

1936

The Relation Between Scholastic Achievement and Economic Status as Shown by Parental Occupation

Fred Barela

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THE RELATION BETWEEN SCHOLASTIC
ACHIEVEMENT AND ECONOMIC STATUS
AS SHOWN BY PARENTAL OCCUPATION

By

Fred Barela

A thesis submitted for the degree of
Master of Arts in Arts and Sciences

University of New Mexico
1936

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TABLE OF CONTENTS

Part	Page
I. INTRODUCTION	1
Statement of Problem	2
Definitions and Delimitations	2
Sources of Data	11
Method of Procedure	11
Review of Related Studies	13
II. ANALYSIS OF DATA	22
III. GENERAL SUMMARY AND CONCLUSIONS	45
BIBLIOGRAPHY	48

TABLE OF CONTENTS

Page	Topic
1	I. INTRODUCTION
2	Statement of Problem
3	Definitions and Delimitations
11	Sources of Data
12	Method of Procedure
13	Review of Related Studies
23	II. ANALYSIS OF DATA
43	III. GENERAL SUMMARY AND CONCLUSIONS
63	BIBLIOGRAPHY

THE RELATION BETWEEN SCHOLASTIC
ACHIEVEMENT AND ECONOMIC STATUS
AS SHOWN BY PARENTAL OCCUPATION

Part I

INTRODUCTION

What bearing parental economic status has on students' scholastic work continues to be a matter of concern to school administrators and teachers. The question is related to the ability of high school students to profit from instruction. The degree to which pupils profit from instruction may be largely conditioned by the occupational status of parents. Chapman and Sims say "that most studies interested in measuring capacity and intelligence of school pupils have relatively neglected the importance of the socio-economic status"¹.

The question is no less significant to socially minded citizens. The economic status or income level is comprehensive. It has a bearing on the amount and quality of food, kinds of social contacts, education of parents, and

1. Chapman, J. Crosby and Sims, V. M. "Quantitative Measurement of Certain Aspects of Socio-Economic Status." Journal of Educational Psychology, v.16, p.381, September 1925.

THE RELATIONSHIP BETWEEN
ADMINISTRATIVE AND ECONOMIC
ASPECTS OF EDUCATION

Part I

Introduction

What bearing parental economic status has on educational
achievement? This question has been a matter of concern to
school administrators and economists. The question is re-
lated to the ability of high school students to profit
from instruction. The degree to which pupils profit from
instruction may be largely determined by the occupational
status of parents. Chapman and Davis say that most studies
interested in measuring capacity and intelligence of pupils
pupils have relatively neglected the importance of the
socio-economic status.

The question is no less significant to society at large
citizens. The economic status of income level is a deter-
minative. It has a bearing on the mental and physical de-
velopment, kind of social contacts, character of interests, and

cultural aspects of home. Findings of several investigators have indicated that children of certain economic levels have an advantage over children of other economic levels in the performance of school work.

Statement of the Problem

The specific object of this study was to investigate the degree of correlation between high school students' grades and their parents' occupational status. Also, this study proposes to compare this correlation found among English-speaking pupils with that found among the Spanish-speaking pupils. Answers will be attempted for the following questions:

1. What economic group of high school students has the highest four year scholastic achievement?
2. How do the other economic groups of high school pupils rank?
3. What is the comparison between the economic groups of the English-speaking pupils and the economic groups of the Spanish-speaking pupils?

Definitions and Delimitations

In this study economic status means occupational level. An occupation is that activity which takes up most of one's time, thought, and energies, constituting one's regular and principal business as a means of making a living. In modern

collected aspects of school. Although the degree of correlation between the two have indicated that children of different social classes have an advantage over children of the same social class in the performance of social work.

Statement of the Problem

The specific object of this study was to investigate the degree of correlation between the school standard grades and their parents' occupational status. Also, the study proposed to examine the correlation between the English-speaking pupils with their social class and the English-speaking pupils. Parents will be assigned to the following questions:

1. What economic group do the school standard grades represent?
2. How do the school standard grades of high school pupils vary?
3. What is the correlation between the school grades of the English-speaking pupils and the English group of the English-speaking pupils?

