E. McCann, _Administration of Secondary Schools_ (New York: McGraw-Hill Book Co., Inc., 1960), p. 223.

soldiers were responsible. It seems probable that a combination of the two may have left something to be desired in the individuals concerned.

Recent increases in percentages of men teachers, in both secondary and elementary schools, are regarded to be encouraging for several reasons. The increases reflect a favorable trend in the economic life of all teachers; an increased level of academic preparation of teachers; and a step forward toward the professionalization of teachers.

II. RELATED RESEARCH

A search through such publications as Master's Theses in Education by Lamke and Silvey, Master's Theses in Education by Silvey, and Doctor's Dissertations Under Way in Education, published by the Phi Delta Kappan, revealed that there are no completed or proposed research studies similar to this investigation. There were several prior investigations made at the State College of Iowa which were considered separately in this report. To a large extent, these constituted the motivation for the subject selected for this investigation.

Study of the 1962-1963 graduating class of the Waverly-Shell Rock High School. This study was accomplished by the writer during the Spring of 1963 at the request of Mr. James Dirksen, principal of the school.

The study was concerned with the 130 members of the senior class and included information somewhat broader in scope than this investigation.

It was found that the class had achieved a mean IQ of 108 and a mean composite percentile score of 63 in the Iowa Test of Educational Development, both based upon national norms. These results were in line with what would be expected in the graduating class of an Iowa high school.

The class consisted of 75 boys and 55 girls. One-half of the class therefore consisted of 38 boys and 28 girls. On the basis of ranking by intelligence test scores, it was found that the upper half of the class consisted of 35 boys and 30 girls. On the basis of Iowa Test of Educational Development composite scores, the upper half of the class was found to include 37 boys and 33 girls. There were no significant differences between either the IQ or the ITED class rank when compared with the normal or expected distribution.

However, it was found that the top half of the class on the basis of grades achieved consisted of a total of 25 boys and 40 girls. These results, when compared with an expected distribution of 38 boys and 28 girls, were found to be significantly different at the .01 level of confidence. It was found that 73 per cent of the girls and 33 per cent of the boys would be included in the upper half of the class.

Comparison of boys and girls on rank in high school graduating classes. Mr. Merrill F. Fink, Associate Registrar, State College of Iowa, in conjunction with the Bureau of Research and Examination Services, conducted a study during the Spring of 1963 which is of interest to the subject area of this investigation. His study was made to analyze the relative position of boys and girls in their high school graduating classes and in addition to consider scores made on the Iowa Test of Educational Development by the same pupils.

Twenty-three Iowa high schools cooperated in making the study; they ranged in size of graduating classes from 17 to 380. There were 1,059 boys and 1,020 girls included in the study. There were no significant differences in the median scores of boys and girls on the Iowa Test of Educational Development. The median score for girls was at the 64th percentile; for boys at the 68th percentile. The differences found to exist in class rank between boys and girls have been indicated in Table II on page 20. The table shows that only 15 per cent of the boys in the graduating class would be in the top 20 per cent of the class while 26 per cent of the girls would make up the remainder of the top 20 per cent of the class. While only 42 per cent of the boys were in the upper half of the class, 59 per cent of the girls were in the upper half. The differences were significant at the .01 level of confidence.

TABLE II

DATA PERTAINING TO 1059 BOYS AND 1020 GIRLS IN 23
IOWA PUBLIC HIGH SCHOOLS, FROM A SURVEY BY
MERRILL F. FINK, ASSOCIATE REGISTRAR,
STATE COLLEGE OF IOWA DURING THE
SPRING OF 1963 TO SHOW PERCENT-
AGES OF TOTAL BOYS AND TOTAL
GIRLS WHICH WERE FOUND IN
SPECIFIED CLASS GROUPINGS

Portion of Classes	Percentage of All Boys Included in Portion Shown	Percentage of All Girls Included in Portion Shown
Top 20%	15	26
Top 30%	23	38
Top 40%	32	49
Top 50%	42	59
Top 60%	53	69
Top 70%	65	76
Top 80%	75	85

NOTE: The information in the above table has been
shown graphically in Figure 3, page 21.

College achievement as related to rank in high
school.   Information included in this portion of the inves-
tigation was derived from basic data collected and dissemi-
nated by the Bureau of Research and Examination Services,
State College of Iowa.   The included data consisted of
freshmen classes of 1961 and 1962 at the State College of
Iowa and was concerned with class standing of the students
in their high school graduating classes and their perfor-
mance at the State College of Iowa during their freshman
year.   A cumulative grade point average of 2.0 was used
as a reference point; for the purposes of this study,
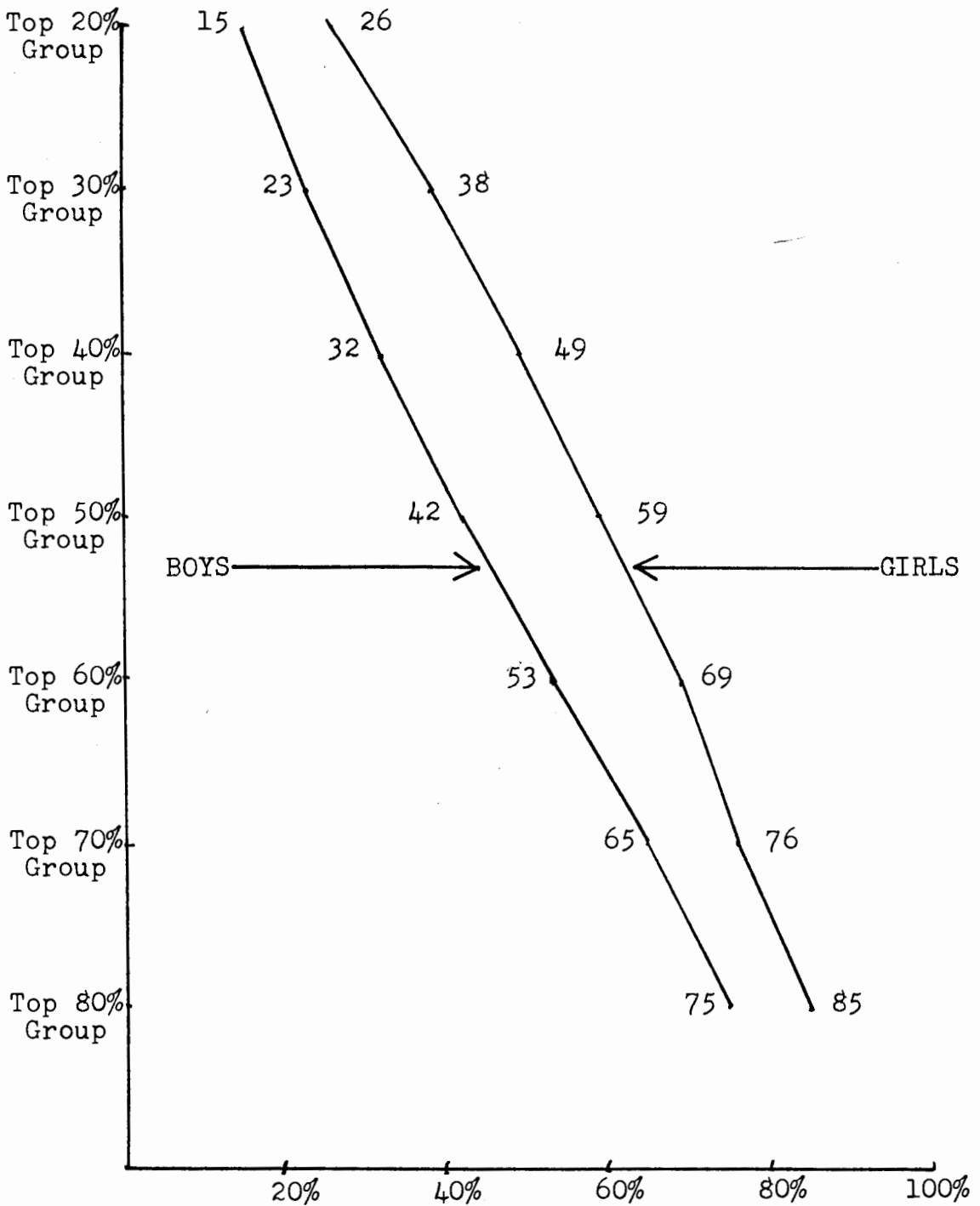
FIGURE 3

PERCENTAGES OF BOYS AND PERCENTAGES OF GIRLS
IN VARIOUS PORTIONS OF CLASSES OF 23 IOWA
PUBLIC HIGH SCHOOL SENIOR CLASSES
BASED ON A SURVEY BY MERRILL
F. FINK IN 1963

dropouts during the freshmen year were included in the
groups in which they were performing at the time of depar-
ture from the college.

TABLE III

DATA PERTAINING TO 865 MEN AND 1,289 WOMEN WHO WERE
FRESHMEN STUDENTS AT STATE COLLEGE OF IOWA DURING
1961 AND 1962 TO SHOW NUMBERS IN VARIOUS POR-
TIONS OF THEIR HIGH SCHOOL GRADUATING
CLASSES AS COMPARED WITH THE NUMBER
WHO ACHIEVED A GRADE POINT AVERAGE
OF 2.0 OR MORE AS FRESHMEN

Portion of Classes	MEN		WOMEN	
	2.0 or Higher	Below 2.0	2.0 or Higher	Below 2.0
Top 20%	169	46	563	106
Top 30%	247	96	708	219
Top 40%	329	183	776	337
Top 50%	384	294	804	416
Top 60%	421	373	814	463
Top 70%	427	405	819	467
Lower 30%	438	427	819	470

From data contained in Table III, it was noted that
1,113 or 86 per cent of 1,289 women were in the top 40 per
cent of their graduating high school classes. Also, 776 or
70 per cent of the 1,113 women were able to achieve a grade
point average of 2.0 or higher during their freshman year.
For the men, 512 or 60 per cent of the total of 865 were in
the top 40 per cent of their high school graduating classes.
Of these, 329 or 64 per cent were able to achieve a grade
average of 2.0 or higher during their freshman year.

The difference in achievement of the top 40 per cent of men and the top 40 per cent of women was not significant at the .05 level of confidence.

Between the top 40 per cent and the top 60 per cent of their high school graduating classes, 38 or 23 per cent of 164 women and 92 or 33 per cent of 282 men achieved grade point averages of 2.0 or higher. The difference, although in favor of the men, was not significant at the .05 level of confidence.

Conant, as quoted on page 3 of this study, believes that we should endeavor to recruit our teachers from the upper third of their graduating high school class on a national basis. A straight-line projection of the data contained in Table III indicates that the upper third of their high school graduating classes would include 989 or 77 per cent of the 1289 women and 399 or 46 percent of the 865 men. Of these, 731 or 74 per cent of the women and 274 or 69 per cent of the men achieved a grade point average of 2.0 or higher during their freshmen years. The difference, although in favor of the women, was not significant at the .05 level of confidence.

The pupils below the upper third of their high school graduating classes consisted of 300 women and 466 men. 88 or 29 per cent of the women and 164 or 35 per cent of the men were able to achieve a grade point average of 2.0 or higher. The difference, although in favor of the men, was not significant at the .05 level of confidence.

CHAPTER III

PLAN OF INVESTIGATION

I. PROCEDURE FOLLOWED

The initial step in the investigation was a prelimi-
nary survey of the literature in the field of measurement
of differences between class standing of boys and girls.
It was apparent that little, if anything, would be found
which would assist in this study. It was noted that there
seemed to be general agreement that differences do exist.
This conclusion was verified in conversations with various
educators in administrative positions in the vicinity of
Cedar Falls, Iowa.

The next step was to determine the method to be used
in gathering the data. Since the study was intended to
cover all public secondary schools in Iowa, it was con-
sidered necessary to utilize a questionnaire. It was known
that approximately 475 schools would be involved, which, on
the basis of expense and time would not be a prohibitively
large number to be circularized.

II. METHOD USED

The population. The population included in this
study consisted of all the seniors in the public secondary
schools in the State of Iowa. Since some of these schools
were known to issue certificate of attendance and similar

forms to seniors who did not meet academic requirements of
their school, it was requested in the questionnaire that
only students who were expected to receive diplomas which
would permit college entrance be included. Since enroll-
ment in the 12th grade of Iowa secondary schools for the
1962 school year had been 30,873[11] it was anticipated that
as many as 31,000 pupils might be expected to be included,
if all schools responded.

The mailing list. A mailing list was developed by
using the listing of schools in the Iowa Educational
Directory for the school year 1962-1963.[12] Upon request,
information was received from the Iowa Department of Public
Instruction on 20 August 1963 to show changes which had oc-
curred since the 1962-1963 directory had been published.[13]
On the basis of these documents, it was determined that
there were 463 school districts which operated secondary
schools in Iowa and that a total of 478 secondary schools
were operated. In every instance, mail was addressed to
the principal of concerned schools.

Document control procedure. A listing was made of
the 463 districts which operated secondary schools, showing

---

[11]Department of Public Instruction, op. cit., p. 256.

[12]Ibid., pp. 6-239.

[13]Letter from Marvin W. Ingle to Dave J. Cook,
August 20, 1963, with inclosure consisting of a listing of
code numbers for counties and Iowa high school districts.

the name of the districts, post office addresses, and counties. Each of the districts was given a control number to form a series from 1 to 463. In those districts which operated more than one secondary school, an alphabetical designator was added for each school. The school number was shown on each questionnaire, transmittal letter, self-addressed envelope, and on all other correspondence with a school. A listing was maintained to show the current status of each school. This procedure facilitated control of questionnaires as well as subsequent follow-up action. A list of school control numbers and designators has been included as Appendix A to this study and these numbers have been referred to in subsequent portions of this study.

The questionnaire. The questionnaire was mailed to the 478 principals of public secondary schools in the State of Iowa on September 3, 1963. A copy of the letter of transmittal has been included as Appendix B and a copy of the questionnaire has been included as Appendix C. In the questionnaire, principals were requested to furnish information pertaining to the total number of boys and the total number of girls expected to graduate with a diploma which would permit college entrance and to furnish information of the number of boys and the number of girls who were expected to comprise the top 20 per cent of the graduating class. The same information was requested in reference to the composition of the top 30 per cent, the

top 40 per cent, the top 50 per cent, the top 60 per cent, the top 70 per cent, and the top 80 per cent of the class. In order to assure uniformity in reporting, principals were requested to report pupils to the next higher whole number when fractions occurred and to resolve all ties in class standing by including all pupils involved in the tie score.

Follow-up procedure. The response to the questionnaire was encouraging, but some schools reported that they would be unable to furnish the requested information since they did not accomplish ranking of their senior classes until late in the school year. Since this would preclude the inclusion of these schools in the study, it was requested that information based on the 1962-1963 school year be furnished and that the complete questionnaire be annotated to show the action taken. Follow-up letters were dispatched in an effort to obtain completed questionnaire forms from all schools. These have been included as Appendix D, E, and F, dispatched respectively on October 3, 1963, November 3, 1963, and December 6, 1963. By January 15, 1964, a total of 449 of the 478 schools in Iowa had furnished completed questionnaires and it seemed probable that further follow-up would not materially increase the 93.9 response which had been achieved. In view of the extensive follow-up action taken, it was considered that it would be of possible future interest to

show the schools which did not furnish completed question-

naires. That information was included, by school number

and county, on a map of Iowa which has been designated as

Appendix G.

Grouping of schools. The 449 completed question-

naires were sorted by reported size of senior classes and

grouped as follows:

Group A (100 or more seniors)	64 schools
Group B (50 to 99 seniors)	110 schools
Group C (25 to 49 seniors)	172 schools
Group D (24 or less seniors)	103 schools

Listings of schools by number which comprise Groups A, B,

C, and D have been included as Appendix H, I, J, and K,

respectively. The information contained in each question-

naire in each group was tabulated by school number. The

tabulations were then totaled and the totals were used in

the computations which are explained in Chapter IV.

Numerical controls were maintained through all operations

to guard against loss of data and to permit re-checking of

all computations and compilations.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

The analysis and interpretation of the data will
be given in the remainder of this chapter under the
following headings: (I) Group A--100 or more seniors;
(II) Group B--50 to 99 seniors; (III) Group C--25 to
49 seniors; (IV) Group D--less than 25 seniors; and,
(V) Group E--all schools. Additionally, (VI) has been
included to show analysis of the reports submitted by
29 schools on their 1963 graduates, and (VII) has been
included to adapt data to indicate the upper third of
graduating classes to permit consideration of the recom-
mendation of Dr. Conant, as quoted on page 3.

I. GROUP A (100 OR MORE SENIORS)

Introduction. This grouping of schools (listed
by numbers in Appendix H) consisted of 64 secondary
schools which reported 100 or more seniors in their
graduating classes. In all, totals of 6,835 boys and
6,817 girls were reported. In Table IV, the "Observed"
column reflects the number of boys and the number of
girls which comprised the top 20 per cent . . . to the
top 80 per cent of their classes. The "Expected" column
shows the number of boys and the number of girls found by
multiplying the pertinent portion of total pupils by the
total number of boys and the total number of girls

reported by the schools. The "Adjustment" column totals were found by subtracting the combined totals of the "Expected" column from the combined totals of the "Observed" column for each portion of total students under consideration. The "Adjusted Observed" column entries represent a correction made to the "Observed" column entries in the amount of "Adjustment Totals." The adjustments were proportional to the number of boys and the number of girls reported by the schools. The reason for these adjustments was explained in Chapter III under the heading of "The questionnaire."

TABLE IV

DATA PERTAINING TO GROUP A SCHOOLS (100 OR MORE
SENIORS) REPORTED BY 64 PUBLIC SECONDARY
SCHOOLS WITH 6,835 BOYS AND 6,817
GIRLS IN THE SENIOR CLASSES
OF THEIR SCHOOLS

Portion of Classes	Observed Boys	Girls	Expected Boys	Girls	Adjust-ments	Adjusted Observed Boys	Girls
Top 20%	1116	1632	1367	1363	18	1109	1621
Top 30%	1703	2400	2051	2045	7	1700	2396
Top 40%	2341	3140	2734	2727	20	2332	3129
Top 50%	3018	3839	3418	3409	30	3005	3822
Top 60%	3691	4522	4101	4090	22	3681	4510
Top 70%	4423	5163	4785	4772	29	4410	5147
Top 80%	5190	5753	5468	5454	21	5180	5742

Levels of significance for observed differences.
Chi-square test procedures were used to determine the

significance of differences which appear between "Adjusted Observed" and "Expected" columns tabulated in Table IV. For convenience, these columns have been repeated in Table V and chi-squares have been determined for difference between each observed frequency and the frequency which would be expected under the null hypothesis. The last column in Table V indicates the minimum degree of confidence in the existence of significant differences. The differences were found to be significant at the .001 level of confidence for all portions of the classes. The null hypothesis was therefore rejected for Group A schools.

TABLE V

DATA PERTAINING TO GROUP A SCHOOLS (100 OR MORE
SENIORS) REPORTED BY 64 PUBLIC SCHOOLS WITH
6,835 BOYS AND 6,817 GIRLS IN SENIOR
CLASSES TO SHOW LEVELS OF CONFI-
DENCES IN DIFFERENCES FOUND
(df=1)

Portion of Classes	Adjusted Observed Boys Girls		Expected Totals Boys Girls		Chi- Squares	Levels of Confidence[14]
Top 20%	1109	1621	1367	1363	97.52	.001
Top 30%	1700	2396	2051	2045	120.32	.001
Top 40%	2332	3129	2734	2727	118.37	.001
Top 50%	3005	3822	3418	3409	99.94	.001
Top 60%	3681	4510	4101	4909	86.14	.001
Top 70%	4410	5147	4785	4772	58.86	.001
Top 80%	5180	5742	5468	5454	30.38	.001

[14]Sir Donald A. Fisher and Frank Yates, Statistical Tables for Biological, Agricultural, and Medical Research (New York: Hafner Publishing Company, Inc., 1957), p. 45.

Determination of percentages of boys and percentages
of girls found in various portions of the total group.
Since significant differences were determined to exist, it
was necessary to ascertain how the differences would affect
the percentages of total boys and the percentages of total
girls which would be represented in the various sized por-
tions of the Group A Schools. The percentages in the last
column of Table VI were found by dividing the appropriate
entry under the "Adjusted Observed" column by the corre-
sponding entry under the "Expected" column and multiplying
that answer by the number of per cents of pupils in the
group under consideration. The "Adjusted Observed" and
"Expected" columns are the same as those columns on
page 31.

TABLE VI

DATA PERTAINING TO GROUP A SCHOOLS (100 OR MORE
SENIORS) REPORTED BY 64 PUBLIC SCHOOLS WITH
6,835 BOYS AND 6,817 GIRLS IN SENIOR
CLASSES TO SHOW PERCENTAGES OF TOTAL
BOYS AND TOTAL GIRLS WHICH WOULD BE
FOUND IN SPECIFIED CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentage Composition Boys	Percentage Composition Girls
Top 20%	1109	1621	1367	1363	16.23	23.79
Top 30%	1700	2396	2051	2045	24.87	35.15
Top 40%	2332	3129	2734	2727	34.12	45.90
Top 50%	3005	3822	3418	3409	43.96	56.06
Top 60%	3681	4510	4101	4909	53.86	66.16
Top 70%	4410	5147	4785	4772	64.51	75.50
Top 80%	5180	5742	5468	5454	75.79	84.22

Determination of the number of boys and girls to be found in various portions of classes for each 100 pupils. Table VII was included in this study to present the information contained in Table VI in a more meaningful way. In Table VII, in each instance, the entry under the "Percentage Composition" heading of Table VI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table VII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when a normal distribution is present.

TABLE VII

DATA PERTAINING TO GROUP A SCHOOLS (100 OR MORE
SENIORS) REPORTED BY 64 PUBLIC SCHOOLS WITH
6,835 BOYS AND 6,817 GIRLS IN SENIOR
CLASSES TO SHOW NUMBER OF BOYS AND
NUMBER OF GIRLS FOUND IN EACH
100 PUPILS

Portion of Classes	Expected Totals Boys	Expected Totals Girls	Observed Total Boys	Observed Total Girls
Top 20%	10	10	8	12
Top 30%	15	15	12	18
Top 40%	20	20	17	23
Top 50%	25	25	22	28
Top 60%	30	30	27	33
Top 70%	35	35	32	38
Top 80%	40	40	38	42

NOTE: Information contained in this table forms the basis for Figure 4, page 34.
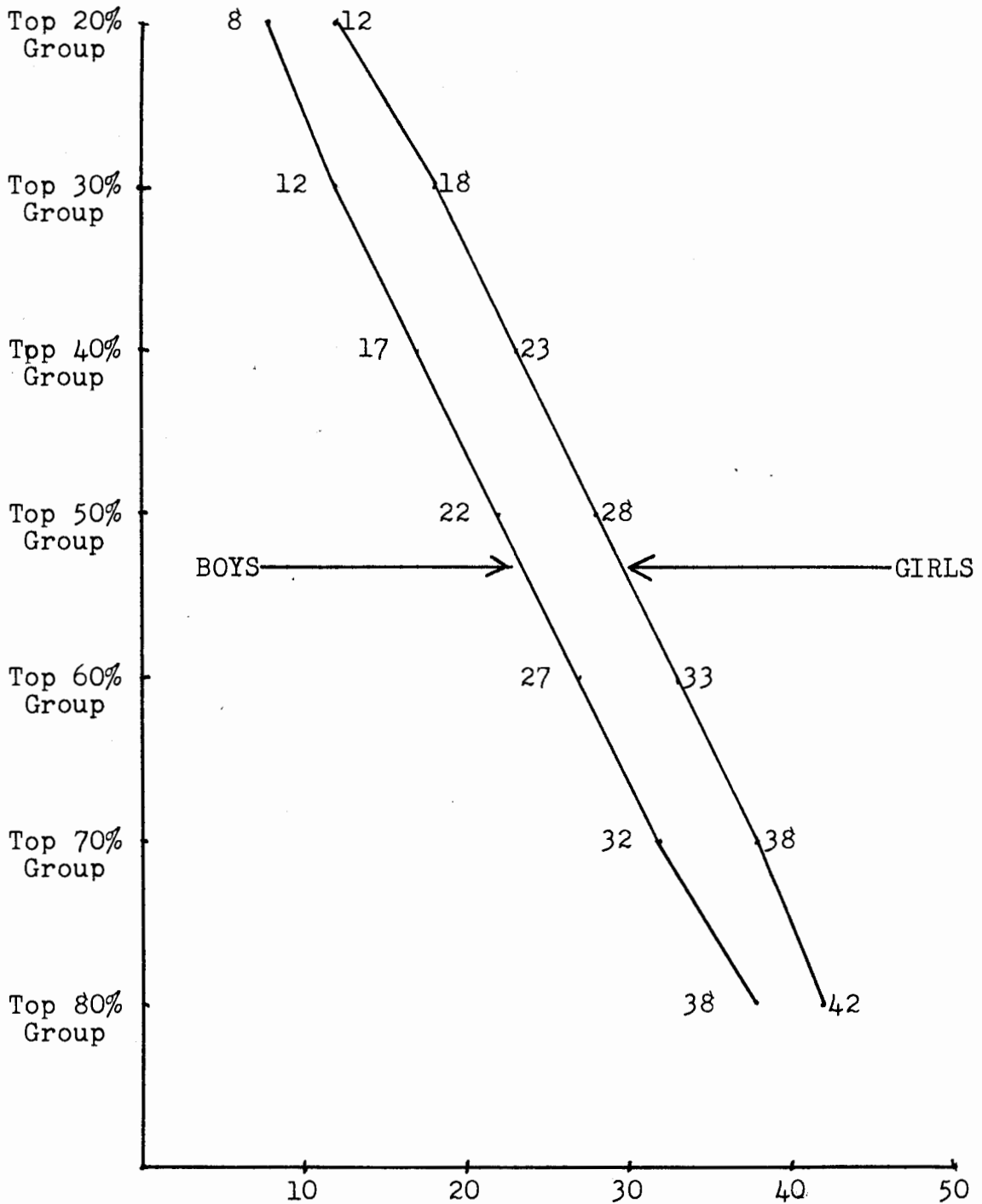
FIGURE 4

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
64 IOWA PUBLIC HIGH SCHOOLS IN SENIOR CLASSES
WITH 6,835 BOYS AND 6,817 GIRLS IN CLASSES
TOTALING 100 OR MORE PUPILS

Determination of percentages of boys and the per-
centages of girls required to assure proportional repre-
sentation in the various portions of classes. Since
significant differences were determined to exist, it was
necessary to ascertain the percentages of boys and the
percentages of girls needed to assure proportional repre-
sentation at each of the group levels. In Table VIII, the
entries under the "Percentages Required for Proportion-
ality" column heading were found by dividing each entry
under the "Expected" column heading by the corresponding
entry under the "Adjusted Observed" column heading and
multiplying that answer by the number of per cents of
pupils indicated under the "Portion of Classes" column.

TABLE VIII

DATA PERTAINING TO GROUP A SCHOOLS (100 OR MORE
SENIORS) REPORTED BY 64 PUBLIC SCHOOLS WITH
6,835 BOYS AND 6,817 GIRLS IN SENIOR
CLASSES TO SHOW PERCENTAGES OF BOYS
AND GIRLS NEEDED FOR PROPORTIONAL
REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentages Required for Proportionality Boys	Percentages Required for Proportionality Girls
Top 20%	1109	1621	1367	1363	24.65	16.82
Top 30%	1700	2396	2051	2045	36.19	25.61
Top 40%	2332	3129	2734	2727	46.88	34.86
Top 50%	3005	3822	3418	3409	56.87	44.60
Top 60%	3681	4510	4101	4909	66.85	54.41
Top 70%	4410	5147	4785	4772	75.95	64.90
Top 80%	5180	5742	5468	5454	84.45	75.79

NOTE: Information contained in this table forms the
basis for Figure 5, page 36.
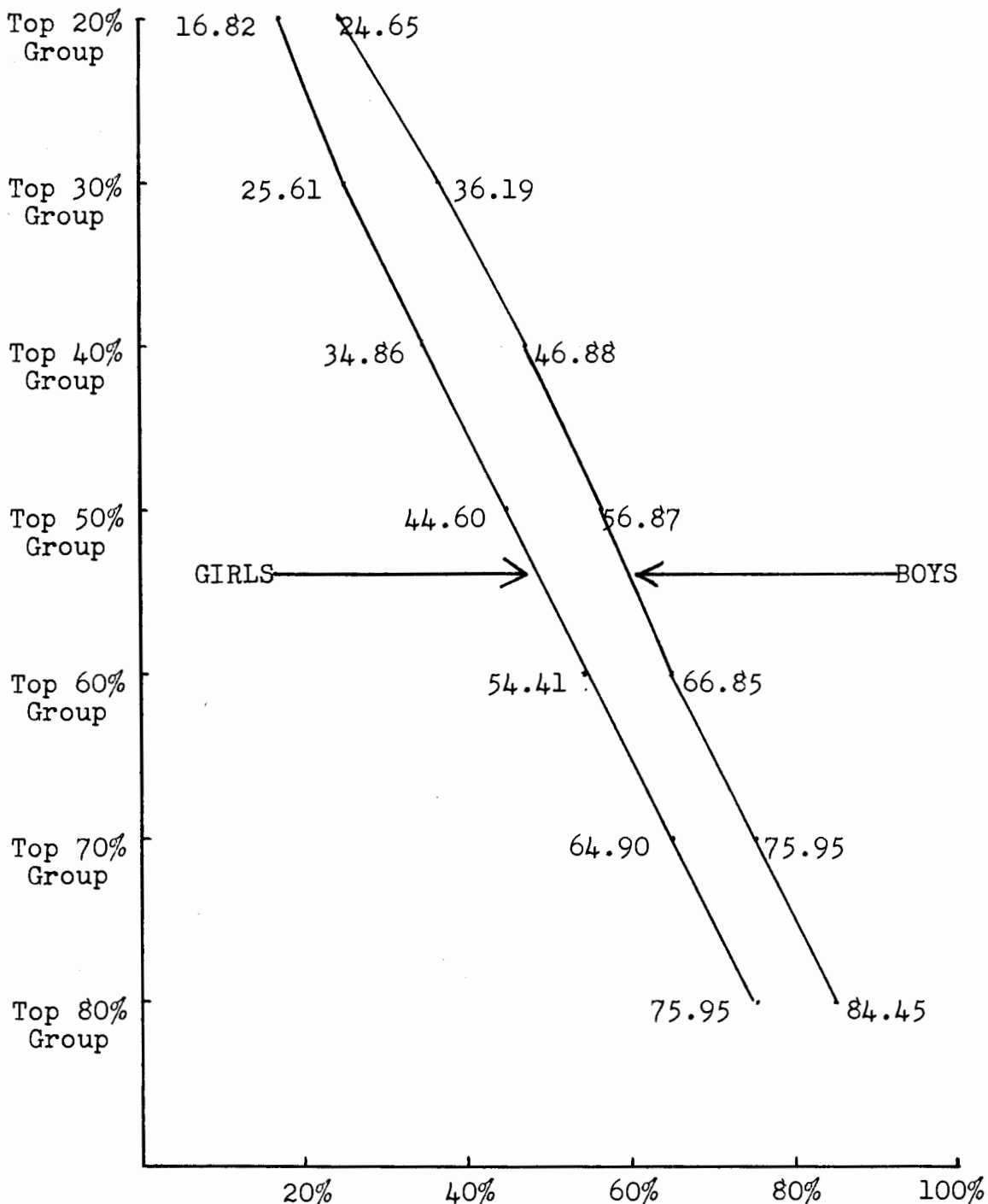
FIGURE 5

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 64 PUBLIC
SECONDARY SCHOOLS WITH 6,835 BOYS AND
6,817 GIRLS IN SENIOR CLASSES
TOTALING 100 OR MORE PUPILS

II. GROUP B (50 TO 99 SENIORS)

Introduction. This group of schools (listed by
number in Appendix I) consisted of 110 public secondary
schools which reported from 50 to 99 pupils, both numbers
inclusive, in graduating classes. Totals of 3,565 boys and
3,622 girls were reported, or an average of 32 boys and 33
girls for each school. In general, the principals and
guidance directors in schools of this group seemed to have
more personal interest in this investigation than did the
principals and guidance directors of any other group;
several offered encouragement in the work undertaken and
asked to be advised of the findings.

The remainder of the discussion on Group B schools
will be similar to the information contained in the dis-
cussion of Group A schools. The explanation and inter-
pretation of the data has been repeated so that each size
of school would have a separate and distinct part in the
investigation. The tables and figures are comparable in
every way between the several groups analyzed.

In Table IX, the "Observed" column shows the number
of boys and the number of girls which were reported by the
schools to be in the specified portions of their classes.
The "Expected" column shows the number of boys and the num-
ber of girls found by multiplying the pertinent portions
of total pupils by the total number of boys and girls
reported by their schools. The "Adjustment" column totals

were found by subtracting the combined totals of the "Expected" column from the combined totals of the "Observed" column for each portion of total students under consideration. The "Adjusted Observed" column entries represent a correction made to the "Observed" column entries in the amount of "Adjustment Totals." The adjustments were proportional to the number of boys and the number of girls reported by the schools in the concerned portion of the classes. The reason for these adjustments was explained in Chapter III under the heading of "The questionnaire." In each instance, the "Adjusted Observed" combined totals for a portion of the classes is equal to the combined totals of the boys and girls in the "Expected" column for the same portion of the classes.

TABLE IX

DATA PERTAINING TO GROUP B SCHOOLS (50 TO 99
SENIORS) REPORTED BY 110 PUBLIC SECONDARY
SCHOOLS WITH 3,565 BOYS AND 3,622 GIRLS
IN THE SENIOR CLASSES OF
THEIR SCHOOLS

Portion of Classes	Observed Boys	Observed Girls	Expected Boys	Expected Girls	Adjust-ments	Adjusted Observed Boys	Adjusted Observed Girls
Top 20%	538	931	713	724	32	526	911
Top 30%	803	1417	1070	1087	63	781	1376
Top 40%	1130	1829	1426	1449	84	1098	1777
Top 50%	1503	2180	1783	1811	89	1467	2127
Top 60%	1883	2538	2139	2173	109	1837	2475
Top 70%	2308	2840	2496	2535	117	2256	2775
Top 80%	2741	3125	2852	2898	116	2687	3063

Levels of significance for observed differences.
Chi-square test procedures were used to determine the sig-
nificance of differences which appear between "Adjusted
Observed" and "Expected" columns tabulated in Table IX.
For convenience, these columns have been repeated in Table
X and chi-squares have been determined for difference be-
tween each observed frequency and the frequency which would
be expected under the null hypothesis. The last column in
Table X indicates the minimum degree of confidence in the
existence of significant differences. The differences were
found to be significant at the .001 level of confidence for
all portions of the classes. The null hypothesis was there-
fore rejected for Group B schools for all portions of their
classes.

TABLE X

DATA PERTAINING TO GROUP B SCHOOLS (50 TO 99
SENIORS) REPORTED BY 110 PUBLIC SECONDARY
SCHOOLS WITH 3,565 BOYS AND 3,622 GIRLS
IN THE SENIOR CLASSES OF THEIR SCHOOLS
TO SHOW LEVELS OF CONFIDENCE IN
DIFFERENCES FOUND (df=1)

Portion of Classes	Adjusted Observed Boys Girls		Expected Totals Boys Girls		Chi-squares	Levels of Confidence[15]
Top 20%	526	911	713	724	97.34	.001
Top 30%	781	1376	1070	1087	154.89	.001
Top 40%	1098	1777	1426	1449	149.68	.001
Top 50%	1467	2127	1783	1811	111.14	.001
Top 60%	1837	2475	2139	2173	84.60	.001
Top 70%	2256	2775	2496	2535	45.79	.001
Top 80%	2687	3063	2852	2898	18.94	.001

[15] Sir Donald A. Fisher and Frank Yates, Ibid.

Determination of percentages of boys and percentages of girls found in various portions of the total group. Since significant differences were determined to exist, it was necessary to ascertain how the differences would affect the percentages of total boys and the percentages of total girls which would be represented in the various sized portions of the Group B schools. The percentages in the last column of Table XI were found by dividing the appropriate entry under the "Adjusted Observed" column by the corresponding entry under the "Expected" column and multiplying that answer by the number of per cents of pupils in the group under consideration. The "Adjusted Observed" and "Expected" columns are the same as those on page 39.

TABLE XI

DATA PERTAINING TO GROUP B SCHOOLS (50 TO 99 SENIORS)
REPORTED BY 110 PUBLIC SECONDARY SCHOOLS WITH
3,565 BOYS AND 3,622 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW PER-
CENTAGES OF TOTAL BOYS AND TOTAL
GIRLS WHICH WOULD BE FOUND IN
SPECIFIED CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentage Composition Boys	Girls
Top 20%	526	911	713	724	14.75	25.17
Top 30%	781	1376	1070	1087	21.90	37.98
Top 40%	1098	1777	1426	1449	30.80	49.06
Top 50%	1467	2127	1783	1811	41.14	58.73
Top 60%	1837	2475	2139	2173	51.53	68.33
Top 70%	2256	2775	2496	2535	63.27	76.63
Top 80%	2687	3063	2852	2898	75.37	84.55

Determination of the number of boys and girls to be found in various portions of classes for each 100 pupils. Table XII was included in this study to present the information contained in Table XI in a more meaningful way. In Table XII, in each instance, the entry under the "Percentage Composition" heading of Table XI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table XII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when a normal distribution is present.

TABLE XII

DATA PERTAINING TO GROUP B SCHOOLS (50 TO 99 SENIORS)
REPORTED BY 110 PUBLIC SECONDARY SCHOOLS WITH
3,565 BOYS AND 3,622 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW
NUMBER OF BOYS AND NUMBER OF
GIRLS IN EACH 100 PUPILS

Portion of Classes	Expected Totals Boys	Girls	Observed Totals Boys	Girls
Top 20%	10	10	7	13
Top 30%	15	15	11	19
Top 40%	20	20	15	25
Top 50%	25	25	21	29
Top 60%	30	30	26	34
Top 70%	35	35	32	38
Top 80%	40	40	38	42

NOTE: Information contained in this table forms the basis for Figure 6, page 42.
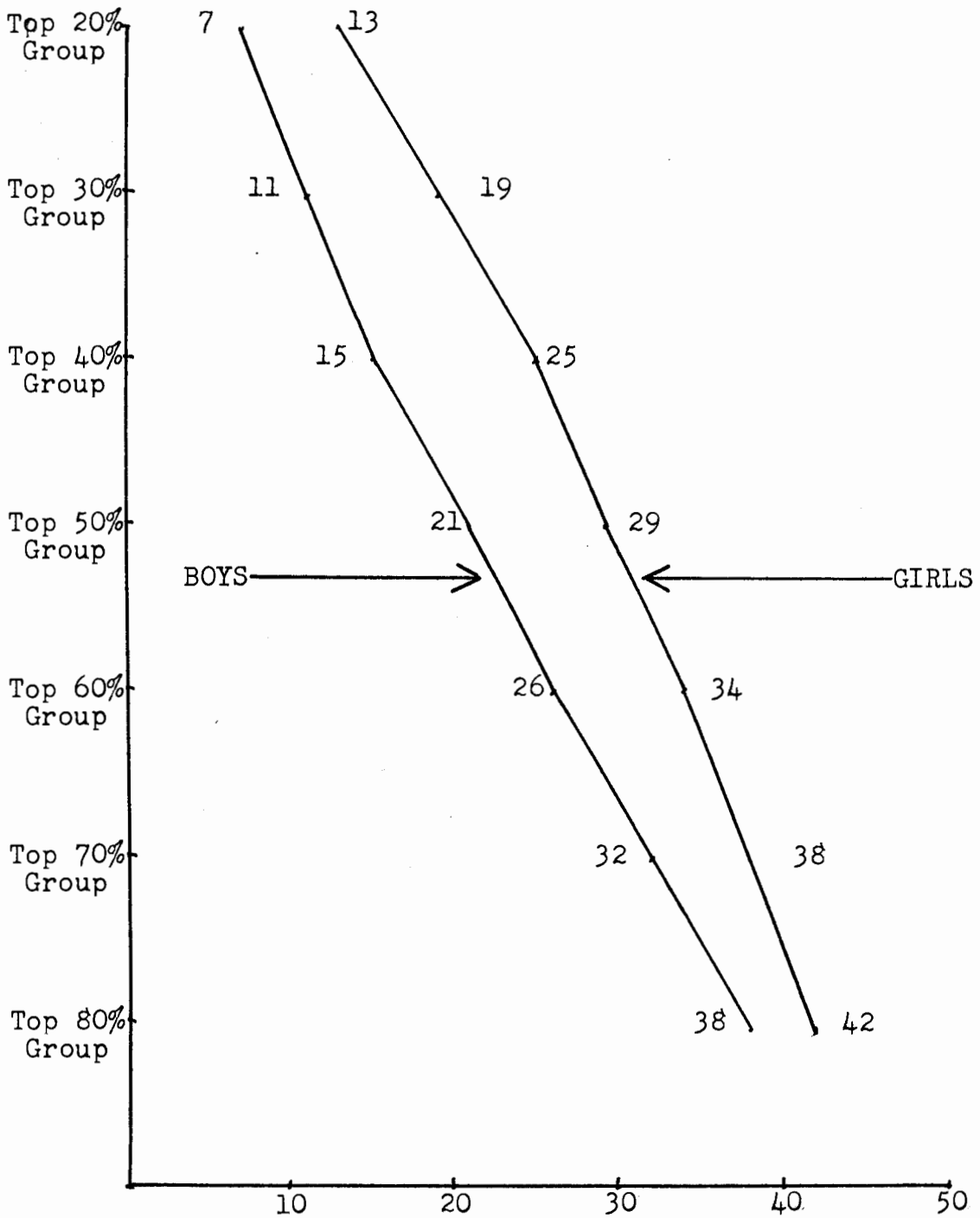
FIGURE 6

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
110 IOWA PUBLIC HIGH SCHOOLS WITH 3,565 BOYS
AND 3,622 GIRLS IN SENIOR CLASSES TOTALING
50 TO 99 (BOTH INCLUSIVE) PUPILS

Determination of percentages of boys and the per-
centages of girls required to assure proportional repre-
sentation in the various portions of classes. Since sig-
nificant differences were determined to exist, it was
necessary to ascertain the percentages of boys and the
percentages of girls needed to assure proportional repre-
sentation at each of the group levels. In Table XIII, the
entries under the "Percentages Required for Proportion-
ality" column heading were found by dividing each entry
under the "Expected" column heading by the corresponding
entry under the "Adjusted Observed" column heading and
multiplying that answer by the number of per cents of
pupils indicated under the "Portion of Classes" column.