Definition of the Problem

In this study, the term "English-speaking pupils" refers to the pupils who are of English descent. The term "English-speaking pupils" refers to the pupils who are of English descent. The term "English-speaking pupils" refers to the pupils who are of English descent.

society, with its characteristic divisions of labor and specialization of functions, the overwhelming majority of the people engage in a specific, relatively continuous activity in order to earn their livelihood and maintain a definite social status. The term "occupation" has a number of implications covering three different sets of factors. They are:

1. Technological: The specific manual or mental operations involved in the execution of occupational work.

2. Economic: The income yield of an occupation which serves to provide a livelihood.

3. Social: The prestige attaching to a person or group by virtue of an occupation.

These sets of factors themselves have implications of their own as will be shown.

An occupation is not a rigidly limited sphere of activity. Occupations tend to merge and subdivide. With our highly complex and equally interdependent economic system, workers changing to different occupations are not uncommon occurrences. However, it can be safely said that the occupational strata of parents remain fairly stable over long periods of time. Labor is not as mobile as sometimes theorized.

There have been other indices used to trace the correlation between scholastic achievement and economic status. Among these are amount of rent, presence or absence of telephone in the house, number of rooms in the home, and class of neighbor-

society, with its characteristic division of labor and
specialization of functions, the individual members of the
group engage in a specific, relatively continuous activity
in order to earn their livelihood and maintain a definite
social status. The basic occupational unit, a number of indi-
viduals covering these different sets of tasks, is the

1. Technological: the specific manual or mental opera-
tions involved in the execution of occupational work.
2. Economic: the income paid to an occupational group
sources to provide a livelihood.

3. Social: the psychological relationship to a particular group
by virtue of an occupation.
These sets of factors themselves have implications of
their own as will be shown.

An occupation is not a rigidly limited sphere of activ-
ity. Occupations tend to expand and contract. With only
highly complex and specially heterogeneous economic systems,
workers changing so different occupations are not unusual
occurrences. However, in the early and late stages of
pastoral systems, workers remain fairly steady over long
periods of time. There is not as much as occupational mobility

There have been other factors used to define the relation-
ship between occupational activities and economic status. These
factors are similar to those mentioned above, but the relation-
ship between them is different. In the early stages of occupa-
tional systems, workers remain fairly steady over long

hood. Rent is not always easy to determine, nor are differences in rent necessarily significant. The telephone index does not yield a classification of more than the upper groups. Stoke, tracing the influence of social status upon intelligence quotients says, "The occupation of the parent is the most meaningful index of social status that could be determined with a reasonable degree of accuracy".¹

In the beginning of this study several occupational classifications were considered. That of Taussig was finally selected. Its criteria ^{are} wide in scope, flexible and well reasoned. While not as comprehensive, those used by ² Haggerty and ³ Collins were helpful in classifying odd cases.

Taussig's criteria for classification are five fold. They are as follows:

1. Amount of income. This is not necessarily of greatest significance. A few occupations, as that of professors, are characterized by low incomes, yet enjoy charm, respect, intellectual interest, and long vacations.
2. Type of work. The type of work, whether manual or mental, leaves its effect on the mind and body.

-
1. Stoke, Stuart M. Occupational Groups and Child Development, p.4.
 2. Haggerty, M. E. and Nash, Harry B. "Mental Capacity of Children and Paternal Occupation." Journal of Educational Psychology, v.15, p.569, December 1924.
 3. Collins, J. E. "The Intelligence of School Children and Paternal Occupation." Journal of Educational Research, v.17, p.159, March 1928.

... that it is not always easy to determine, but that the
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They are as follows:
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2. Type of work. The type of work which ...
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1. ...
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Arduous work crushes intellectual interest and dulls the mind. The higher occupations invite or favor study, reflective thinking, and aesthetic tastes.

3. Extent of security. The greater the economic security the greater is the peace of mind. The spectre of insecurity plays havoc with mental development.
4. Regularity or irregularity of employment. This is similar to number three. Regular employment, it is commonly known, indicates a substantial degree of security. A steady, sure income means relative control over material wants.
5. Length and expense of training. An occupation calling for a prolonged and expensive training will have a high reward, either monetary or social. The unskilled and semi-skilled classes have little or no training. The higher the scale the longer and the more expensive is the training period.