TABLE XIII

DATA PERTAINING TO GROUP B SCHOOLS (50 TO 99 SENIORS)
REPORTED BY 110 PUBLIC SECONDARY SCHOOLS WITH
3,565 BOYS AND 3,622 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW PER-
CENTAGES OF BOYS AND GIRLS NEEDED
FOR PROPORTIONAL REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentages Required for Proportionality Boys	Girls
Top 20%	526	911	713	724	27.12	15.90
Top 30%	781	1376	1070	1087	41.10	23.70
Top 40%	1098	1777	1426	1449	51.99	32.62
Top 50%	1467	2127	1783	1811	60.77	42.58
Top 60%	1837	2475	2139	2173	69.86	52.67
Top 70%	2256	2775	2496	2535	77.45	63.95
Top 80%	2687	3063	2852	2898	84.91	75.69

NOTE: Information contained in this table forms the
basis for Figure 7, page 44.
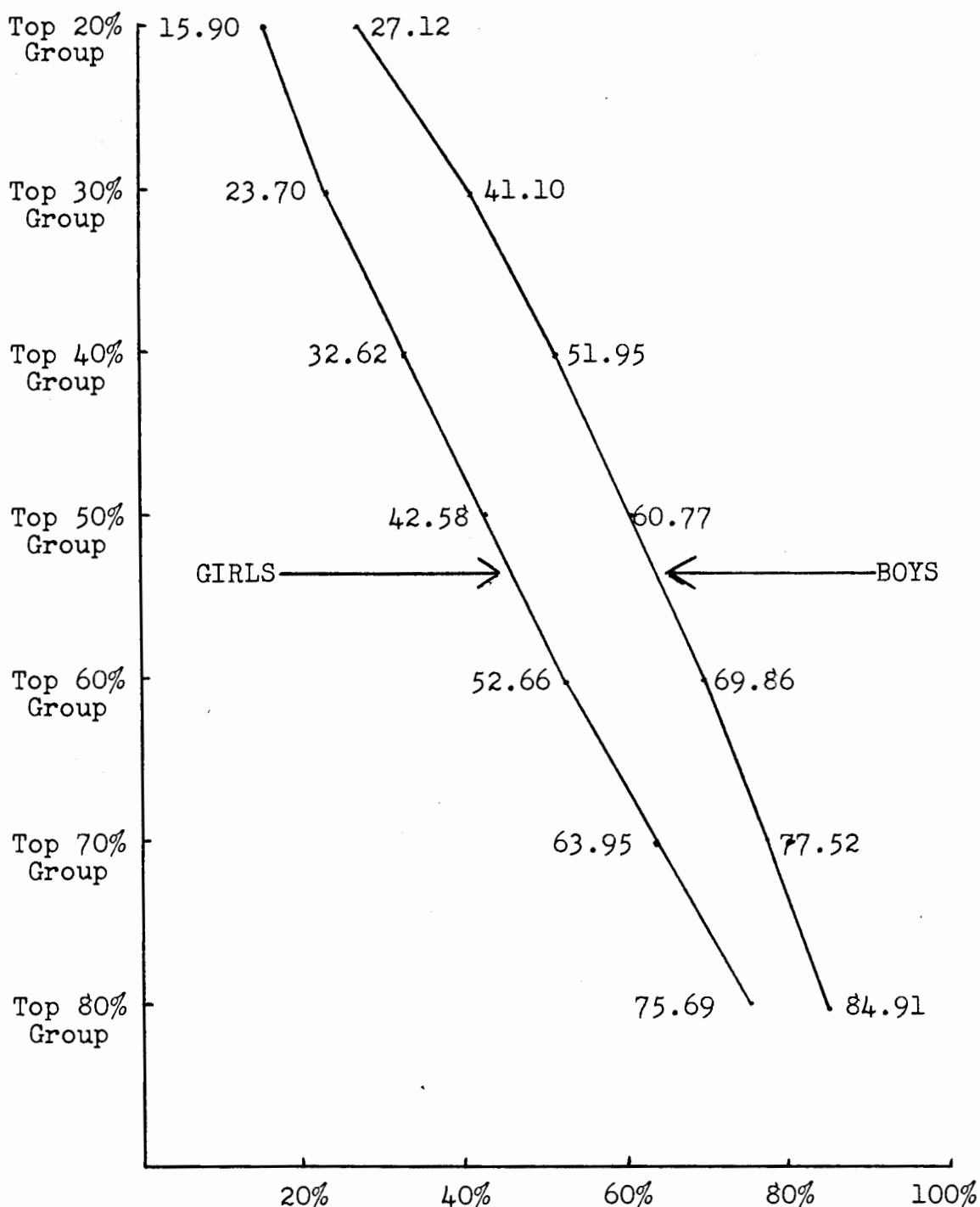
FIGURE 7

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 110 PUBLIC
SECONDARY SCHOOLS WITH 3,565 BOYS AND
3,622 GIRLS IN SENIOR CLASSES
TOTALING 50 TO 99 (BOTH
INCLUSIVE) PUPILS

III. GROUP C (25 TO 49 SENIORS)

Introduction. This group of schools (listed by
number in Appendix J) consisted of 172 public secondary
schools which reported from 25 to 49 pupils, both numbers
inclusive, in graduating classes. Totals of 3,116 boys
and 3,070 girls were reported, or an average of 17 boys
and 17 girls. This group of 172 schools was the largest
of the four basic groups considered. However, this came
about because of the desire on the part of the writer to
form a separate group of the schools with senior classes
of 100 or more pupils and another group with 25 or less
pupils. The two groups between these were divided in a
manner estimated to obtain approximate equality in numbers
of students.

The remainder of the discussion on Group C schools
will be similar to information furnished for the other two
groupings. The explanation and interpretation of the data,
as well as the tables and figures, are comparable in every
way between the several groups analyzed.

In Table XIV, the "Observed" column shows the num-
ber of boys and the number of girls which were reported by
the schools to be in the specified portions of their
classes. The "Expected" column shows the number of boys
and the number of girls found by multiplying the pertinent
portions of total pupils by the total number of boys and
girls reported by their schools. The "Adjustment" column

totals were found by subtracting the combined totals of the
"Expected" column from the combined totals of the "Observed"
column for each portion of total students under consider-
ation. The "Adjusted Observed" column entries represent a
correction made to the "Observed" column entries in the
amount of "Adjustment Totals." The adjustments were pro-
portional to the number of boys and the number of girls
reported by the schools in the concerned portion of the
classes. The reason for these adjustments was explained
in Chapter III under the heading of "The questionnaire."
In each instance, the "Adjusted Observed" combined totals
for a portion of the classes is equal to the combined
totals of the boys and girls in the "Expected" column for
the same portion of the classes.

TABLE XIV

DATA PERTAINING TO GROUP C SCHOOLS (25 TO 49
SENIORS) REPORTED BY 172 PUBLIC SECONDARY
SCHOOLS WITH 3,116 BOYS AND 3,070 GIRLS
IN SENIOR CLASSES OF THEIR SCHOOLS

Portion of Classes	Observed Boys	Observed Girls	Expected Boys	Expected Girls	Adjust-ments	Adjusted Observed Boys	Adjusted Observed Girls
Top 20%	478	786	623	614	27	468	769
Top 30%	741	1165	935	921	50	722	1134
Top 40%	1040	1529	1246	1228	95	1002	1472
Top 50%	1359	1858	1558	1535	124	1307	1786
Top 60%	1664	2172	1870	1842	124	1610	2102
Top 70%	2008	2443	2181	2149	121	1953	2377
Top 80%	2370	2698	2493	2456	119	2314	2635

Levels of significance for observed differences.
Chi-square test procedures were used to determine the sig-
nificance of differences which appear between "Adjusted
Observed" and "Expected" columns tabulated in Table XIV.
For convenience, these columns have been repeated in
Table XV and chi-squares have been determined for differ-
ence between each observed frequency and the frequency
which would be expected under the null hypothesis. The
last column in Table XV indicates the minimum degree of
confidence in the existence of significant differences.
The differences were found to be significant at the .001
level of confidence for all portions of the classes. The
null hypothesis was therefore rejected for Group C schools
for all portions of their classes.

TABLE XV

DATA PERTAINING TO GROUP C SCHOOLS (25 TO 49 SENIORS)
REPORTED BY 172 PUBLIC SECONDARY SCHOOLS WITH
3,116 BOYS AND 3,070 GIRLS IN SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW
LEVELS OF CONFIDENCE IN
DIFFERENCES FOUND (df=1)

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Chi-Squares	Levels of Confidence[16]
Top 20%	468	769	623	614	77.69	.001
Top 30%	722	1134	935	921	97.78	.001
Top 40%	1002	1472	1246	1228	96.26	.001
Top 50%	1307	1786	1558	1535	81.48	.001
Top 60%	1610	2102	1870	1842	72.84	.001
Top 70%	1953	2377	2181	2149	48.02	.001
Top 80%	2314	2635	2493	2456	25.89	.001

[16]Sir Donald Fisher and Frank Yates, Ibid.

Determination of percentages of boys and percentages of girls found in various portions of the total group. Since significant differences were determined to exist, it was necessary to ascertain how the differences would affect the percentages of total boys and the percentages of total girls which would be represented in the various sized portions of the Group C schools. The percentages in the last column of Table XVI were found by dividing the appropriate entry under the "Adjusted Observed" column by the corresponding entry under the "Expected" column and multiplying that answer by the number of per cents of pupils in the group under consideration. The "Adjusted Observed" and "Expected" columns are the same as those on page 47.

TABLE XVI

DATA PERTAINING TO GROUP C SCHOOLS (25 TO 49 SENIORS)
REPORTED BY 172 PUBLIC SECONDARY SCHOOLS WITH
3,116 BOYS AND 3,070 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW PER-
CENTAGES OF TOTAL BOYS AND TOTAL
GIRLS WHICH WOULD BE FOUND IN
SPECIFIED CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentage Composition Boys	Percentage Composition Girls
Top 20%	468	769	623	614	15.02	25.05
Top 30%	722	1134	935	921	23.17	36.93
Top 40%	1002	1472	1246	1228	32.17	47.95
Top 50%	1307	1786	1558	1535	41.94	58.18
Top 60%	1610	2102	1870	1842	51.64	68.47
Top 70%	1953	2377	2181	2149	62.68	77.43
Top 80%	2314	2635	2493	2456	74.26	85.83

Determination of the number of boys and girls to be found in various portions of classes for each 100 pupils. Table XVII was included in this study to present the information contained in Table XVI in a more meaningful way. In Table XVII, in each instance, the entry under the "Percentage Composition" heading of Table XVI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table XVII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when normal distribution is present.

TABLE XVII

DATA PERTAINING TO GROUP C SCHOOLS (25 TO 49 SENIORS)
REPORTED BY 172 PUBLIC SECONDARY SCHOOLS WITH
3,116 BOYS AND 3,070 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW
NUMBER OF BOYS AND NUMBER OF
GIRLS IN EACH 100 PUPILS

Portion of Classes	Expected Totals Boys	Girls	Observed Totals Boys	Girls
Top 20%	10	10	8	13
Top 30%	15	15	12	18
Top 40%	20	20	16	24
Top 50%	25	25	21	29
Top 60%	30	30	26	34
Top 70%	35	35	31	39
Top 80%	40	40	37	42

NOTE: Information contained in this table forms the basis for Figure 8, page 50.
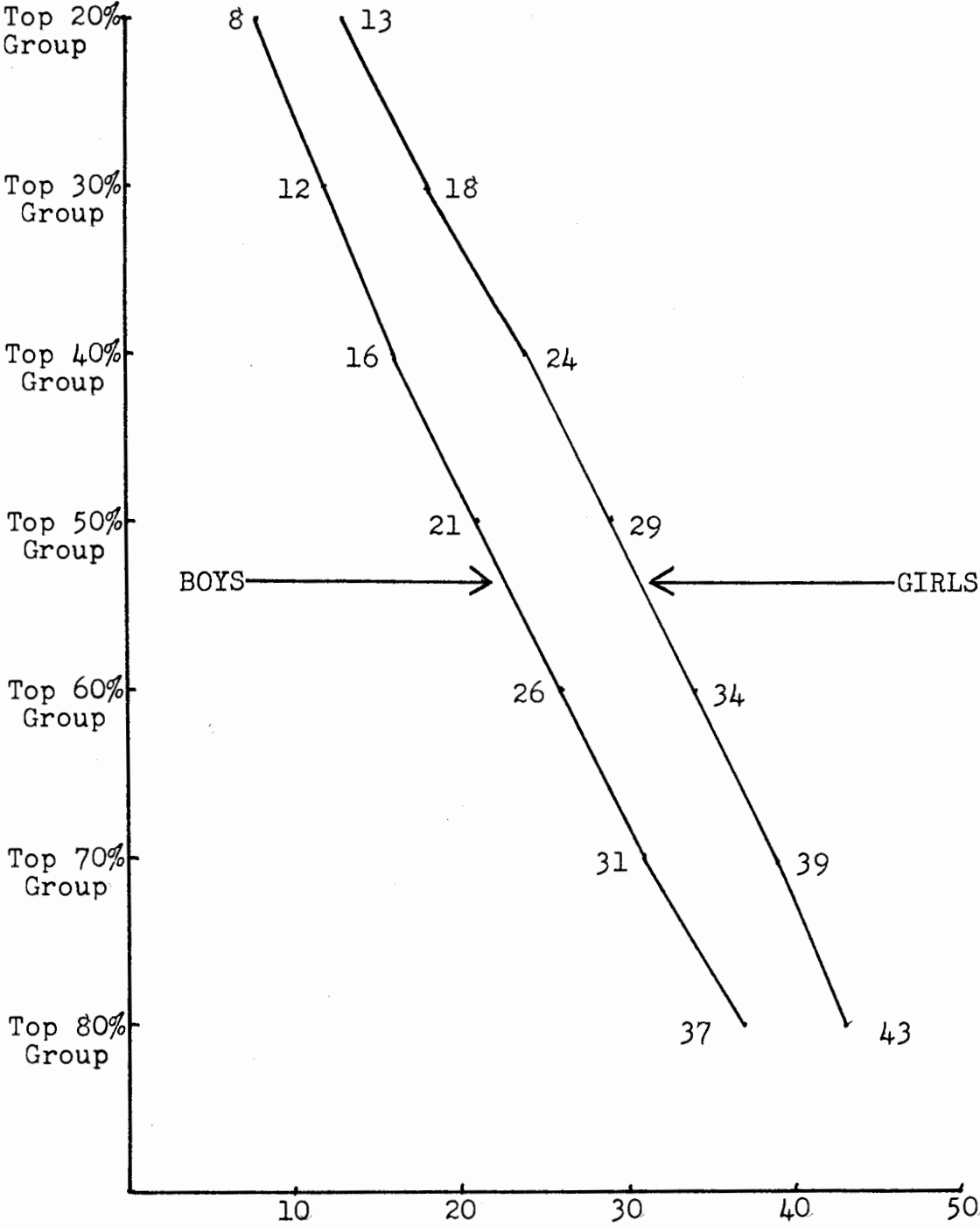
FIGURE 8

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
172 IOWA PUBLIC HIGH SCHOOLS WITH 3,116 BOYS
AND 3,070 GIRLS IN SENIOR CLASSES TOTALING
25 TO 49 (BOTH INCLUSIVE) PUPILS

Determination of percentages of boys and percentages
of girls required to assure proportional representation in
the various portions of classes. Since significant differ-
ences were determined to exist, it was necessary to
ascertain the percentages of boys and the percentages of
girls needed to assure proportional representation at each
of the group levels. In Table XVIII, the entries under the
"Percentages Required for Proportionality" column heading
were found by dividing each entry under the "Expected"
column heading by the corresponding entry under the
"Adjusted Observed" column heading and multiplying that
answer by the number of per cents of pupils indicated under
the "Portion of Classes" column.