There are five divisions in Taussig's occupational classifications.

Group I. Unskilled Labor--This group includes day laborers, diggers, and similar workers who offer nothing but their bodily strength. The work is heavy and simple, the hours long. The education of this group is hardly beyond the minimum required by law. Sometimes it is

Andersson was a member of the Swedish Academy and
the first. The latter was a member of the
or for study, scientific training, and research
tasks.

3. History of research. The Swedish and Swedish
the first is the name of the first. The second

of research have been with general development
4. History of research. The first is the name of the first. The second

similar to modern times. Research on research, it
is commonly known, research is a scientific method
of research. A study, and research, and research
research is a scientific method.

5. Length and scope of training. An education of
ing for a prolonged and extensive training with

a high level, research, research, and research. The un-
entitled and semi-entitled research have been of no
training. The higher the level the longer the
more extensive is the training period.

There are five divisions in research, a classification of
all research.

Group 1. Untrained labor - This group includes day
laborers, clerks, and similar workers who

also receive some scientific training.
The work is heavy and simple, the human body

The scientific of this group is very low.
The scientific training is low.

6-12-11

lower. Maximum wages, which are extremely low, are earned at time of physical maturity. They decrease appreciably at middle age and after. Wages are usually paid by the day or week. Occupations that were classified in this group were domestic workers, day laborers, porters, janitors, and watchmen.

Group II. Semi-skilled Labor--This group, while not needing specialized skill, has some alertness of mind and some responsibility. Its tasks are simple, yet require a degree of intelligence in watching machinery. Included in this group are mechanic helpers, deliverymen, motormen, farmers, truck drivers, gardeners, and firemen. Its wages are more often paid by the week than by the day. Its education is about the same as Group I.

Group III. Skilled Labor--This class of workers has been called the "aristocracy of the laboring class". General mechanical ability is its distinguishing asset. A sure eye, familiarity with tools, and deft, trained hands are pronounced among skilled laborers. Small savings and ownership of a home is common among them. Their education is higher than Groups I or II.

lower: minimum wages, when the extremely

low, are raised to a level of industrial

level, the result is a considerable

increase in the standard of living

of the population, and a corresponding

increase in the domestic demand

for goods, services, and labor.

Group II: Socialized labor, where the

means of production are owned and

operated by the community, the

aim is to achieve a more equitable

distribution of income and wealth.

Group III: Socialized labor, where the

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aim is to achieve a more equitable

Their children usually complete the grade and secondary schools. Examples of this group are plumbers, carpenters, mechanics, machinists, electricians, bakers, printers, blacksmiths, shoemakers, butchers, auto-refinishers, and barbers.

Group IV. Lower Middle Class--This class avoids rough and dirty work and aims at clerical and semi-intellectual occupations. It has a contempt for manual labor, though its wages are not much, if at all, higher than those of skilled labor. Examples of this group are insurance salesmen, grocers, small merchants, mail clerks, store clerks, grade teachers, foremen, collectors, contractors, inspectors, and secretaries. Generally, the education of this group is carried through the secondary schools. A college education is common to the children of this group.

Group V. Professional Class--This is the well-to-do or the most favored class. Socially it is the most prominent. Salaried officials, public and private, in positions of responsibility belong to this group. Business men and managers of industries also belong to this class.

These children usually attend the grade
and secondary schools. They are
grouped into various occupations, including
mechanics, electricians, painters, plumbers,
blacksmiths, ironworkers, welders, and
millwrights, and various

Group IV. Lower Middle Class--This class includes
and city work and also as clerical and semi-
intellectual occupations. It has a tendency
for manual labor, though the wages are not
much, it is all, higher than those of skilled
labor. Occupations of this group are
salesmen, clerks, retail merchants, and
clerks, store clerks, bookkeepers, stenographers,
collectors, construction, inspectors, and
reporters. Generally, the education of this
group is carried through the secondary schools.
A college education is common to the children
of this group.

Group V. Professional Class--This is the well-to-do
the most favored class. Usually it is the
most prominent. It includes officials, judges
and lawyers, in positions of responsibility
belong to this group. Business men and
gentlemen of industry also belong to this class.

Their education is carried through college, often through a long and expensive professional training. Examples of this class are bankers, accountants, lawyers, physicians, clergymen, civil engineers, presidents of corporations, managers of oil companies, pharmacists, high school teachers, university professors, wholesale business men, brokers, editors, and architects. The class is associated with property and accumulation, and the common aim is to procure and maintain a¹ high standard of living.

When viewing the five occupational groups together, a natural cleavage appears. The first three groups, unskilled, semi-skilled, and skilled labor, constitute a class by themselves. Their gradations of wages are continuous, the members have the same point of view, and the same prejudices. They have a latent class consciousness. They have a common dependence on manual labor with a corresponding sense of separation from the well-to-do and possessing classes. Expecting to live on their wages, they do not look to the accumulation of property or to an income derived from property.

The two upper groups have similar feelings of oneness and solidarity. While possessions and incomes among them

1. Taussig, Frank W. Principles of Economics, v.2, p.124-137.

Their education is carried on in the
afternoon, a long and arduous
school training. The pupils of this school
handwriting, arithmetic, English, and
science, civil engineering, and
surveying, managers of all companies,
mechanics, high school teachers, university
professors, graduate students, and
editors, and architects. The school is
located with property and equipment, and
the common aim is to produce a
high standard of living.

When viewing the five occupational groups, the
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themselves. Their production of wages are
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stance on natural labor with a corresponding sense of
from the well-to-do and possessing classes. According to
on their wages, they do not look at the
party or to an income derived from property.
The two upper groups have a high level of
and self-interest. While possessing and income

vary greatly, all have the same habits, hopes, prejudices, and a high standard of living. They resent manual labor for themselves. Accumulation of wealth and investment is their motive. Their economic activity is chiefly the management and direction of industry.

It is recognized that occupational groups cannot be arbitrarily and sharply differentiated. Unless it be a cumbersome category, in all likelihood such a classification of a group of people will be overlapping. Probably the classification cannot be wholly objective. The extent of error is unlikely to be more than one degree. For example, if one classifier placed a case in Group II (semi-skilled labor), another classifier is unlikely to place the same case in Group IV (lower middle class) or in Group V (professional class). To lessen somewhat the extent of error, the city directory was used to ascertain more definitely the function of a parent in a diffused occupation. Given the occupation "shops", in a high school application card, its classification would have become largely a matter of guesswork. The term may be meant either for janitor, helper, machinist, inspector, foreman or even superintendent. This particular function the city directory furnished.

Scholastic achievement in this study means the average grade of the entire four-year period for each high school graduate.

very great. All have the same habits, hopes, expectations, and a high standard of living. They treat women as their themselves. Accumulation of wealth and inheritance is their motive. Their economic activity is entirely for the sake of and direction of industry.

It is recognized that occupational groups cannot be so sharply and sharply differentiated. There is no a priori some category, in all likelihood, that a representative group of people will be everywhere. Indeed, the classification cannot be wholly objective. The extent of error is unlikely to be more than 10 percent. For example, it is almost placed a case is shown in (see below) another classifier is unlikely to place the same case in Group IV (lower status class) or in Group V (unskilled class). To lessen somewhat the extent of error, the classifier was used to reclassify some individuals and a person in a different situation. Given the classification "shop", in a high school application card, the classification would have become largely a matter of guesswork. The term may be used to mean the person, worker, minister, the speaker, farmer or even representative. This definition is the only one that is possible. Schooling is not a factor in this study since the average grade of the entire population is not high school.

Conclusion: The study shows that the classification of people into groups is a matter of guesswork. The term may be used to mean the person, worker, minister, the speaker, farmer or even representative. This definition is the only one that is possible. Schooling is not a factor in this study since the average grade of the entire population is not high school.