TABLE XVIII

DATA PERTAINING TO GROUP C SCHOOLS (25 TO 49 SENIORS)
REPORTED BY 172 PUBLIC SECONDARY SCHOOLS WITH
3,116 BOYS AND 3,070 GIRLS IN THE SENIOR
CLASSES OF THEIR SCHOOLS TO SHOW PER-
CENTAGES OF BOYS AND GIRLS NEEDED
FOR PROPORTIONAL REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentages Required for Proportionality Boys	Percentages Required for Proportionality Girls
Top 20%	468	769	623	614	26.62	15.97
Top 30%	722	1134	935	921	38.85	24.37
Top 40%	1002	1472	1246	1228	49.74	33.37
Top 50%	1307	1786	1558	1535	59.60	42.98
Top 60%	1610	2102	1870	1842	69.69	52.58
Top 70%	1953	2377	2181	2149	78.17	63.29
Top 80%	2314	2635	2493	2456	86.19	74.57

NOTE: Information contained in this table forms the
basis for Figure 9, page 52.
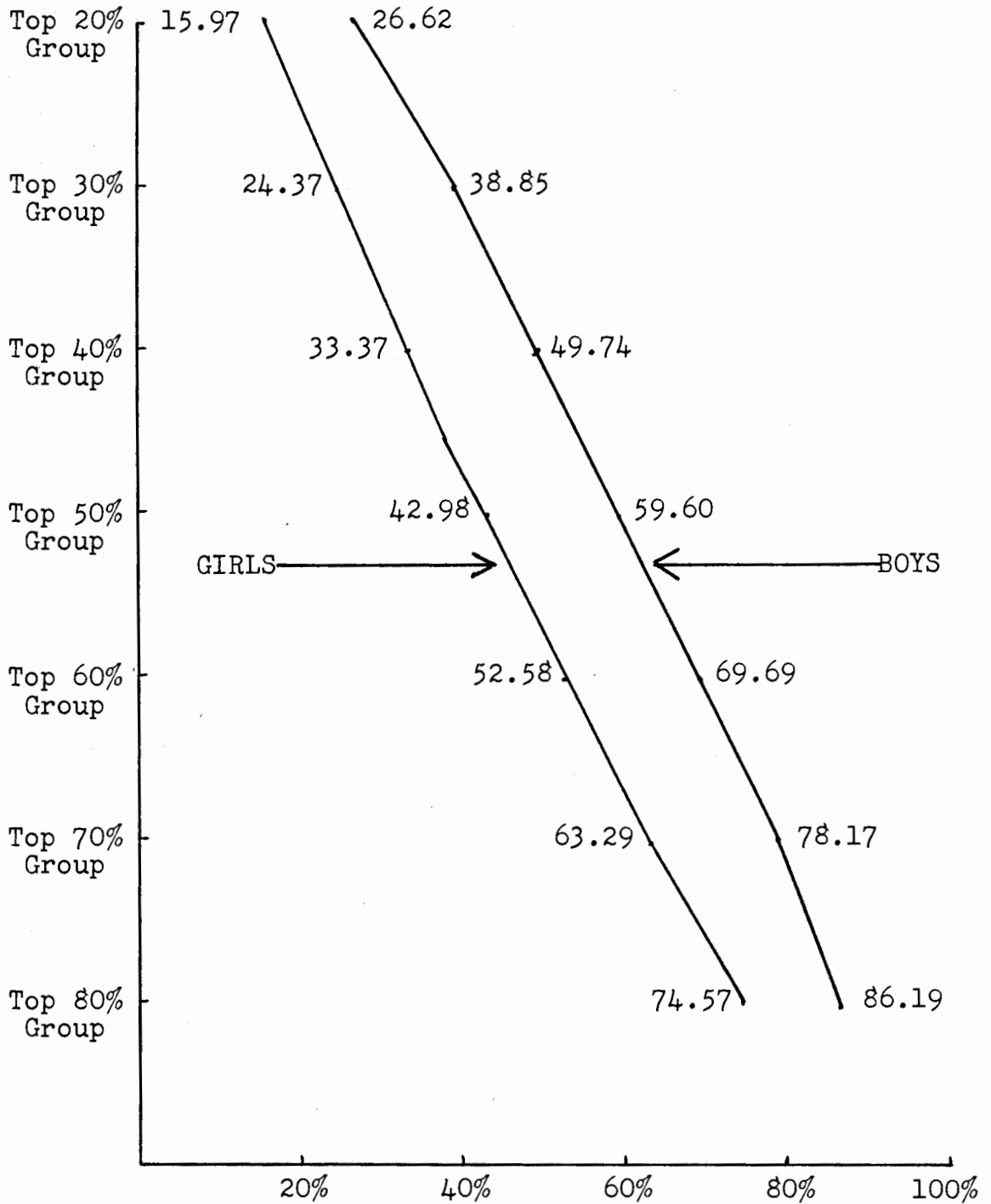
FIGURE 9

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 172 PUBLIC
SECONDARY SCHOOLS WITH 3,116 BOYS AND
3,070 GIRLS IN SENIOR CLASSES
TOTALING 25 TO 49 (BOTH
INCLUSIVE) PUPILS

IV.   GROUP D (LESS THAN 25 SENIORS)

Introduction. This group of schools (listed by
number in Appendix K) consisted of 103 public secondary
schools which reported less than 25 pupils in their
graduating classes. Totals of 898 boys and 967 girls were
reported, or an average of 9 boys and 9 girls in each
school. The grouping was arranged purposely in view of
recent trends to combine small schools into community
school districts, which has during the past ten years
greatly reduced the number of schools of the size repre-
sented in this group. It was of special interest to
determine whether these schools would reflect the same
tendencies as Group A schools with 100 or more seniors.

The remainder of the discussion on Group D schools
will be similar to that for the other three groupings.
The explanation and interpretation of data, as well as the
figures and tables, are comparable in every way between
the several groups analyzed.

In Table XIX, the "Observed" column shows the num-
ber of boys and the number of girls which were reported
by the schools to be in the specified portions of their
classes. The "Expected" column shows the number of boys
and the number of girls found by multiplying the pertinent
portions of total pupils by the total number of boys and
girls reported by their schools. The "Adjustment" column
totals were found by subtracting the combined totals of

the "Expected" column from the combined totals of the
"Observed" column for each portion of total students under
consideration. The "Adjusted Observed" column entries
represent a correction made to the "Observed" column
entries in the amount of "Adjustment Totals." The adjust-
ments were proportional to the number of boys and the
number of girls reported by the schools in the concerned
portion of the classes. The reason for these adjustments
was explained in Chapter III under the heading of "The
questionnaire." In each instance, the "Adjusted Observed"
combined totals for a portion of the classes is equal to
the combined totals of the boys and girls in the "Expected"
column for the same portion of the classes.

TABLE XIX

DATA PERTAINING TO GROUP D SCHOOLS (LESS THAN 25
SENIORS) REPORTED BY 103 PUBLIC SECONDARY
SCHOOLS WITH 898 BOYS AND 967 GIRLS IN
SENIOR CLASSES OF THEIR SCHOOLS

Portion of Classes	Observed Boys	Girls	Expected Boys	Girls	Adjust- ments	Adjusted Observed Boys	Girls
Top 20%	157	258	180	193	42	141	232
Top 30%	252	392	269	290	85	219	340
Top 40%	342	520	359	387	116	296	450
Top 50%	430	637	449	484	134	376	557
Top 60%	527	725	539	580	133	471	648
Top 70%	621	807	629	677	122	568	738
Top 80%	707	880	718	774	95	665	827

Levels of significance for observed differences.
Chi-square test procedures were used to determine the sig-
nificance of differences which appear between "Adjusted
Observed" and "Expected" columns tabulated in Table XIX.
For convenience, these columns have been repeated in
Table XX and chi-squares have been determined for differ-
ence between each observed frequency and the frequency
which would be expected under the null hypothesis. The
last column in Table XX indicates the minimum degree of
confidence in the existence of significant differences.
The differences for all portions of the classes were sig-
nificant at .01 or higher level of confidence and the
null hypothesis was therefore rejected.

TABLE XX

DATA PERTAINING TO GROUP D SCHOOLS (LESS THAN 25
SENIORS) REPORTED BY 103 PUBLIC SECONDARY
SCHOOLS WITH 898 BOYS AND 967 GIRLS IN
SENIOR CLASSES TO SHOW LEVELS OF CON-
FIDENCE IN DIFFERENCES FOUND (df=1)

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Chi-Squares	Levels of Confidence[17]
Top 20%	141	232	180	193	16.31	.001
Top 30%	219	340	269	290	17.89	.001
Top 40%	296	450	359	387	21.28	.001
Top 50%	376	557	449	484	22.85	.001
Top 60%	471	648	539	580	16.53	.001
Top 70%	568	738	629	677	11.39	.001
Top 80%	665	827	718	774	7.53	.010

[17]Sir Donald Fisher and Frank Yates, Ibid.

Determination of percentages of boys and percentages
of girls found in various portions of the total group.
Since significant differences were determined to exist, it
was necessary to ascertain how the differences would affect
the percentages of total boys and the percentages of total
girls which would be represented in the various sized por-
tions of the Group D schools. The percentages in the last
column of Table XXI were found by dividing the appropriate
entry under the "Adjusted Observed" column by the corre-
sponding entry under the "Expected" column and multiplying
that answer by the number of per cents of pupils in the
group under consideration. The "Adjusted Observed" and
"Expected" columns are the same as those on page 55.

TABLE XXI

DATA PERTAINING TO GROUP D SCHOOLS (LESS THAN 25
SENIORS) REPORTED BY 103 PUBLIC SECONDARY
SCHOOLS WITH 898 BOYS AND 967 GIRLS IN
SENIOR CLASSES TO SHOW PERCENTAGES OF
TOTAL BOYS AND TOTAL GIRLS WHICH
WOULD BE FOUND IN SPECIFIED
CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentage Composition Boys	Percentage Composition Girls
Top 20%	141	232	180	193	15.67	24.05
Top 30%	219	340	269	290	24.42	35.17
Top 40%	296	450	359	387	32.98	46.51
Top 50%	376	557	449	484	41.87	57.54
Top 60%	471	648	539	580	52.42	67.03
Top 70%	568	738	629	677	63.21	76.31
Top 80%	665	827	718	774	74.09	85.47

Determination of the number of boys and girls to be found in various portions of classes for each 100 pupils. Table XXII was included in this study to present the information contained in Table XXI in a more meaningful way. In Table XXII, in each instance, the entry under the "Percentage Composition" heading of Table XXI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table XXII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when normal distribution is present.

TABLE XXII

DATA PERTAINING TO GROUP D SCHOOLS (LESS THAN 25
SENIORS) REPORTED BY 103 PUBLIC SECONDARY
SCHOOLS WITH 898 BOYS AND 967 GIRLS IN
THEIR SENIOR CLASSES TO SHOW THE
NUMBER OF BOYS AND THE NUMBER
OF GIRLS IN EACH 100 PUPILS

Portion of Classes	Expected Totals Boys	Girls	Observed Totals Boys	Girls
Top 20%	10	10	8	12
Top 30%	15	15	12	18
Top 40%	20	20	17	23
Top 50%	25	25	21	29
Top 60%	30	30	26	34
Top 70%	35	35	32	38
Top 80%	40	40	37	43

NOTE: Information contained in this table forms the basis for Figure 10, page 58.
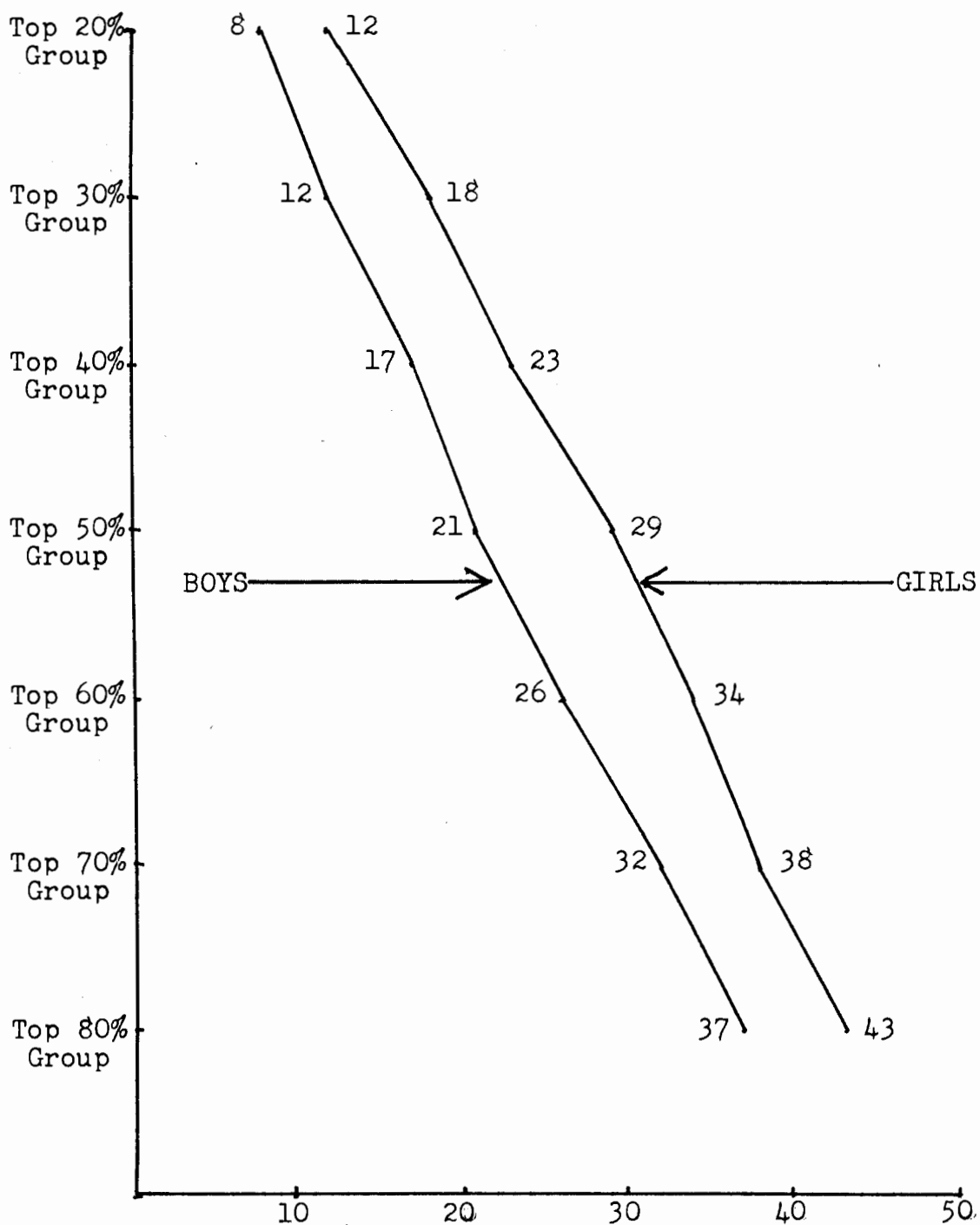
FIGURE 10

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
103 IOWA PUBLIC HIGH SCHOOLS WITH 898 BOYS
AND 967 GIRLS IN SENIOR CLASSES
TOTALING LESS THAN 25 PUPILS

Determination of percentages of boys and percentages of girls required to assure proportional representation in various portions of classes. Since significant differences were determined to exist, it was necessary to ascertain the percentages of boys and the percentages of girls needed to assure proportional representation at each of the group levels. In Table XXIII, the entries under the "Percentages Required for Proportionality" column heading were found by dividing each entry under the "Expected" column heading by the corresponding entry under the "Adjusted Observed" column heading and multiplying that answer by the number of per cents of pupils indicated under the "Portion of Classes" column.

TABLE XXIII

DATA PERTAINING TO GROUP D SCHOOLS (LESS THAN 25
SENIORS) REPORTED BY 103 PUBLIC SECONDARY
SCHOOLS WITH 898 BOYS AND 967 GIRLS IN
THEIR SENIOR CLASSES TO SHOW PER-
CENTAGES OF BOYS AND GIRLS NEEDED
FOR PROPORTIONAL REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentages Required for Proportionality Boys	Girls
Top 20%	141	232	180	193	25.53	16.64
Top 30%	219	340	269	290	36.85	25.59
Top 40%	296	450	359	387	48.51	34.40
Top 50%	376	557	449	484	59.71	43.43
Top 60%	471	648	539	580	68.66	53.70
Top 70%	568	738	629	677	77.52	64.21
Top 80%	665	827	718	774	86.38	74.87

NOTE: Information contained in this table forms the basis for Figure 11, page 60.

FIGURE 11

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 103 PUBLIC
SECONDARY SCHOOLS WITH 898 BOYS AND
967 GIRLS IN SENIOR CLASSES OF
LESS THAN 25 PUPILS

V. GROUP E (ALL SCHOOLS)

The tabulations which are shown below, one for boys and one for girls, are recapitulations of total pupils from the previously considered groupings of schools by size of their senior classes. The numbers shown in the Group E column are the totals of the other four columns and are used in the remaining computations for Group E schools.

BOYS

Portion of Classes	Group A	Group B	Group C	Group D	Group E
Totals	6835	3565	3116	898	14414
Top 20%	1116	538	478	157	2289
Top 30%	1703	803	741	252	3499
Top 40%	2341	1130	1040	342	4853
Top 50%	3018	1503	1359	430	6310
Top 60%	3691	1883	1664	527	7765
Top 70%	4423	2308	2008	621	9360
Top 80%	5190	2741	2370	707	11008

GIRLS

Portion of Classes	Group A	Group B	Group C	Group D	Group E
Totals	6817	3622	3070	967	14476
Top 20%	1632	931	786	258	3607
Top 30%	2400	1417	1165	392	5374
Top 40%	3140	1829	1529	520	7018
Top 50%	3839	2180	1858	637	8514
Top 60%	4522	2538	2172	725	9957
Top 70%	5163	2840	2443	807	11253
Top 80%	5753	3125	2698	880	12456

Introduction. Group E consists of 449 public secondary schools in the State of Iowa from the total of 478. This would constitute a response of 93.9 per cent of all schools. These 449 schools reported a total of 28,890 in their senior classes who are expected to receive diplomas which will permit college attendance. This would represent an average of 32 boys and 32 girls in each graduating class. No separate appendix has been attached to list the schools in this group since the schools were listed in appendixes H, I, J, and K.

The remainder of the discussion on Group E schools will be similar to that for the four main groupings which were discussed. The explanation and interpretation of data, as well as the figures and tables, are comparable in every way between the several groups analyzed. However, in any comparison between this group and the other groupings of schools it should be kept in mind that this group includes and has been influenced by each of the others. In view of the number of pupils included in Group E, it seems apparent that findings in this group would be the most valid of all since the fact that 29 schools did not respond to the questionnaire would have little effect on results.

In Table XXIV, the "Observed" column shows the number of boys and the number of girls which were reported by all schools to be in the specified portions of their senior classes. The "Expected" column shows the number of boys and the number of girls found by multiplying the pertinent

portions of total pupils by the total number of boys and girls reported by their schools. The "Adjustment" column totals were found by subtracting the combined totals of the "Expected" column from the combined totals of the "Observed" column for each portion of total pupils under consideration. The "Adjusted Observed" column entries represent a correction made to the "Observed" column entries in the amount of "Adjustment Totals." The adjustments were proportional to the number of boys and girls reported by the schools in the concerned portion of the classes. The need for these adjustments was explained in Chapter III under the heading of "The questionnaire." In each instance, the "Adjusted Observed" combined totals for a portion of the classes is equal to the combined totals of the boys and girls in the "Expected" column for the same portion of the classes.

TABLE XXIV

DATA PERTAINING TO GROUP E SCHOOLS (ALL PUPILS)
REPORTED BY 449 PUBLIC SECONDARY SCHOOLS
WITH 14,414 BOYS AND 14,476 GIRLS IN
SENIOR CLASSES OF THEIR SCHOOLS

Portion of Classes	Observed Boys	Girls	Expected Boys	Girls	Adjust-ments	Adjusted Observed Boys	Girls
Top 20%	2289	3607	2883	2895	118	2243	3535
Top 30%	3499	5374	4324	4343	206	3407	5260
Top 40%	4853	7018	5766	5790	315	4723	6833
Top 50%	6310	8514	7207	7238	379	6149	8296
Top 60%	7765	9957	8648	8686	388	7594	9740
Top 70%	9360	11253	10090	10133	390	9183	11040
Top 80%	11008	12456	11531	11581	352	10886	12226

Levels of significance for observed differences.
Chi-square test procedures were used to determine the sig-
nificance of differences which appear between "Adjusted
Observed" and "Expected" columns tabulated in Table XXIV.
For convenience, these columns have been repeated in Table
XXV and chi-squares have been determined for difference
between each observed frequency and the frequency which
would be expected under the null hypothesis. The last
column in Table XXV indicates the minimum degree of confi-
dence in the existence of significant differences. The
differences for all portions of the classes were highly
significant at the .001 level of confidence and the null
hypothesis was therefore rejected for all portions of the
classes.

TABLE XXV

DATA PERTAINING TO GROUP E SCHOOLS (ALL PUPILS)
REPORTED BY 449 PUBLIC SECONDARY SCHOOLS
WITH 14,414 BOYS AND 14,476 GIRLS IN
SENIOR CLASSES TO SHOW LEVELS OF
CONFIDENCE IN DIFFERENCES FOUND
(df=1)

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Chi-Squares	Levels of Confidence[18]
Top 20%	2243	3535	2883	2895	283.56	.001
Top 30%	3407	5260	4324	4343	388.09	.001
Top 40%	4723	6833	5766	5790	376.55	.001
Top 50%	6149	8296	7207	7238	309.97	.001
Top 60%	7594	9740	8648	8686	256.36	.001
Top 70%	9183	11040	10090	10133	162.72	.001
Top 80%	10886	12226	11531	11581	72.00	.001

[18]Sir Donald Fisher and Frank Yates, Ibid.

Determination of percentages of boys and percentages
of girls found in various portions of the total group.
Since significant differences were determined to exist, it
was necessary to ascertain how the differences would affect
the percentages of total boys and the percentages of total
girls which would be represented in the various sized por-
tions of the Group E schools. The percentages in the last
column of Table XXVI were found by dividing the appropriate
entry under the "Adjusted Observed" column by the corre-
sponding entry under the "Expected" column and multiplying
that answer by the number of per cents of pupils in the
group under investigation. The "Adjusted Observed" and
"Expected" columns are the same as those on page 64.