The validity of grades as measures of ability is strongly debated. Grades here, however, are considered as measures of accomplishment. While teachers endeavor to estimate fairly the work of pupils, traditional practices often vitiate appraisal of pupils' work. Educational progress is often-times measured by the time which a pupil is exposed to education rather than by educational growth; and also by the process of mass promotion rather than by individual progress.¹

Starch, experimenting extensively on marks as evaluation of school work, concluded that "teachers differ enormously in evaluating the same pieces of work in terms of the ordinary percentage scale, differing as much in one subject as in another." He presents four causes of variation: (1) differences in standards of severity or leniency of different teachers, (2) differences in standards of severity or leniency in different schools, (3) differences in credit or penalty assigned by different teachers to any given fact or error in a piece of work, and (4) minuteness of the discrimination between successive steps of merit or quality in a given scale of qualities. The latter two Starch gives the most weight. His experimentations led him to discount the first two because of their insignificance.²

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1. Langwick, Mina M. "Do School Marks Indicate Needs or Abilities of Children?" School Life, v.15, p.83, January 1930.
 2. Starch, Daniel. Educational Psychology, p.435.

The validity of grades as measures of ability is
seriously doubted. Grades have, however, and considered as
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and also by the process of mass production rather than by
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Search, experimenting extensively on grades at various
times of school work, concluded that "grades differ from
merely in overvaluing the mere process of work in terms of the
ordinary percentage scale, differing as much as one subject
as in another." He proposed four causes of variation: (1)
differences in standards of severity or laxity of discipline
teachers; (2) differences in standards of severity or
laxity in different schools; (3) differences in grade or
pupils assigned by different teachers on any given day or
error in a phase of work; and (4) differences in the degree
of relation between successive steps of work on any given day.
gives scale of analysis. The writer has shown that the
most weight. His experiments have led him to stating that
that two because of their individuality.

1. Lumsden, Mrs. M. "The school grade method of
evaluation of children." *Journal of Educational Psychology*,
January 1930.
2. Stearns, Charles. "Educational psychology." 1915.

However, a four years' average reduces the subjective element in grading. To that extent it is not unreasonable to consider it an indication of accomplishment. Grades are objected to mostly as evaluations of innate ability rather than of concrete achievement.

Sources of the Data

The data were procured from the records of the Albuquerque High School. They include the records of the graduation classes of 1933, 1934, and 1935. Summer school graduates were included.

Method of Procedure

A list of each graduation class was obtained. For each graduate there is computed by the school an official scholastic average for the entire high school work. This official average was adopted in this study. The school marks E, G, M, P, and F, as used at the Albuquerque High School have the following numerical value: E, 93-100; G, 85-92; M, 77-84; P, 75-76; and F, below 75. The lowest passing mark is 75. To arrive, then, at a four year average, 5 points are given for each E, 4 for each G, 3 for each M, and 2 for each P. The average is the sum of the points divided by the number of grades. For example, a student has 4 E's, 3 G's, 6 M's, and 3 P's; the total number of points is 56 and the number of grades is 16. The average is 3.50, which in terms of the school marks is the midpoint between G and M.

However, a few more students are enrolled in the school. It is expected that the school will be able to handle the increased enrollment. The school is currently in the process of expanding its facilities to accommodate the growing number of students. The school is also planning to hire more teachers to meet the demand.

The data were provided from the records of the school. The data include the names of the students, their ages, and their grades. The data were collected from the school's records and are accurate. The data were used to analyze the school's performance and to identify areas for improvement.

A list of such information is attached. The information is provided for the school's use. The information is accurate and reliable. The information was collected from the school's records and is used to monitor the school's progress.

The following information is provided for the school's use. The information is accurate and reliable. The information was collected from the school's records and is used to monitor the school's progress. The information includes the names of the students, their ages, and their grades.

The information is provided for the school's use. The information is accurate and reliable. The information was collected from the school's records and is used to monitor the school's progress. The information includes the names of the students, their ages, and their grades.

The next step was that of segregating the graduates of each class year into the five occupational groups. This segregation was based on the parental occupation as indicated on the application card of each graduate. The English-speaking and the Spanish-speaking students were separated on the basis of family names. Spanish family names are distinct. The students with Spanish family names were classified as Spanish-speaking and the students not with Spanish family names were classified as English-speaking.

Then the means, medians, ranges, frequency distributions, and percentage relatives were computed for the following:

1. The five occupational classifications of the three graduation classes with the Spanish-speaking and the English-speaking graduates combined.
2. The five occupational groups of only the Spanish-speaking graduates of the three graduation classes.
3. The five occupational groups of only the English-speaking graduates of the three graduation classes.
4. The five occupational groups of Spanish-speaking and English-speaking graduates combined for each of the class years, 1933, 1934, 1935.
5. The five occupational groups of only the Spanish-speaking graduates for each of the class years, 1933, 1934, 1935.
6. The five occupational groups of only the English-speaking graduates for each of the class years, 1933, 1934, 1935.

The first step was to select the subjects of

each class year into the five experimental groups. This was

done on the basis of a random assignment of the subjects to

the five experimental groups of each year. The English-speaking

and the Spanish-speaking subjects were assigned to the first

of family names. The Spanish family names were assigned to the

students with Spanish family names who attended at the

speaking and the Spanish-speaking subjects were assigned to the

classified as English-speaking.

Thus the means, means, means, means, means, means, means, means

and persons, persons, persons, persons, persons, persons, persons, persons

1. The first group of subjects was assigned to the first

group of subjects, the first group of subjects, the first group of

group of subjects, the first group of subjects, the first group of

Review of Related Studies

A review of the several investigations and observations of other investigators shows a positive correlation between the economic status of parents and scholastic achievement of pupils. Those holding the most favored economic status in life have more capability than those in the less fortunate levels. That there is this common agreement among economists, educators, and psychologists is hardly questioned.

Can man by changing the conditions under which his offspring are reared produce in them significant changes both in their capabilities and their achievements? Jordan, after a study of twelve hundred children, using the Pintner-Cunningham Primary Mental Tests of Intelligence, answers in the affirmative. "When the scores of the children were classified into groups according to the economic level of their parents it was clear that in general the median scores increased proportionately with the economic level." Substantial differences appeared among the various occupational groups. Jordan identifies each occupational group with a particular level of leisure, refinement, opportunity, and control over material goods and services.

-
1. Jordan, Arthur M. "Occupations and Intelligence Scores." Journal of Applied Psychology, v.17, p.103-119, April 1933.

Stoke, tracing the influence of social status upon intelligence quotients with the Cyril Burt Mental and Scholastic Tests says "The relationship between occupational groups and intelligence is very strong". He concludes "that for children from the lower social strata the harder literary tests must be forever beyond their cultural horizon".¹

However, three-fourths of the children of average intelligence that he tested came from below the highest occupational group. This he attributes to the above average ability and to the abundant opportunities in this country. Stoke made his study in 1927.²

Hirsch tested three hundred school children over a six year period in Nashville, Tennessee, with the Otis Primary Test and the Otis Advanced Test. He found a consistent correlation between the economic status of parents and the I. Q.'s of their children.³

The study of Haggerty and Nash is significant. They surveyed New York's rural schools covering 8,121 school children from the third to the eighth grade. Their investigation included 55 occupations. They conclude thus:

"But little more than one-fourth of children of miners, masons, stoneworkers, laborers, farmers, bakers, and blacksmiths appear to be as able to profit by the work of the elementary high school

1. Stoke, Stuart M. Op. cit., p.24.
2. Stoke, Stuart M. Op. cit., p.87.
3. Hirsch, Nathaniel D. "An Experimental Study Upon Three Hundred School Children Over a Six Year Period." Genetic Psychology Monographs, v.7, p.532.

studies, showing the influence of social status upon in-

elligence quotients with the typical mental and educational

status. The relationship between occupational groups and

intelligence is very small. The correlation is not high

even from the lower social strata the better literary tests

must be forever beyond the original horizon.

However, three-fourths of the children of average intel-

ligence that he tested were from below the typical occupational

group. This is attributed to the above average ability and

to the abundant opportunities in this country. These facts

are usually in 1937.

Hispanic tested were mostly school children over a year

year period in 1937. This is, however, with the only literary

test and the only literary test. In 1937 a comparison was

relation between the economic status of parents and the

I. Q.'s of their children.

The study of language and reading is significant. They

surveyed New York's public schools covering 6,151 school

children from the 1st to the eighth grade. Their three-

vision included 33 districts. They conducted three

but little more than one-third of children of

minority groups, Negroes, Puerto Ricans, and

Chinese, and American-born of foreign birth.