TABLE XXVI

DATA PERTAINING TO GROUP E SCHOOLS (ALL PUPILS)
REPORTED BY 449 PUBLIC SECONDARY SCHOOLS
WITH 14,414 BOYS AND 14,476 GIRLS IN
SENIOR CLASSES TO SHOW PERCENTAGES
OF BOYS AND GIRLS WHICH WOULD
BE FOUND IN SPECIFIED
CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentage Composition Boys	Girls
Top 20%	2243	3535	2883	2895	15.56	24.42
Top 30%	3407	5260	4324	4343	23.64	36.33
Top 40%	4723	6833	5766	5790	32.77	47.20
Top 50%	6149	8296	7207	7238	42.67	57.31
Top 60%	7594	9740	8648	8686	52.68	67.28
Top 70%	9183	11040	10090	10133	63.71	76.27
Top 80%	10886	12226	11531	11581	75.52	84.46

Determination of the number of boys and girls to be found in various portions of classes for each 100 pupils. Table XXVII was included in this study to present the information contained in Table XXVI in a more meaningful way. In Table XXVII, in each instance, the entry under the "Percentage Composition" heading of Table XXVI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table XXVII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when normal distribution is present.

TABLE XXVII

DATA PERTAINING TO GROUP E SCHOOLS (ALL PUPILS)
REPORTED BY 449 PUBLIC SECONDARY SCHOOLS
WITH 14,414 BOYS AND 14,476 GIRLS IN
SENIOR CLASSES TO SHOW THE NUMBER
OF BOYS AND THE NUMBER OF GIRLS
IN EACH 100 PUPILS

Portion of Classes	Expected Distribution		Observed Distribution	
	Boys	Girls	Boys	Girls
Top 20%	10	10	8	12
Top 30%	15	15	12	18
Top 40%	20	20	16	24
Top 50%	25	25	21	29
Top 60%	30	30	26	34
Top 70%	35	35	32	38
Top 80%	40	40	38	42

NOTE: Information contained in this table forms the basis for Figure 12, page 67.
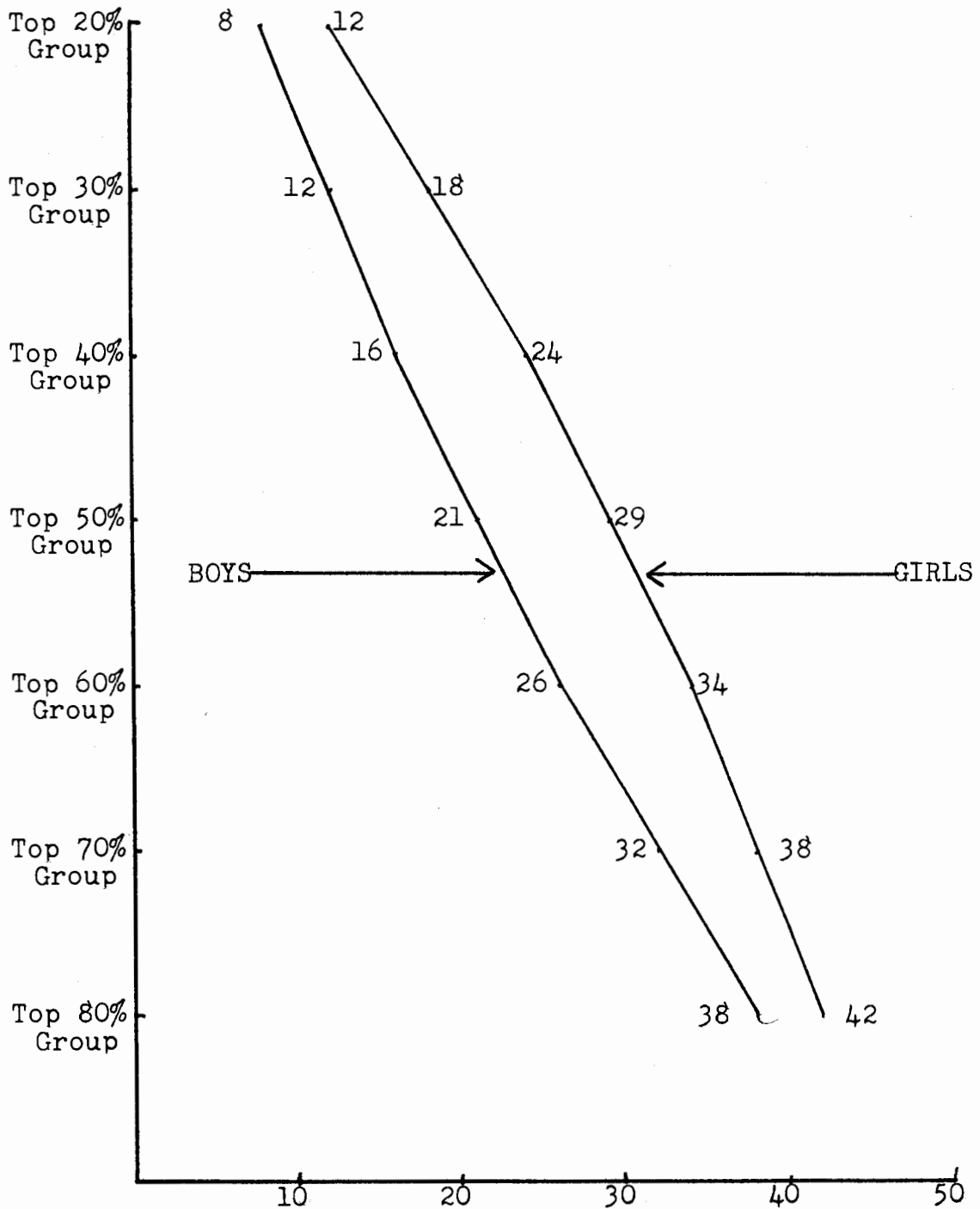
FIGURE 12

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
449 IOWA PUBLIC HIGH SCHOOLS IN SENIOR
CLASSES WITH 14,414 BOYS
AND 14,476 GIRLS

Determination of percentages of boys and percentages
of girls required to assure proportional representation in
various portions of classes. Since significant differences
were determined to exist, it was necessary to ascertain the
percentages of boys and the percentages of girls needed to
assure proportional representation at each of the group
levels. In Table XXVIII, the entries under the "Percent-
ages Required for Proportionality" column heading were
found by dividing each entry under the "Expected" column
heading by the corresponding entry under the "Adjusted
Observed" column heading and multiplying that answer by the
number of per cents of pupils indicated under the "Portion
of Classes" column.

TABLE XXVIII

DATA PERTAINING TO GROUP E SCHOOLS (ALL PUPILS)
REPORTED BY 449 PUBLIC SECONDARY SCHOOLS
WITH 14,414 BOYS AND 14,476 GIRLS IN
SENIOR CLASSES TO SHOW PERCENTAGES
OF BOYS AND PERCENTAGES OF GIRLS
NEEDED FOR PROPORTIONAL
REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentages Required for Proportionality Boys	Girls
Top 20%	2443	3535	2883	2895	25.71	16.38
Top 30%	3407	5260	4324	4343	38.07	24.77
Top 40%	4723	6833	5766	5790	48.83	33.89
Top 50%	6149	8296	7207	7238	58.60	43.63
Top 60%	7594	9740	8648	8686	68.33	53.51
Top 70%	9183	11040	10090	10133	76.91	64.25
Top 80%	10886	12226	11531	11581	84.74	75.78

NOTE: Information contained in this table forms the
basis for Figure 13, page 69.

Top 20% Group 16.38 ·25.71

Top 30% Group 24.77 ·38.07

Top 40% Group 33.89 ·48.83

Top 50% Group 43.63 ·58.60

GIRLS——→ ←——BOYS

Top 60% Group 53.51 68.33

Top 70% Group 64.25 76.91

Top 80% Group 75.78 84.74
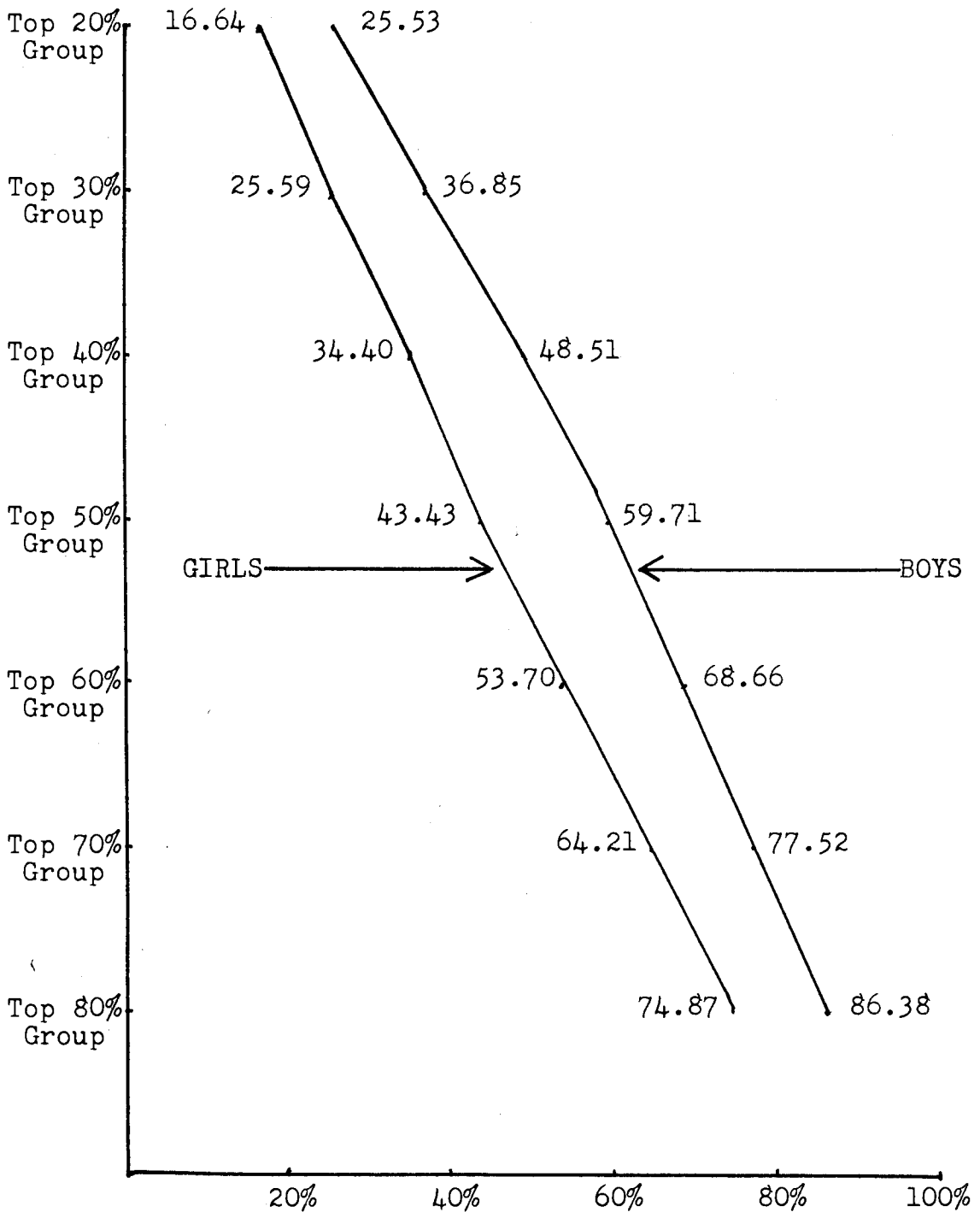
20%   40%   60%   80%   100%

FIGURE 13

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 449 IOWA
PUBLIC HIGH SCHOOLS IN SENIOR
CLASSES WITH 14,414 BOYS
AND 14,476 GIRLS

VI.   GROUP F (REPORTS FOR 1963)

Data for this part of the investigation were received from 29 secondary schools which submitted their questionnaires based upon senior classes which graduated in the Spring of 1963. It was stated on page 6 that some schools reported that class ranking of seniors was not accomplished until late in the school year. These schools were requested to furnish data based on the class which had graduated and to annotate the questionnaire form to show the action that had been taken. At the time, it was not known how many schools would be affected; the final count was 29. Four of these schools were of the size to be included with the Group A schools and were found to have graduated an average of 129 boys and 113 girls. Twelve of these schools were of the size to be included with Group B schools and graduated an average of 32 boys and 36 girls. Twelve were of the size to be included with Group C schools and graduated an average of 21 boys and 18 girls. There was but one school of the size to be included with Group D schools; this school graduated 9 boys and 12 girls. In all, 1,162 boys and 1,114 girls were reported by the 29 schools.

Since the 29 schools constituted only 6.5 per cent of the total number of schools which submitted reports and 7.8 per cent of the total number of pupils reported, and since a preliminary analysis indicated that identical

trends were present in both sets of reports, it was con-
sidered to be appropriate to include all reports in the
total school analysis. Additionally, the 29 reports were
processed separately in this section of the investigation.
It should be kept in mind, in line with the statement on
page 62, that pupils in this group were included with other
groups in the Group E computations. The same limitation
would apply to any direct comparison of this group of
schools with Group A, B, C, and D schools since Group F
includes at least one school in each of those groupings.
However, the analysis and interpretation of data for
Group F schools was accomplished in the same manner as for
the other groupings of schools.

A listing was attached as Appendix L which showed
the number of each of the 29 schools which were included
in Group F. These same schools appeared in the appro-
priate appendix for their sizes in Group A, B, C, and D.
As an aid to the reader, Appendix L has been annotated to
indicate the other appendix in which each referenced
school would be found.

In Table XXIX, the "Observed" column shows the num-
ber of boys and the number of girls which were reported by
the 29 schools to be in the specified portions of their
senior classes. The "Expected" column shows the number of
boys and the number of girls found by multiplying the
pertinent portions of total pupils by the total number of
boys and girls reported by their schools. The "Adjustment"

column totals were found by subtracting the combined totals
of the "Expected" column from the combined totals of the
"Observed" column for each portion of total pupils under
consideration. The "Adjusted Observed" column entries
represent a correction made to the "Observed" column
entries in the amount of "Adjustment Totals." The adjust-
ments were proportional to the number of boys and the num-
ber of girls reported by the schools in the concerned
portion of the classes. The need for these adjustments was
explained in Chapter III under the heading of "The ques-
tionnaire." In each instance, the "Adjusted Observed"
combined totals for a portion of the classes is equal to
the combined totals of the boys and girls in the "Expected"
column for the same portion of the classes.

TABLE XXIX

DATA PERTAINING TO GROUP F SCHOOLS (REPORTS FOR
1963 CLASS) REPORTED BY 29 PUBLIC SECONDARY
SCHOOLS WITH 1,162 BOYS AND 1,114 GIRLS
IN THEIR GRADUATING SENIOR CLASS

Portion of Classes	Observed Boys	Girls	Expected Boys	Girls	Adjust- ments	Adjusted Observed Boys	Girls
Top 20%	163	301	232	222	10	159	295
Top 30%	263	426	349	334	6	261	422
Top 40%	360	558	465	446	7	357	554
Top 50%	474	679	581	557	15	468	670
Top 60%	598	782	697	668	15	591	774
Top 70%	722	887	813	780	16	715	878
Top 80%	875	958	930	891	12	869	952

Levels of significance for observed differences.
Chi-square test procedures were used to determine the sig-
nificance of differences which appear between "Adjusted
Observed" and "Expected" columns tabulated in Table XXIX.
For convenience, these columns have been repeated in
Table XXX and chi-squares have been determined for dif-
ference between each observed frequency and the frequency
which would be expected under the null hypothesis. The
last column in Table XXX indicates the minimum degree of
confidence in the existence of significant differences.
The differences for all portions of the classes were sig-
nificant at the .01 or higher level of confidence and the
null hypothesis was therefore rejected.

TABLE XXX

DATA PERTAINING TO GROUP F SCHOOLS (REPORTS FOR
1963 CLASSES) REPORTED BY 29 PUBLIC SECONDARY
SCHOOLS WITH 1,162 BOYS AND 1,114 GIRLS IN
THEIR GRADUATING CLASSES TO SHOW LEVELS
OF CONFIDENCE IN DIFFERENCES FOUND
(df=1)

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Chi-Squares	Levels of Confidence[19]
Top 20%	159	295	232	222	46.95	.001
Top 30%	261	422	349	334	45.35	.001
Top 40%	357	554	465	446	51.21	.001
Top 50%	468	670	581	557	44.87	.001
Top 60%	591	774	697	668	32.93	.001
Top 70%	715	878	813	780	24.10	.001
Top 80%	869	952	930	891	8.17	.010

[19]Sir Donald Fisher and Frank Yates, Ibid.

Determination of percentages of boys and percentages of girls found in various portions of the total group. Since significant differences were determined to exist, it was necessary to ascertain how the differences would affect the percentages of total boys and the percentages of total girls which would be represented in the various sized portions of the Group F schools. The percentages in the last column of Table XXXI were found by dividing the appropriate entry under the "Adjusted Observed" column by the corresponding entry under the "Expected" column and multiplying that answer by the number of per cents of pupils in the group under investigation. The "Adjusted Observed" and "Expected" columns are the same as those on page 73.

TABLE XXXI

DATA PERTAINING TO GROUP F SCHOOLS (REPORTS FOR
1963 CLASSES) REPORTED BY 29 PUBLIC SECONDARY
SCHOOLS WITH 1,162 BOYS AND 1,114 GIRLS IN
THEIR GRADUATING CLASSES TO SHOW PERCENT-
AGES OF TOTAL BOYS AND TOTAL GIRLS
WHICH WOULD BE FOUND IN SPECIFIED
CLASS GROUPINGS

Portion of Classes	Adjusted Observed Boys	Adjusted Observed Girls	Expected Totals Boys	Expected Totals Girls	Percentage Composition Boys	Percentage Composition Girls
Top 20%	159	295	232	222	13.71	26.58
Top 30%	261	422	349	334	22.43	37.90
Top 40%	357	554	465	446	30.71	49.68
Top 50%	468	670	581	557	40.28	60.14
Top 60%	591	774	697	668	50.87	69.52
Top 70%	715	878	813	780	61.57	78.79
Top 80%	869	952	930	891	74.75	85.47

Determination of the number of boys and girls to be found in varying portions of classes for each 100 pupils. Table XXXII was included in this study to present the information contained in Table XXXI in a more meaningful way. In Table XXXII, in each instance, the entry under the "Percentage Composition" heading of Table XXXI was divided by the "Portion of Classes" entry on the same line and that answer was multiplied by the corresponding entry under the "Expected" heading in Table XXXII. In each instance, the resulting decimal fraction was converted to the nearest whole number. The entries under the "Expected" heading show the number of boys and girls expected in 100 pupils when normal distribution is present.