Results of the study of the elementary school

1. School, District, Grade, Sex, Age, Race, Religion

2. School, District, Grade, Sex, Age, Race, Religion

3. School, District, Grade, Sex, Age, Race, Religion

as three-fourths of children of druggists, brokers, officials, insurance men, lawyers, teachers, office workers, doctors, dentists, accountants, bankers, and merchants."

Their explanation is that children of the professional class can better master the current curriculum with its emphasis¹ on conceptual knowledge.

Holley, concerned with the qualitative analysis of the relationships between the schooling of children and their home conditions, made studies at Decatur, Centralia, Campaign, Gibson City, and Urbana, Illinois. His studies found "a close relationship between the advantages of the home, its education, economic, and social stations and the number of² years of schooling which its children receive".

Of large scale investigations on school children, Collins' study appears to be fairly representative. The survey of the first six grades included 4,727 children. The occupational distribution was representative of an American industrial city.

His occupational groupings exemplify classifications into levels of intelligence requirements justified by the Barr Scale of occupational intelligence. The most important conclusions of Collins' extensive study are:

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1. Haggerty, M. E. and Nash, Harry B. Op. cit., p.563.
 2. Holley, Charles E. "The Relationship Between Persistence in School and Home Conditions." National Society for the Scientific Study of Education Yearbook, v.15, part 2, p.96.

as a result of the study of the
problem, it is clear that the
effect of the study is to
be that the study is to

Their study is to be that of the
can be better understood and
on conceptual knowledge.

Below, we present the qualitative analysis of the
relationships between the schooling of children and their

home conditions. These studies at the level of the
parent, child, and school. The study is to be that of the

"a close relationship between the schooling of the child and
education, economic, and social conditions and the number of

years of schooling which the child receives.

Of large scale investigations on school children, the study
study is to be that of the relationship between the schooling of

the first six grades included 4,727 children. The study
factual relationship was representative of an American family

study is to be that of the relationship between the schooling of

His educational environment especially educational
into levels of schooling and social conditions. The study is to be that of the

that levels of educational achievement. The study is to be that of the

and conditions of the study is to be that of the

1. Educational level and social conditions. The study is to be that of the

2. Educational level and social conditions. The study is to be that of the

in educational level and social conditions. The study is to be that of the

1. The children of professional and managerial fathers have higher intelligence quotients on the average than those of clerical or trade fathers, who in turn have a higher intelligence rating than the children of laboring fathers.
2. The professional and managerial groups lie almost entirely above the general mean, whereas the unskilled labor and agricultural groups lie almost entirely below the general mean.
3. The chances are that half the children of professional parents will be of superior intelligence and that not more than one-tenth of the children of unskilled laborers will show a similar degree of intelligence.
4. It would seem, therefore, that such a direct relationship exists between the probable school success of the child and the occupational status of the family as to make the latter a definite factor in development of adequate educational and guidance progress.

If we summarize the studies of the correlation between occupational status and scholastic achievement and intelligence, one salient deduction is inevitable: an improved

1. Collins, J. E. Op. cit., p.157-169.

1. The difference between professional and managerial laborers

have higher intelligence quotient than the average

man. They are also of higher social status, and are

more likely to have higher intelligence quotient than the

average of the general population.

2. The professional and managerial groups are more

likely to have the general education, which is the

main factor in determining the level of the

general education of the general population.

3. The educated man has a higher intelligence quotient

than the average man, and is also of higher social status

and has a higher intelligence quotient than the average

man. The educated man is also of higher social status

and has a higher intelligence quotient.

4. It is well known that the educated man is of higher

social status than the average man, and is also of higher

intelligence quotient than the average man.

5. It is well known that the educated man is of higher

intelligence quotient than the average man, and is also

of higher social status.

6. It is well known that the educated man is of higher

intelligence quotient than the average man, and is also

of higher social status than the average man.

environment occasioned by a higher occupational status of parent will improve correspondingly the child's scholastic achievements. It may still be questioned whether the correlation is due to heredity or environment. A crucial test would be to make a study very early in the child's life before the influence of environment had been at work long enough to be a significant factor. To do that would be to study the influence of heredity. This specific objective was attempted by Furfey. Using the Linfert-Hierholzer Infant Scale and the Chapman-Sims Socio-Economic Scale, Furfey found "no significant correlation between intelligence of young offspring and parental status in the socio-economic world".¹

In this study the relation of scholastic achievement and economic status of Spanish-speaking graduates was to be compared with the same relation of the English-speaking graduates. The comparison will show differences, whose cause it is important to know as far as possible. Three main possible factors may cause the differences: (1) racial heredity, (2) inferior home environment, and (3) language limitations.