TABLE XXXII

DATA PERTAINING TO GROUP F SCHOOLS (REPORTS FOR
1963 CLASSES) REPORTED BY 29 PUBLIC SECONDARY
SCHOOLS WITH 1,162 BOYS AND 1,114 GIRLS IN
THEIR GRADUATING CLASSES TO SHOW THE
NUMBER OF BOYS AND THE NUMBER OF
GIRLS IN EACH 100 PUPILS

Portion of Classes	Expected Distribution		Observed Distribution	
	Boys	Girls	Boys	Girls
Top 20%	10	10	7	13
Top 30%	15	15	11	19
Top 40%	20	20	15	25
Top 50%	25	25	20	30
Top 60%	30	30	25	35
Top 70%	35	35	31	39
Top 80%	40	40	37	43

NOTE: Information contained in this table forms the basis for Figure 14, page 76.
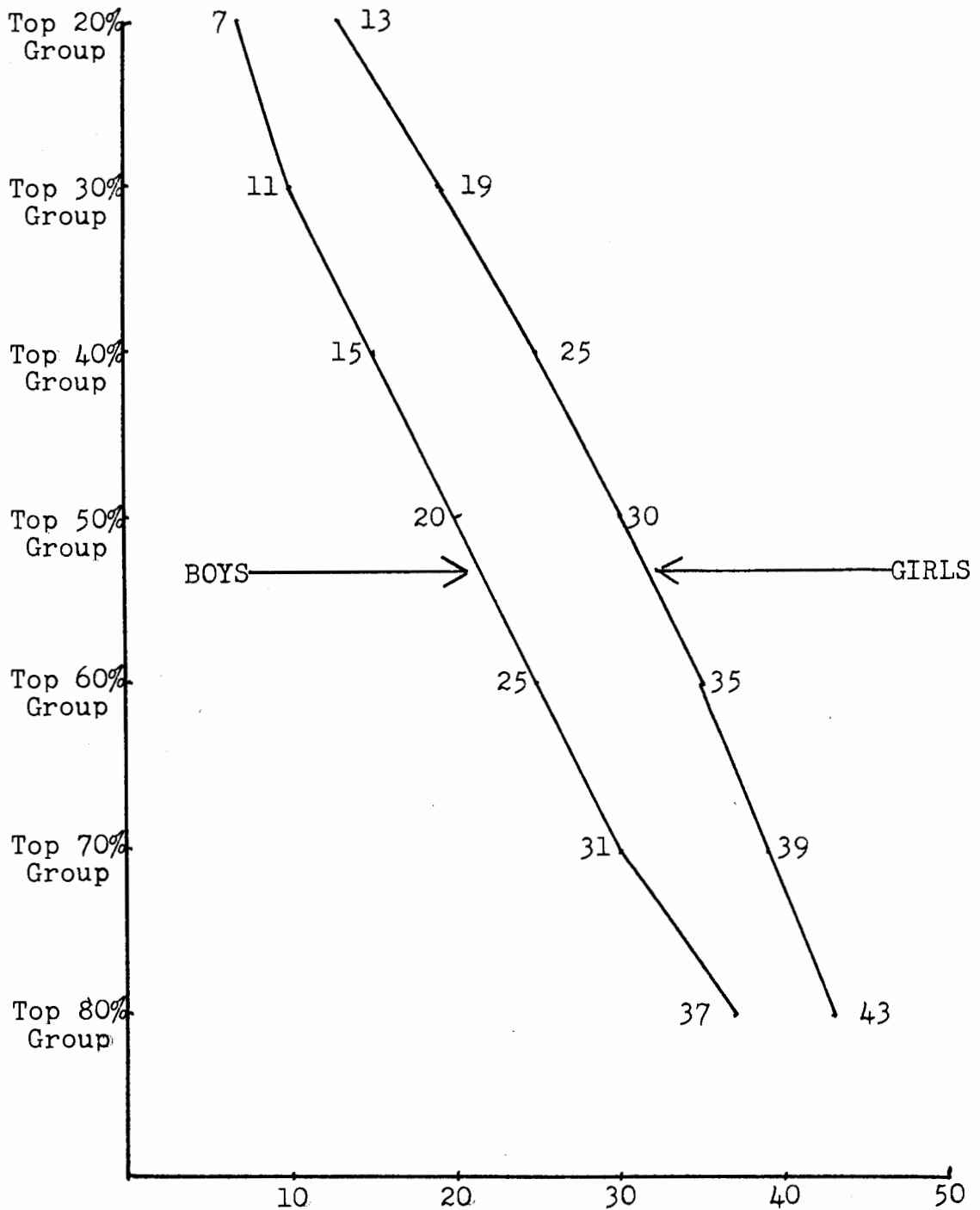
FIGURE 14

NUMBER OF BOYS AND NUMBER OF GIRLS FOUND FOR EACH
100 PUPILS (ROUNDED TO NEAREST WHOLE NUMBER) IN
29 IOWA PUBLIC HIGH SCHOOLS WITH 1,162 BOYS
AND 1,114 GIRLS IN SENIOR CLASSES
REPORTED TO HAVE GRADUATED
IN 1963

Determination of percentages of boys and percentages
of girls required to assure proportional representation in
various portions of classes. Since significant differences
were determined to exist, it was necessary to ascertain the
percentages of boys and the percentages of girls needed to
assure proportional representation at each of the group
levels. In Table XXXIII, the entries under the "Percent-
ages Required for Proportionality" column heading were
found by dividing each entry under the "Expected" column
heading by the corresponding entry under the "Adjusted
Observed" column heading and multiplying that answer by
the number of per cents of pupils indicated under the "Por-
tion of Classes" column.

TABLE XXXIII

DATA PERTAINING TO GROUP F SCHOOLS (REPORTS FOR
1963 CLASSES) REPORTED BY 29 PUBLIC SECONDARY
SCHOOLS WITH 1,162 BOYS AND 1,114 GIRLS IN
THEIR GRADUATING CLASSES TO SHOW PERCENT-
AGES OF BOYS AND PERCENTAGES OF GIRLS
NEEDED FOR PROPORTIONAL
REPRESENTATION

Portion of Classes	Adjusted Observed Boys	Girls	Expected Totals Boys	Girls	Percentages Required for Proportionality Boys	Girls
Top 20%	159	295	232	222	29.18	15.05
Top 30%	261	422	349	334	40.11	23.74
Top 40%	357	554	465	446	52.10	32.20
Top 50%	468	670	581	557	62.08	41.57
Top 60%	591	774	697	668	70.76	51.78
Top 70%	715	878	813	780	79.59	62.19
Top 80%	869	952	930	891	85.62	74.87

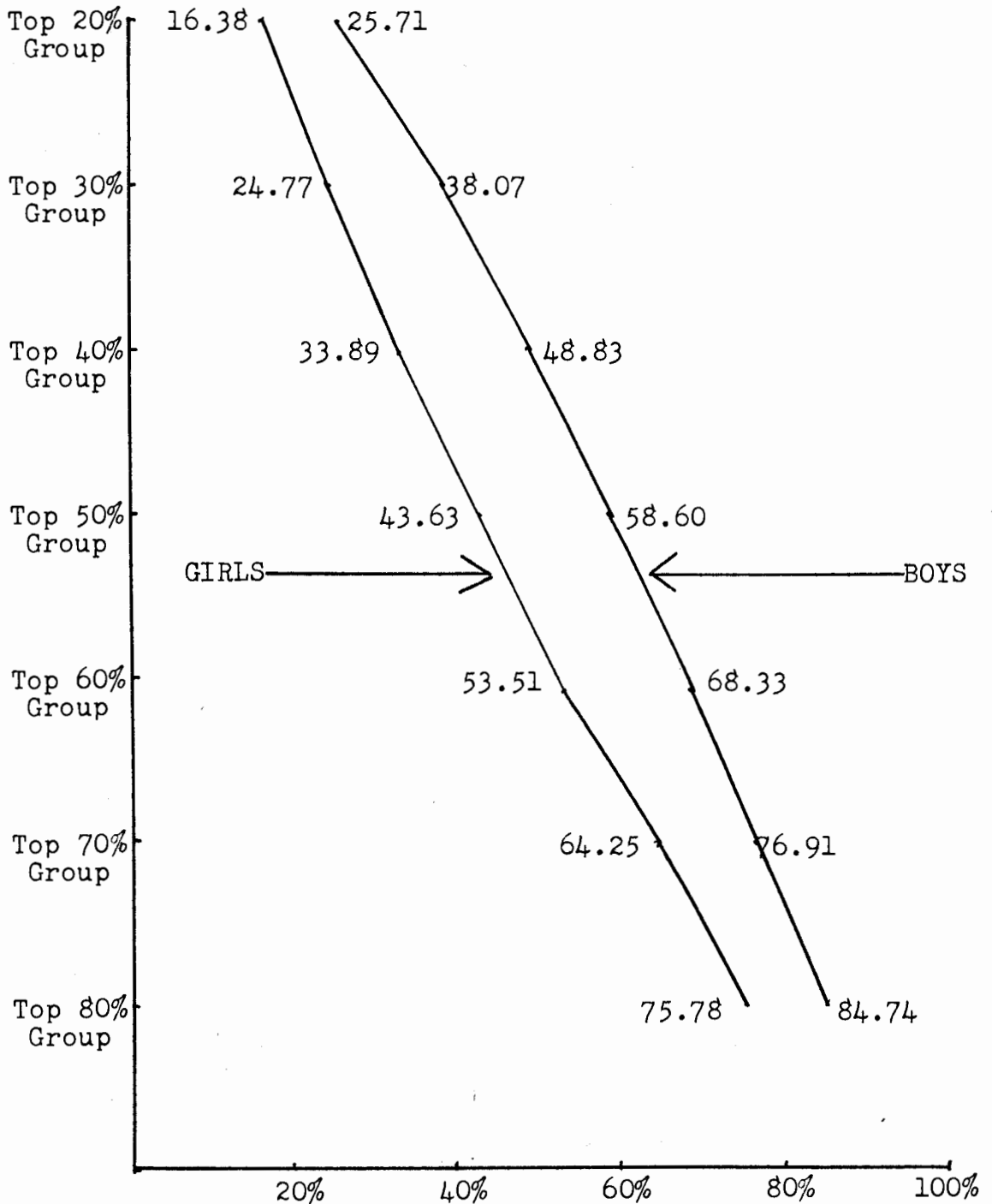NOTE: Information contained in this table forms the
basis for Figure 15, page 78.
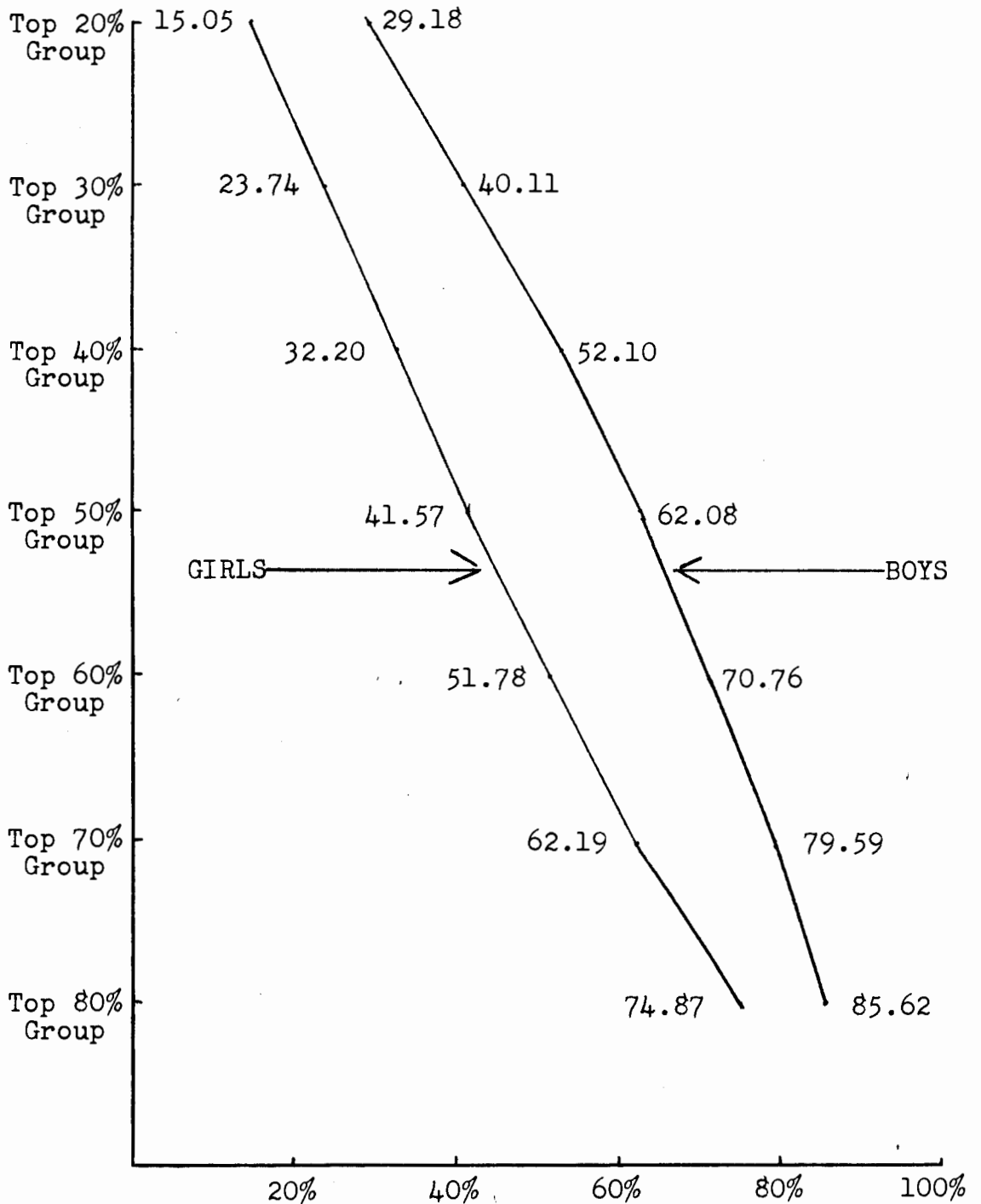
FIGURE 15

PERCENTAGES OF BOYS AND GIRLS REQUIRED TO ATTAIN
PROPORTIONALITY OF BOYS AND GIRLS IN VARIOUS
PORTIONS OF SENIOR CLASSES IN 29 IOWA
PUBLIC HIGH SCHOOLS WITH 1,162 BOYS
AND 1,114 GIRLS IN SENIOR CLASSES
REPORTED TO HAVE GRADUATED
IN 1963

VII. COMPUTATION OF UPPER THIRD OF CLASSES

Introduction. This investigation had two points of
major interest. The first dealt with the number of boys
and girls in the top fifty per cent of their high school
graduating classes and the second with the upper third of
their graduating classes. The first group was of impor-
tance because it was a determinant in the selection of
freshmen students at the State College of Iowa and other
schools. The second point was of major interest because
of the opinion of Dr. Conant that we should endeavor to
recruit our teachers from the upper third of the graduat-
ing high school class on a national level.[20]

The determination of the top fifty per cent of the
graduating classes caused no difficulty since schools nor-
mally compute class standing of seniors on the basis of
deciles. However, the determination of the upper third of
the classes did not fit the accepted procedure of the
schools. For that reason, schools were not requested to
furnish data on the upper third of their graduating classes.
It was considered that interpolation between the data on
the "top 30%" and the "top 40%" would adequately meet the
requirement of this investigation for information of the
upper third of the classes reported upon. This belief was
justified since the analysis and interpretation of data

---

[20]Conant, loc. cit.

reveals consistent trends in the distribution of boys and girls within the various portions of each of the groups of schools. The remainder of this chapter adapts data furnished by the Group E schools (449 of 478 schools in Iowa) to reflect interpolated information about the upper third of the classes.

Levels of significance for observed differences. The data on Group E schools (Table XXV, page 64) by interpolation between the top 30 per cent and the top 40 per cent revealed that the upper third of the class consisted of 3,846 boys and 5,784 girls against an expected 4,805 boys and 4,825 girls which would have been found under the null hypothesis. Chi-square test procedures were used and it was determined that at df=1, the chi-square was equal to 382.01. The null hypothesis was rejected with a minimum level of confidence of .001.

Determination of percentages of boys and percentages of girls found in the upper third of the total group. As shown above, the upper third of the pupils in Group E schools consisted of 3,846 boys and 5,784 girls. Under the procedure explained on page 65, it was found that the upper third would include 26.69 per cent of all the boys and 39.97 per cent of all the girls in the Group E schools; the total number of boys reported was 14,414 and the total number of girls was 14,476.

Determination of the number of boys and girls to be found in the upper third of the classes for each 100 pupils. For the Group E schools, it was found that the upper third of the pupils, on the basis of the number of boys and girls for each 100 pupils, would consist of 13 boys and 20 girls. The procedure used in this determination was explained on page 66.

Determination of percentages of boys and percentages of girls required to assure proportional representation in the upper third of the classes. For the Group E schools, it was found that the upper third of the pupils for proportionality between boys and girls, would require that 40.74 per cent of the total boys and 27.80 per cent of the girls be considered.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was threefold: (1) to determine whether significant differences existed between the class rank of boys and girls in graduating classes of Iowa public secondary schools, (2) to determine the magnitude of these differences, and (3) to apply findings to representative problems.

I. SUMMARY

The existence of significant differences. A questionnaire was circulated to the 478 public secondary schools in the State of Iowa and responses were grouped into four sizes of graduating classes. The four groups were processed separately to gain additional information of differences observed. Additionally, an analysis was made of the total number of pupils included in the completed questionnaires furnished by the 449 schools. For the four groupings and the consolidated grouping, it was found that significant differences existed at the .001 level of confidence for all portions of all groupings, with the exception of the top 80 per cent portion of the smallest high schools, those with less than 25 seniors in their graduating classes. In this portion of the small schools, the level of confidence was found to be .01 but not .001.

The magnitude of differences found. Most of the
33 tables and 15 figures included in this study were con-
cerned with the differences which were found to exist in
the class rank of boys and girls in their graduating
classes in high school. In general, it might be said that
the differences were uniformly impressive. In every
instance, girls attained higher class rank than boys while
attending the secondary schools. As one example, it was
noted that in the top half of each 100 pupils there were
29 girls and 21 boys for all groupings of schools with the
exception of those schools with 100 or more seniors; for
that grouping of schools it was found that there were 28
girls and 22 boys in each 100 pupils.

Application of findings to representative problems.
The study was designed to make information available which
could be applied to specific problems by individuals who
are in position to take action on existing problems. As
an example, a table was included for each group of schools
to show the percentages of boys and the percentages of
girls which would have to be considered if it was desired
to achieve proportional equality between the sexes in such
things as the selection of college students. The tables
covered portions of each size-grouping of schools, from the
top 20 per cent to the top 80 per cent. In addition, the
same information was included for Group E (all pupils); for
this group, information was furnished on the composition of

the upper third of the graduating classes.

Data on two other small-scale investigations were included in this study. Both of these had findings which were almost identical with the results of this investigation. Additionally, data was included on pages 20 to 23 which applied to the freshmen classes of 1961 and 1962 at the State College of Iowa. It was noteworthy that the grade point averages of these students at all portions of their graduating high school classes were considerably lower than would have been expected. However, this was considered to be a problem in the grading of students at the State College of Iowa and therefore outside the scope of this investigation. However, the relative grade point achievement between men and women is of interest to this study. As would be expected from the data presented in this investigation, it was found that 86 per cent of the women but only 60 per cent of the men were in the upper 40 per cent portion of their high school graduating classes. There was no significant difference in the percentage of men and the percentage of women who achieved a grade point average of 2.0 or higher during their freshmen years per group. Similarly, although the percentage of men greatly exceeded the percentage of women in the group below the top 40 per cent of the pupils in their high school graduating classes, there was no significant difference in the percentages of men and women who achieved a grade point average of 2.0 or higher during their freshmen years. This

was true in spite of the fact that 22 per cent of the men and only 5 per cent of the women came from the lower half of their high school graduating classes.

The data for the 1961 and 1962 freshmen students at the State College of Iowa was used to determine the upper third of the combined groups by interpolation. It was determined that for the two years, 77 per cent of the women and only 46 per cent of the men had performed in the upper one third of their high school graduating classes. However, at the State College of Iowa, there was no significant difference in the performance of the men and women in this group of pupils. Similarly, the 54 per cent of the men who were below the upper third of their graduating classes in high school performed as well as the 23 per cent of the women who had been below the upper third of their graduating classes.

II. CONCLUSIONS

The existence of significant differences. There can be no doubt about the existence of significant differences between the number of boys and the number of girls in the various portions of the graduating classes for schools of all sizes. Since 449 of the 478 public secondary schools in Iowa, or 93.9 per cent, furnished information on their graduating classes, the findings are considered to be representative for all public secondary schools in Iowa since any information furnished by the other 29 schools

could not have changed results.

The magnitude of differences found. Tables and figures were included in the study to show the magnitude of the differences between the number of girls and the number of boys, not only in the various portions of their classes but also within various sizes of secondary schools in the State of Iowa. For the 449 of the 478 public secondary schools which participated in this investigation, the top half of the graduating class consisted of 42.67 per cent of all the boys and 57.31 per cent of all the girls. Reduced to the number of pupils in each 100, this was 21 boys and 29 girls. If proportional representation of boys and girls were desired, it would be necessary to consider 58.60 per cent of all the boys and 43.63 per cent of all the girls. For the same group of pupils, the upper third of the class would include 26.69 per cent of all boys and 39.97 per cent of all girls. Reduced to the number of pupils in 100, this would be 13 boys and 20 girls. If proportional representation of boys and girls were desired, 40.74 per cent of the boys and 27.80 per cent of the girls would have to be considered.

Application of findings to representative problems. There can be no doubt that any plan for college admission which accepts the top half of a graduating high school class will heavily weight the number of girls over the number of boys to be accepted. Unless a college desires

to encourage the attendance of women and discourage the attendance of men, the acceptance of the top half of the graduating class is manifestly unfair to the men. Under this plan, on the basis of reports submitted by 449 of the 478 public secondary schools in Iowa, 57.31 per cent of all the girls and only 42.67 per cent of the boys would be admitted to the State College of Iowa upon their request.

Acceptance of the upper third of the graduating class would permit 39.97 per cent of all the girls and only 26.69 per cent of the boys to be admitted to the State College of Iowa upon their request. However, this plan would limit initial acceptance of girls to 4 of 10 graduates, which appears to be acceptable at this time.

III. RECOMMENDATIONS

First recommendation: That the idea of Dr. Conant that we should endeavor to recruit our teachers from the upper third of the graduating high school class on a national basis[21] be accepted and implemented at the State College of Iowa.

Second recommendation: That the State College of Iowa adopt the policy that if a pupil ranks in the top third of his graduating high school class, if his test

---

[21]Conant, Ibid.

scores indicate probable success in college, and if his health certificate from his local physician is approved by the Director of Student Health Service at the college, he will usually be admitted by the Registrar of the college as soon as the necessary materials are submitted.

Third recommendation: That if, at the State College of Iowa, it is necessary for any reason to accept pupils who do not rank in the upper third of their high school graduating classes, the procedure outlined herein will be followed. An admissions committee of a composition determined to be appropriate by the college, shall examine the high school records of high school seniors who are not expected to graduate in the upper third of their classes. This examination would include information on class rank, standardized test scores, and recommendations from appropriate high school administrators and guidance personnel. The purpose of this examination would be either to reject the applicant or to recommend that the applicant be interviewed by a representative of the college. To the extent practicable, the college representative should visit the high school for interviews before the final decision was made to admit the student.

Fourth recommendation: That the committee and the college representative for interviews, as explained in the third recommendation, have complete knowledge of the disparity in the number of boys and the number of girls

in the upper third of their high school classes, so that in selecting candidates for admission, adjustments may be made for this disparity. For the accomplishment of this objective, it would be required that responsible college officials establish a predetermined goal for the number of men and the number of women to be accepted as freshmen students.

Fifth recommendation: That the State College of Iowa give wide publicity to admission policies and seek to foster a greater sense of responsibility in high school administrators and guidance personnel for the selection of teacher candidates.

BIBLIOGRAPHY

BIBLIOGRAPHY

Bent, Rudyard K., and Lloyd E. McCann. Administration of Secondary Schools. New York: McGraw-Hill Book Company, Inc., 1960.

Conant, James Bryant. The Education of American Teachers. New York: McGraw-Hill Book Company, Inc., 1963.

Department of Public Instruction. Iowa Educational Directory for 1962-63. Des Moines: State of Iowa, 1963.

DeYoung, J. B. (ed.). American Education. New York: McGraw-Hill Book Company, Inc., 1960.

Fisher, Sir Donald A., and Frank Yates. Statistical Tables for Biological, Agricultural, and Medical Research. New York: Hafner Publishing Company, Inc., 1957.

Garrett, Henry E. Elementary Statistics. New York: Longmans, Green and Company, 1956.

Grace, Alonzo. "Teachers of the World," Phi Delta Kappan, 37:396-403, June, 1956.

Grieder, Calvin, et al. Public School Administration. New York: The Ronald Press Company, 1961.

Gwynn, J. Minor. Curriculum Principles and Social Trends. New York: The MacMillan Company, 1960.

Hobson, Carol Joy, and Samuel Schloss. Statistics of State School Systems. United States Department of Health, Education and Welfare, Circular OE-20020, Circular No. 691. Washington: Government Printing Office, 1963.

Langdon, Grace, and Irving W. Stout. The Discipline of Well-Adjusted Children. New York: The John Day Company, 1952.

Seashore, Harold G. (ed.). Test Service Bulletin. The Identification of the Gifted, Number 55. New York: The Psychological Corporation, December, 1963.

State College of Iowa. College Catalog 1964-1966. State College of Iowa Bulletin, Vol. LXV, No. 1, January, 1964. Cedar Falls, Iowa: State College of Iowa, 1964.

Super, Donald E., and John O. Crites. Appraising Vocational Fitness. New York: Harper and Brothers, 1962.

Williamson, E. G. How to Counsel Students. New York: McGraw-Hill Book Company, Inc., 1939.

APPENDIXES

APPENDIX A

LIST OF PUBLIC SECONDARY SCHOOLS IN IOWA

SHOWING ASSIGNED CONTROL NUMBERS

LISTING OF PUBLIC SECONDARY SCHOOLS IN IOWA

Control Number	School	Post Office	County
1.	A. C. L.	Allerton	Wayne
2	Ackley-Geneva	Ackley	Hardin
3	Adair-Casey	Adair	Gutherie
4	Adel	Adel	Dallas
5	Akron	Akron	Plymouth
6	Albert City-Truesdale	Albert City	Buena Vista
7	Albia	Albia	Monroe
8	Alburnett	Alburnett	Linn
9	Alden	Alden	Hardin
10	Algona	Algona	Kossuth
11	Allamakee	Waukon	Allamakee
12	Allison-Bristow	Allison	Butler
13	Alta	Alta	Buena Vista
14	Amana	Middle Amana	Iowa
15	Ames	Ames	Story
16	Anamosa	Anamosa	Jones
17	Andrew	Andrew	Jackson
18	Anita	Anita	Cass
19	Ankeny	Ankeny	Polk
20	Anthon-Oto	Anthon	Woodbury
21	Aplington	Aplington	Butler
22	Armstrong	Armstrong	Emmet
23	Arnolds Park	Arnolds Park	Dickinson
24	AR-WE-VA	Westside	Crawford
25	Atlantic	Atlantic	Cass
26	Audubon	Audubon	Audubon
27	Aurelia	Aurelia	Cherokee
28	Avoha	Avoca	Pottawattamie
29	Ayrshire	Ayrshire	Palo Alto
30	Ballard	Huxley	Story
31	Battle Creek	Battle Creek	Ida
32	Baxter	Baxter	Jasper
33	Bayard	Bayard	Guthrie
34	Beaman-Conrad	Conrad	Grundy
35	Bedford	Bedford	Taylor
36	Belle Plaine	Belle Plaine	Benton
37	Bellevue	Bellevue	Jackson
38	Belmond	Belmond	Wright
39	Bennett	Bennett	Cedar
40	Bettendorf	Bettendorf	Scott
41	Blairtown	Blairtown	Benton
42	Bondurant-Farrar	Bondurant	Polk
43	Boone	Boone	Boone
44	Boone Valley	Renwick	Humboldt

Control Number	School	Post Office	County
45	Boyden-Hull	Hull	Sioux
46	Bridgewater-Fontanelle	Fontanelle	Adair
47	Britt	Britt	Hancock
48	Brooklyn-Guernsey-Malcom	Brooklyn	Powershiek
49	Buffalo Center	Buffalo Center	Winnebago
50	Burlington	Burlington	Des Moines
51	Burt	Burt	Kossuth
52	CAL	Latimer	Franklin
53	C & M	Massena	Cass
54	Calamus	Calamus	Clinton
55	Camanche	Camanche	Clinton
56	Cambria-Corydon	Corydon	Wayne
57	Cardinal	Eldon	Wapello
58	Carlisle	Carlisle	Warren
59	Carroll	Carroll	Carroll
60	Carson-Macedonia	Carson	Pottawattamie
61	Cedar Falls	Cedar Falls	BlackHawk
62	Cedar Rapids	Cedar Rapids	Linn
62-A	Thomas Jefferson		
62-B	George Washington		
63	Cedar Valley	Somers	Calhoun
64	Center Point	Center Point	Linn
65	Centerville	Centerville	Appanoose
66	Central	Elkader	Clayton
67	Central Clinton	De Witt	Clinton
68	Central Lee	Argyle	Lee
69	Central City	Central City	Linn
70	Central Dallas	Minburn	Dallas
71	Central Decatur	Leon	Decatur
72	Central Lyon	Rock Rapids	Lyon
73	Central Webster	Burnside	Webster
74	Chariton	Chariton	Lucas
75	Charles City	Charles City	Floyd
76	Charter Oak-Ute	Charter Oak	Crawford
77	Cherokee	Cherokee	Cherokee
78	Churdan	Churdan	Greene
79	Clarence	Clarence	Cedar
80	Clarinda	Clarinda	Page
81	Clarion	Clarion	Wright
82	Clarke	Osceola	Clarke
83	Clarksville	Clarksville	Butler
84	Clear Creek	Tiffin	Johnson
85	Clear Lake	Clear Lake	Cerro Gordo
86	Clearfield	Clearfield	Taylor
87	Clinton	Clinton	Clinton

Control Number	School	Post Office	County
88	Coggon	Coggon	Linn
89	Colfax	Colfax	Jasper
90	College	Cedar Rapids	Linn
91	Collins	Collins	Story
92	Colo	Colo	Story
93	Columbus	Columbus Junction	Louisa
94	Coon Rapids	Coon Rapids	Carroll
95	Corning	Corning	Adams
96	Correctionville	Correctionville	Woodbury
97	Corwith-Wesley	Corwith	Hancock
98	Council Bluffs	Council Bluffs	Pottawattamie
98-A	Thomas Jefferson		
98-B	Abraham Lincoln		
99	Crestland	Early	Sac
100	Creston	Creston	Union
101	Cushing	Cushing	Woodbury
102	Cylinder	Cylinder	Palo Alto
103	Dallas Center	Dallas Center	Dallas
104	Danville	Danville	Des Moines
105	Davenport	Davenport	Scott
105-A	Central		
105-B	West		
106	Davis County	Bloomfield	Davis
107	Dayton	Dayton	Webster
108	Decorah	Decorah	Winneshiek
109	Deep River-Millersburg	Millersburg	Iowa
110	Delwood	Elwood	Clinton
111	Denison	Denison	Crawford
112	Denver	Denver	Bremer
113	Des Moines	Des Moines	Polk
113-A	East		
113-B	Lincoln		
113-C	North		
113-D	Roosevelt		
113-E	Technical		
114	Dexfield	Redfield	Dallas
115	Diagonal	Diagonal	Ringgold
116	Dike	Dike	Grundy
117	Dow City-Arion	Dow City	Crawford
118	Dows	Dows	Wright
119	Dubuque	Dubuque	Dubuque
120	Dumont	Dumont	Butler
121	Dunkerton	Dunkerton	Black Hawk
122	Dunlap	Dunlap	Harrison
123	Durant	Durant	Cedar
124	Dysart	Dysart	Tama

Control Number	School	Post Office	County
125	Eagle Grove	Eagle Grove	Wright
126	Earlham	Earlham	Madison
127	East Buchanan	Winthrop	Buchanan
128	East Greene	Grand Junction	Greene
129	East Monona	Moorhead	Monona
130	East Union	Afton	Union
131	Eastern Allamakee	Lansing	Allamakee
132	Eddyville	Eddyville	Wapello
133	Edgewood-Colesburg	Edgewood	Delaware
134	Eldora	Eldora	Hardin
135	Elkhorn-Kimballton	Elk Horn	Shelby
136	Emmetsburg	Emmetsburg	Palo Alto
137	English Valleys	North English	Iowa
138	Essex	Essex	Page
139	Estherville	Estherville	Emmet
140	Everly	Everly	Clay
141	Exira	Exira	Audubon
142	Fairfield	Fairfield	Jefferson
143	Farragut	Farragut	Fremont
144	Fayette	Fayette	Fayette
145	Floyd Valley	Alton	Sioux
146	Fonda	Fonda	Pocahontas
147	Forest City	Forest City	Winnebago
148	Fort Dodge	Fort Dodge	Webster
149	Fort Madison	Fort Madison	Lee
150	Fox Valley	Milton	Van Buren
151	Fredericksburg	Fredericksburg	Chickasaw
152	Fremont	Fremont	Mahaska
153	Fremont-Mills	Tabor	Fremont
154	Galva	Galva	Ida
155	Garnavillo	Garnavillo	Clayton
156	Garner-Hayfield	Garner	Hancock
157	Garrison	Garrison	Benton
158	Garwin	Garwin	Tama
159	Geneseo	Buckingham	Tama
160	George	George	Lyon
161	Gilbert	Gilbert	Story
162	Gilman	Gilman	Marshall
163	Gilmore City-Bradgate	Gilmore City	Humboldt
164	Gladbrook	Gladbrook	Tama
165	Glenwood	Glenwood	Mills
166	Glidden-Ralston	Glidden	Carroll
167	Goldfield	Goldfield	Wright
168	Graettinger	Graettinger	Palo Alto

Control Number	School	Post Office	County
169	Grand	Boxholm	Boone
170	Grand Valley	Kellerton	Ringgold
171	Green Mountain	Green Mountain	Marshall
172	Greene	Greene	Butler
173	Greenfield	Greenfield	Adair
174	Greenville-Rossie	Greenville	Clay
175	Grinnell-Newburg	Grinnell	Poweshiek
176	Griswold	Griswold	Cass
177	Grundy Center	Grundy Center	Grundy
178	Guthrie Center	Guthrie Center	Guthrie
179	Guttenburg	Guttenberg	Clayton
180	H. L. V.	Victor	Iowa
181	Hamburg	Hamburg	Fremont
182	Hampton	Hampton	Franklin
183	Harlan	Harlan	Shelby
184	Harmony	Farmington	Van Buren
185	Hartley	Hartley	O'Brien
186	Havelock-Plover	Havelock	Pocahontas
187	Hedrick	Hedrick	Keokuk
188	Highland	Ainsworth	Washington
189	Hinton	Hinton	Plymouth
190	Holstein	Holstein	Ida
191	Howard-Winneshiek	Cresco	Howard
192	Hubbard	Hubbard	Hardin
193	Hudson	Hudson	Black Hawk
194	Humboldt	Humboldt	Humboldt
195	Ida Grove	Ida Grove	Ida
196	Independence	Independence	Buchanan
197	Indianola	Indianola	Warren
198	Interstate 35	New Virginia	Madison
199	Iowa City	Iowa City	Johnson
200	Iowa Falls	Iowa Falls	Hardin
201	Iowa Valley	Marengo	Iowa
202	Irwin	Irwin	Shelby
203	Janesville	Janesville	Bremer
204	Jefferson	Jefferson	Greene
205	Jesup	Jesup	Buchanan
206	Johnston	Johnston	Polk
207	Kanawha	Kanawha	Hancock
208	Keokuk	Keokuk	Lee
209	Keota	Keota	Keokuk
210	Keystone	Keystone	Benton
211	Kingsley-Pierson	Kingsley	Plymouth
212	Klemme	Klemme	Hancock
213	Knoxville	Knoxville	Marion
214	LDF	Le Grand	Marshall

Control Number	School	Post Office	County
215	Lake City	Lake City	Calhoun
216	Lake Mills	Lake Mills	Winnebago
217	Lake Park	Lake Park	Dickinson
218	Lake View-Auburn	Lake View	Sac
219	Lakota	Lakota	Kossuth
220	Lamoni	Lamoni	Decatur
221	La Porte City	La Porte City	Black Hawk
222	Laurens	Laurens	Pocahontas
223	Lawton	Lawton	Woodbury
224	Ledyard	Ledyard	Kossuth
225	Le Mars	Le Mars	Plymouth
226	Lenox	Lenox	Taylor
227	Lewis Center	Council Bluffs	Pottawattamie
228	Lincoln	Stanwood	Cedar
229	Lincoln Center	Gruver	Emmet
230	Linn Mar	Marion	Linn
231	Lisbon	Lisbon	Linn
232	Little Rock	Little Rock	Lyon
233	Logan-Magnolia	Logan	Harrison
234	Lohrville	Lohrville	Calhoun
235	Lone Tree	Lone Tree	Johnson
236	Lost Nation	Lost Nation	Clinton
237	Louisa-Muscatine	Grandview	Louisa
238	Lowden	Lowden	Cedar
239	Lu Verne	Lu Verne	Kossuth
240	Lynnville-Sully	Sully	Jasper
241	Lytton	Lytton	Calhoun
242	M-F-L	Monona	Clayton
243	Madrid	Madrid	Boone
244	Mallard	Mallard	Palo Alto
245	Malvern	Malvern	Mills
246	Manilla	Manilla	Crawford
247	Manning	Manning	Carroll
248	Manson	Manson	Calhoun
249	Maple Valley	Mapleton	Monona
250	Maquoketa	Maquoketa	Jackson
251	Maquoketa Valley	Delhi	Delaware
252	Marathon	Marathon	Buena Vista
253	Marcus	Marcus	Cherokee
254	Marion	Marion	Linn
255	Mar-Mac	McGregor	Clayton
256	Marshalltown	Marshalltown	Marshall
257	Martensdale-St. Marys	Martensdale	Warren
258	Mason City	Mason City	Cerro Gordo
259	Maurice-Orange City	Orange City	Sioux

Control Number	School	Post Office	County
260	Maxwell	Maxwell	Story
261	Mediapolis	Mediapolis	Des Moines
262	Melcher-Dalla	Melcher	Marion
263	Melvin	Melvin	Osceola
264	Menlo	Menlo	Guthrie
265	Meriden-Cleghorn	Cleghorn	Cherokee
266	Meservey-Thornton	Meservey	Cerro Gordo
267	Midland	Wyoming	Jones
268	Mid-Prairie	Wellman	Washington
269	Miles	Miles	Jackson
270	Milford	Milford	Dickinson
271	Mingo	Mingo	Jasper
272	Missouri Valley	Missouri Valley	Harrison
273	Montezuma	Montezuma	Poweshiek
274	Monticello	Monticello	Jones
275	Moravia	Moravia	Appanoose
276	Mormon Trail	Humeston	Decatur
277	Morning Sun	Morning Sun	Louisa
278	Mounton-Udell	Mounton	Appanoose
279	Mount Ayr	Mount Ayr	Ringgold
280	Mount Pleasant	Mount Pleasant	Henry
281	Mount Vernon	Mount Vernon	Linn
282	Murray	Murray	Clarke
283	Muscatine	Muscatine	Muscatine
284	Nesco	Zearing	Story
285	Nashua	Nashua	Chickasaw
286	Nevada	Nevada	Story
287	New Hampton	New Hampton	Chickasaw
288	New Hartford	New Hartford	Butler
289	New London	New London	Henry
290	New Market	New Market	Taylor
291	New Monroe	Monroe	Jasper
292	New Providence	New Providence	Hardin
293	Newell-Providence	Newell	Buena Vista
294	Newhall	Newhall	Benton
295	Newton	Newton	Jasper
296	Nishna Valley	Hastings	Mills
297	Nora Springs-Rock Falls	Nora Springs	Floyd
298	North Central	Manly	Worth
299	North Fayette County	West Union	Fayette
300	North Mahaska	New Sharon	Mahaska
301	North Polk	Alleman	Polk
302	North Scott	Eldridge	Scott

Control Number	School	Post Office	County
303	Northeast	Goose Lake	Clinton
304	Northeast Hamilton	Blairsburg	Hamilton
305	Northwest Webster	Barnum	Webster
306	Northwood-Kensett	Northwood	Worth
307	Norwalk	Norwalk	Warren
308	Norway	Norway	Benton
309	Oakland	Oakland	Pottawattamie
310	Ocheyedan	Ocheyedan	Osceola
311	Odebolt-Arthur	Odebolt	Sac
312	Oelwein	Oelwein	Fayette
313	Ogden	Ogden	Boone
314	Olin	Olin	Jones
315	Orange Township	Waterloo	Black Hawk
316	Orient-Macksburg	Orient	Adair
317	Osage	Osage	Mitchell
318	Oskaloosa	Oskaloosa	Mahaska
319	Ottumwa	Ottumwa	Wapello
320	Oxford Junction	Oxford Junction	Jones
321	Palmer	Palmer	Pocahontas
322	Panora-Linden	Panora	Guthrie
323	Parkersburg	Parkersburg	Butler
324	Paullina	Paullina	O'Brien
325	Pekin	Packwood	Keokuk
326	Pella	Pella	Marion
327	Perry	Perry	Dallas
328	Plainfield	Plainfield	Bremer
329	Pleasant Valley	Pleasant Valley	Scott
330	Pleasantville	Pleasantville	Marion
331	Pocahontas	Pocahontas	Pocahontas
332	Pomeroy	Pomeroy	Calhoun
333	Postville	Postville	Allamakee
334	Prairie	Gowrie	Webster
335	Prairie City	Prairie City	Jasper
336	Prescott	Prescott	Adams
337	Preston	Preston	Jackson
338	Primghar	Primghar	O'Brien
339	Radcliffe	Radcliffe	Hardin
340	Rake	Rake	Winnebago
341	Red Oak	Red Oak	Montgomery
342	Reinbeck	Reinbeck	Grundy
343	Rembrandt	Rembrandt	Buena Vista
344	Remsen-Union	Le Mars	Plymouth
345	Riceville	Riceville	Howard
346	Ringsted	Ringsted	Emmet

Control Number	School	Post Office	County
347	Rock Valley	Rock Valley	Sioux
348	Rockwell City	Rockwell City	Calhoun
349	Rockwell-Swaledale	Rockwell	Cerro Gordo
350	Roland	Roland	Story
351	Rolfe	Rolfe	Pocahontas
352	Royal	Royal	Clay
353	Rudd-Rockford-Marble Rock	Rockford	Floyd
354	Russell	Russell	Lucas
355	Ruthven	Ruthven	Palo Alto
356	Sabula	Sabula	Jackson
357	Sac	Sac City	Sac
358	Saint Ansgar-Grafton	St. Ansgar	Mitchell
359	Sanborn	Sanborn	O'Brien
360	Saydel	Des Moines	Polk
361	Schaller	Schaller	Sac
362	Schleswig	Schleswig	Crawford
363	Scranton	Scranton	Greene
364	Sentral	Fenton	Kossuth
365	Sergeant Bluffs-Luton	Sgt. Bluff	Woodbury
366	Seymour	Seymour	Wayne
367	Sheffield-Chapin	Sheffield	Franklin
368	Shelby	Shelby	Shelby
369	Sheldon	Sheldon	O'Brien
370	Shellsburg	Shellsburg	Benton
371	Shenandoah	Shenandoah	Page
372	Sibley	Sibley	Osceola
373	Sidney	Sidney	Fremont
374	Sigourney	Sigourney	Keokuk
375	Sioux Center	Sioux Center	Sioux
376	Sioux City	Sioux City	Woodbury
376-A	Central		
376-B	East		
376-C	Leeds		
376-D	Riverside		
377	Sioux Rapids	Sioux Rapids	Buena Vista
378	Sioux Valley	Peterson	Clay
379	Solon	Solon	Johnson
380	South Clay	Webb	Clay
381	South Hamilton	Jewell	Hamilton
382	South Page	College Springs	Page
383	South Tama County	Tama	Tama
384	South Winneshiek	Calmar	Winneshiek
385	Southeast Polk	Altoona	Polk

Control Number	School	Post Office	County
385-A	Altoona		
385-B	Mitchellville		
385-C	Runnels		
386	Southeast Warren	Liberty Center	Warren
387	Spencer	Spencer	Clay
388	Spirit Lake	Spirit Lake	Dickinson
389	Springville	Springville	Linn
390	Stanton	Stanton	Montgomery
391	Starmont	Strawberry Point	Clayton
391-A	Arlington		
391-B	Lamont		
391-C	Strawberry Point		
392	Steamboat Rock	Steamboat Rock	Hardin
393	Storm Lake	Storm Lake	Buena Vista
394	Story City	Story City	Story
395	Stratford	Stratford	Hamilton
396	Stuart	Stuart	Guthrie
397	Sumner	Sumner	Bremer
398	Sutherland	Sutherland	O'Brien
399	Swea City	Swea City	Kossuth
400	Terril	Terril	Dickinson
401	Thompson	Thompson	Winnebago
402	Tipton	Tipton	Cedar
403	Titonka	Titonka	Kossuth
404	Traer-Clutier	Traer	Tama
405	Treynor	Treynor	Pottawattamie
406	Tri-Center	Neola	Pottawattamie
407	Tri-County	What Cheer	Keokuk
408	Tripoli	Tripoli	Bremer
409	Troy Mills	Troy Mills	Linn
410	Turkey Valley	Jackson Jct.	Fayette
411	Twin Cedars	Bussey	Marion
412	Twin Rivers	Bode	Humboldt
413	Underwood	Underwood	Pottawattamie
414	Union-Whitten	Union	Hardin
415	United	Boone	Boone
416	Urbana	Urbana	Benton
417	Urbandale	Urbandale	Fayette
418	Valley	Elgin	Fayette
419	Van Buren	Keosauqua	Van Buren
420	Vane Horne	Van Horne	Benton
421	Van Meter	Van Meter	Dallas
422	Ventura	Ventura	Cerro Gordo
423	Villisca	Villisca	Montgomery
424	Vinton	Vinton	Benton
425	Waco	Wayland	Henry
426	Walker	Walker	Linn

Control Number	School	Post Office	County
427	Wall Lake	Wall Lake	Sac
428	Walnut	Walnut	Pottawattamie
429	Wapello	Wapello	Louisa
430	Wapsie Valley	Fairbanks	Bremer
431	Washington	Washington	Washington
432	Waterloo	Waterloo	Black Hawk
432-A	East		
432-B	West		
433	Waukee	Waukee	Dallas
434	Waverly- Shell Rock	Waverly	Bremer
435	Webster City	Webster City	Hamilton
436	Wellsburg	Wellsburg	Grundy
437	West Bend	West Bend	Palo Alto
438	West Branch	West Branch	Cedar
439	West Central	Maynard	Fayette
440	West Delaware County	Manchester	Delaware
441	West Des Moines	West Des Moines	Polk
442	West Harrison	Little Sioux	Harrison
443	West Liberty	West Liberty	Muscatine
444	West Lyon	Inwood	Lyon
445	West Marshall	State Center	Marshall
446	West Monona	Onawa	Monona
447	West Sioux	Hawarden	Sioux
448	Western Dubuque County	Epworth	Dubuque
449	West Burlington	West Burlington	Des Moines
450	Westfield	Westfield	Plymouth
451	Westwood	Sloan	Woodbury
452	Wheatland	Wheatland	Clinton
453	Whiting	Whiting	Monona
454	Williamsburg	Williamsburg	Iowa
455	Willow	Quimby	Cherokee
456	Wilton	Wilton Junction	Muscatine
457	Winfield- Mt. Union	Winfield	Henry
458	Winterset	Winterset	Madison
459	Woden- Crystal Lake	Crystal Lake	Hancock
460	Woodbine	Woodbine	Harrison
461	Woodbury Central	Moville	Woodbury
462	Woodward	Woodward	Dallas
463	Yale-Jamaica- Bagley	Bagley	Guthrie

APPENDIX B

LETTER OF TRANSMITTAL DATED

SEPTEMBER 3, 1963

September 3, 1963

Dear Iowa High School Principal:

Colleges and Universities are faced with the problem of deter-
mining which high school graduates will be admitted and which will be
denied admission to college freshmen classes. When making these de-
cisions, it is usually necessary to rely upon high school class stand-
ing, recommendations from the high school, potential demonstrated by a
college entrance examination, or some combination of the three. It is
generally recognized that the individuals high school grades are most
often the best single source of evidence for prediction of college
success.

Preliminary investigations have shown that there may be sig-
nificant differences between the numbers of boys and girls within the
various percentages of high school grade achievements who are considered
for college admission on the basis of class standing.

The inclosed form is designed to obtain information from each
public high school in the State of Iowa so that a determination may be
made of whether the class standing differences between boys and girls
may be significant. The admission plans of Iowa colleges and univer-
sities will also be studied to ascertain the use to be made of class
standing as a basis for college entrance for the school 1964-1965.

To permit timely and meaningful coordination of the two projects,
it will be greatly appreciated if the information on the inclosed form
is furnished by September 30, 1963.

Very truly yours,

DAVE J. COOK
Teaching Graduate-Assistant
2 Inclosures   Dept. of Education & Psychology
  Incl 1-Form
  Incl 2-Addressed Envelope

APPENDIX C

QUESTIONNAIRE FORM

TO: Department of Education and Psychology, State College of Iowa
Attention: D. J. Cook, Teaching Graduate-Assistant

1. Name and Location
   of High School   _____
                                     _____
                                     _____
                                     _____

2. What is your best estimate of the number of boys expected to grad-
   uate in your senior class of 1963-1964 with a diploma which will
   permit college entrance?

   _____ boys

3. What is your best estimate of the number of girls expected to grad-
   uate in your senior class of 1963-1964 with a diploma which will
   permit college entrance?

   _____ girls

   TO ASSURE UNIFORMITY, PLEASE FOLLOW THE FOLLOWING
   PROCEDURES IN COMPLETING THE REMAINING BLANKS.

   a. Multiply percentage figure shown by the number of boys + girls
      listed in 2 and 3, above. If a fractional number results, in-
      crease to the next whole number.

   b. If the whole number falls upon a grade point ratio shared by
      other students, include all students with that grade point
      ratio.

   c. Count the number of boys and the number of girls above the
      cut-off point and record in designated blanks.

   TOP 20% Number of boys_____   Number of girls_____
   TOP 30% Number of boys_____   Number of girls_____
   TOP 40% Number of boys_____   Number of girls_____
   TOP 50% Number of boys_____   Number of girls_____
   TOP 60% Number of boys_____   Number of girls_____
   TOP 70% Number of boys_____   Number of girls_____
   TOP 80% Number of boys_____   Number of girls_____

   _____
   (Prepared by)

APPENDIX D

FOLLOW-UP LETTER DATED

OCTOBER 3, 1963

October 3, 1963.

Dear Iowa High School Principal:

This is a follow-up to the letter dated 3 September 1963 which was sent to the principals of the 479 public high schools in the State of Iowa. Although more than half of the completed questionnaires have been returned, it is important that all high schools be included in the tabulations to be made. Another questionnaire blank is inclosed, since the one previously furnished may have been misplaced.

Based on replies received, it is believed that more specific details on completion may be helpful in filling out the form. If needed, these may be found in the next two paragraphs.

The blank in paragraph 2 of the form should show the total number of boys in the senior class and the blank in paragraph 3 should show the total number of girls in the class. Please omit members of the class who are not expected to graduate and also members of the class who are expected to receive "certificates of attendance" or similar forms if awarded by your school to students who do not fully satisfy academic requirements for a diploma.

For explanatory purposes, let's assume that your high school has 29 boys and 30 girls (a total of 59) in the senior class. Then the "TOP 20%" would be found by multiplying .20 x 59, which would give 11.8 individuals. This would be changed to 12 in accord with paragraph 3 of the questionnaire. It would then be necessary to consider these top 12 students on a class rank listing of the senior class and to indicate the sex of the 12 students in the blanks provided on the line with "TOP 20%". The "TOP 30%", "TOP 40%", "TOP 50%" etc. would be determined and recorded in a similar manner.

It will be greatly appreciated if you will furnish the information for your school. If it is impossible to complete the form for the 1963-64 senior class, please use the class which graduated last June and annotate the questionnaire accordingly.

Very truly yours,

DAVE J. COOK
Teaching Graduate-Assistant
Department of Education and Psychology

1 Inclosure: Questionnaire

DJC/dmw

APPENDIX E

FOLLOW-UP LETTER DATED

NOVEMBER 3, 1963

STATE COLLEGE OF IOWA
Dept. of Education & Psychology
Cedar Falls, Iowa

3 November 1963

Principal
Dayton High School
Webster County
Dayton, Iowa

Dear Sir:

I have received no reply to my letters of 3 September and
3 October, 1963, in reference to filling out a question-
naire which was furnished with each of those letters. I
am enclosing another questionnaire form, together with
a copy of the 3 October letter.

To date, replies have been received from more than 80% of
the 478 Iowa public high schools. I would like very much
to be able to include all high schools in the tabulations
which will be made from the questionnaires. Schools of
all sizes are important to this project since the several
size groupings will be treated separately.

Your assistance in furnishing the needed information will
be appreciated.

                              Sincerely,

                              DAVE J. COOK

APPENDIX F

FOLLOW-UP LETTER DATED

DECEMBER 6, 1963

6 December 1963

Dear Sir:

This letter is a request for completion of a questionnaire regarding the
number of boys and girls in the various deciles of your senior class.

The first request for this information was contained in a letter dated
3 September 1963. As the result of that letter and later follow-up
letters, completed questionnaires have now been received from 426 of
the 478 Iowa public high schools.

The opinion is often expressed that it is not possible to attain a 100%
return of questionnaires when any sizable population is involved. The
validity of this opinion is doubted, especially when the population can-
vassed consists of professional school personnel. For this reason, some
study has been accorded the 52 schools from which replies have not been
received. These schools are located in 39 of the 99 counties of Iowa.
There seems to be no correlation between distances of schools from
Cedar Falls and return of questionnaires. The size tabulation of schools
not responding is shown below.

H. S. Enrollment	Number of H. S.	Number not Reporting
0- 99	54	8
100-149	101	12
150-199	94	12
200-299	98	10
300-499	60	3
500-699	30	1
700 & above	41	6
(Totals)	478	52

Inclosed you will find a copy of the 3 October letter which contained
information on the completion of the form, together with another copy
of the questionnaire and an addressed envelope.

If the ranking of the 1963-64 senior class has not yet been completed
in your school, data on the class which graduated last June can be used.
If last years class is used, please annotate the questionnaire to in-
clude that information.

Your assistance in completing the inclosed form will be greatly appre-
ciated.

                                        Sincerely,

                                        DAVE J. COOK
                                        Teaching Grad. Asst.
                                        State College of Iowa

APPENDIX G

MAP SHOWING SCHOOLS WHICH

DID NOT RESPOND

IOWA

County	Value
LYON	4 of 4
OSCEOLA	3 of 3
DICKINSON	5 of 5
EMMET	4 of 5 (22)
KOSSUTH	8 of 9 (51)
WINNEBAGO	5 of 5
WORTH	2 of 2
MITCHELL	2 of 2
HOWARD	2 of 2
WINNESHIEK	2 of 2
ALLAMAKEE	3 of 3
SIOUX	6 of 7 (259)
O'BRIEN	6 of 6
CLAY	6 of 7 (380)
PALO ALTO	7 of 7
HANCOCK	6 of 6
CERRO GORDO	5 of 6 (266)
FLOYD	3 of 3
CHICKASAW	3 of 3
(Chickasaw E)	6 of 7
(Fayette N)	8 of 8
FAYETTE	(144)
PLYMOUTH	6 of 6
CHEROKEE	5 of 5
BUENA VISTA	7 of 7
POCAHONTAS	6 of 7 (331)
HUMBOLDT	4 of 4
WRIGHT	5 of 5
FRANKLIN	3 of 3
BUTLER	7 of 8 (83)
BREMER	7 of 7
CLAYTON	
WOODBURY	11 of 14 (223) (376 C)
IDA	4 of 5 (376 B) (31)
SAC	6 of 6
CALHOUN	7 of 7
WEBSTER	5 of 5
HAMILTON	4 of 4
HARDIN	9 of 10 (292)
GRUNDY	5 of 5
BLACK HAWK	7 of 7
BUCHANAN	3 of 3
DELAWARE	3 of 3
DUBUQUE	2 of 2
MONONA	4 of 4
CRAWFORD	6 of 6
CARROLL	4 of 5 (59)
GREENE	4 of 4
BOONE	5 of 5
STORY	10 of 11 (161)
MARSHALL	5 of 5
TAMA	6 of 6
BENTON	10 of 10
LINN	14 of 15 (409)
JONES	5 of 6 (267)
JACKSON	6 of 7 (37)
CEDAR	7 of 7
CLINTON	8 of 9 (54)
HARRISON	5 of 5
SHELBY	4 of 4
AUDUBON	2 of 2
GUTHRIE	7 of 7
DALLAS	8 of 8
POLK	15 of 16 (301)
JASPER	7 of 7
POWESHIEK	3 of 3
IOWA	6 of 6
JOHNSON	4 of 5 (235)
SCOTT	5 of 5
POTTAWATTAMIE	10 of 11 (98B)
CASS	4 of 4
ADAIR	3 of 3
MADISON	3 of 3
WARREN	4 of 5
MARION	5 of 6 (330)
MAHASKA	3 of 3
KEOKUK	5 of 5
WASHINGTON	3 of 3
MUSCATINE	3 of 4 (283)
LOUISA	4 of 4
MILLS	3 of 4 (345)
MONTGOMERY	3 of 5 (341) (423)
ADAMS	2 of 2
UNION	2 of 2
CLARKE	2 of 2
LUCAS	2 of 2
MONROE	1 of 1
WAPELLO	3 of 3
JEFFERSON	1 of 1
HENRY	4 of 4
DES MOINES	4 of 4
FREMONT	4 of 4
PAGE	4 of 4
TAYLOR	4 of 4
RINGGOLD	3 of 4 (170)
DECATUR	3 of 3
WAYNE	3 of 3
APPANOOSE	3 of 3
DAVIS	1 of 1
VAN BUREN	3 of 3
LEE	3 of 4 (149)

SCALE MILES

IOWA

APPENDIX H

LISTING OF SCHOOLS WITH

100 OR MORE SENIORS

GROUP A SCHOOLS
(100 or more seniors)

<u>School Numbers (For name of school refer to Appendix A)</u>

7	87	148	302
11	98-A	175	312
15	100	183	318
16	105-A	191	319
25	105-B	194	369
40	106	196	371
43	108	199	376-A
50	111	200	387
61	113-A	204	393
62-A	113-B	208	431
62-B	113-C	225	432-A
74	113-D	254	432-B
75	113-E	256	434
77	119	258	435
80	125	280	441
82	142	295	458

APPENDIX I

LISTING OF SCHOOLS WITH

50 TO 99 SENIORS

GROUP B SCHOOLS
(50 to 99 seniors)

School Numbers (For name of school refer to Appendix A)

2	156	261	366
3	160	268	372
4	165	270	374
10	176	272	381
19	177	274	382
26	178	281	383
30	180	285	385-A
35	181	286	388
38	182	287	397
48	197	291	398
57	198	298	406
65	201	299	417
66	205	306	418
67	206	309	424
69	211	311	425
71	213	315	429
72	214	317	439
81	215	325	440
85	221	326	442
90	227	327	443
93	233	333	445
95	240	334	446
128	242	345	447
132	248	348	448
134	249	353	454
136	250	358	456
139	251	360	461
147	253		

APPENDIX J

LISTING OF SCHOOLS WITH

25 TO 49 SENIORS

GROUP C SCHOOLS
(25 to 49 seniors)

School Numbers (For name of school refer to Appendix A)

1	121	230	355
5	123	234	357
8	124	236	362
9	126	237	364
13	127	243	365
18	129	247	368
20	130	255	370
21	131	257	373
24	133	260	375
27	135	262	376-D
28	137	273	378
33	138	275	379
34	140	276	386
36	141	279	389
41	143	284	394
42	145	288	396
45	151	289	399
46	153	290	400
47	155	293	401
49	162	296	402
52	164	297	403
53	166	300	404
55	168	303	408
56	172	304	410
58	173	307	411
60	179	308	413
63	184	313	415
64	185	314	419
68	188	316	422
73	189	322	426
76	190	323	428
84	195	324	430
88	202	328	433
89	203	329	436
94	207	335	437
96	209	337	438
99	210	338	444
103	212	339	453
112	217	342	455
114	220	346	457
116	222	347	460
118	226	349	463
120	228	351	472

APPENDIX K

LISTING OF SCHOOLS WITH

24 OR LESS SENIORS

GROUP D SCHOOLS
(24 or less seniors)

School Numbers (For name of school refer to Appendix A)

6	150	246	363
12	152	252	367
14	154	263	377
17	157	264	384
23	158	265	385-B
29	159	269	385-C
32	163	271	390
39	167	277	391-A
44	169	278·	391-B
70	171	282	391-C
78	174	294	392
79	186	305	395
86	187	310	405
91	192	320	407
92	193	321	412
97	214	332	414
101	218	336	416
102	219	340	420
104	224	343	421
107	229	344	427
109	231	350	449
110	232	352	450
115	238	354	451
117	239	356	452
122	241	359	459
146	244	361	

APPENDIX L

LISTING OF SCHOOLS WHICH REPORTED ON

THE BASIS OF THE 1962-1963

SCHOOL YEAR

LISTING OF SCHOOLS WHICH REPORTED ON THE BASIS
OF THE 1962-1963 SCHOOL YEAR SENIORS

School Numbers (For name of school refer to Appendix A)

Group A Schools	Group B Schools	Group C Schools	Group D Schools
106	2	68	115
148	10	195	
199	57	237	
258	136	257	
	178	314	
	182	329	
	306	370	
	311	375	
	345	376-D	
	358	413	
	383	419	
	442	444	