There is an implication of racial inferiority when a racial group falls below another in intelligence tests.

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1. Furfey, Paul H. "The Relation Between Socio-Economic Status and Intelligence of Young Infants as Measured by the Linfert-Hierholzer Scale." Journal of Genetic Psychology, v.35, p.479, September 1928.

Delmet tested 341 Mexican children of a Los Angeles County school with standard tests. On the basis of the results Delmet was able to conclude that "Mexican children studied show on the whole greater school retardation, less acceleration, and are on the whole much older for a given grade than are white children".¹

A conclusion similar in nature was reached also by Hughes. The latter used the Goodenough Scale on a sampling of 12,000 drawings by Mexican and non-Mexican pupils from the first four grades of the San Antonio public schools. He found that the higher scores are in favor of the non-Mexican children.²

Garretson, investigating the causes of retardation among Mexican children, declared mental ability the principal causative factor.³

A state-wide survey in New Mexico by Sinninger, based on the Monroe Silent Reading Test, revealed that the Spanish-speaking pupils show decidedly less ability in both rate and comprehension than do the English-speaking pupils.⁴

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1. Delmet, D. F. "A Study of the Mental and Scholastic Abilities of Mexican Children in the Elementary School." Journal of Juvenile Research, v.14, p.278, October 1930.
 2. Hughes, L. S. "A Comparative Study of the Intelligence of Mexican Children."
 3. Garretson, O. K. "A Study of the Causes of Retardation Among Mexican Children." Journal of Educational Psychology, v.19, p.40, January, 1928.
 4. Sinninger, Harlan. New Mexico Reading Survey, p.88-89.

Tireman, in a survey of reading in the elementary schools of New Mexico, found that the Spanish-speaking children made progressively lower scores than the English-speaking. He partly attributes his conclusion to the economic level. He stresses the amount of reading matter available for children at home, whose quality and amount he presumes "reasonably" to be greater the higher the economic status. "The English-speaking make use of their more favorable environment and continue to read. The Spanish-speaking are unable to find¹ (or to have) material in English, and cease to read." The environment of the Spanish-speaking is not conducive to reading; it has few books and periodicals. A newspaper, in many cases, is the only reading matter in Spanish-speaking homes.

Both Sanchez in New Mexico and Manuel in Texas found extremes in the economic status of Spanish-speaking people. But the general condition was "inferior" and "underprivileged". Unskilled labor, pitifully low wages, unsteady employment, low standard of living--these are, in the main, characteristics of the Spanish-speaking people in the South-²west, according to Manuel and Sanchez. With this condition, supported by the almost imperative findings of many investigators, Sanchez feels impelled to believe firmly that

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1. Tireman, Lloyd S. "Reading in the Elementary Schools of New Mexico." Elementary School Journal, v.30, p.624, April 1930.
 2. Manuel, Herschel Thurman. The Education of Mexican and Spanish-speaking Children in Texas.

differences noted in test results of native children may in a large degree be explained by the low socio-economic status of the people.¹

The existence of the language handicap of the native pupils should be recognized. The medium of expression in their homes is predominantly Spanish and its influence must be given serious consideration. There are conflicting conclusions on the subject. Garretson holds that the language difficulty operates to a disadvantage in grades one to two, disappearing at the time the child reaches the upper grades. Manuel and Wright, because the child on entering school knows little or nothing of the school language, say he has "more to learn". He has to learn both the oral and the written language of the school.² Otis believes the handicap a serious one only in the elementary grades.³ There is this common agreement: the language handicap disappears beyond the lower grades and is almost non-existent in the high school grades. The rate of disappearance occurs more rapidly among Spanish-speaking pupils of high socio-economic status.

Yoder, a recognized student of the question, closes a review of a mass of data with these words: "It may be

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1. Sanchez, George I. A Study of the Scores of Spanish-Speaking Children on Repeated Tests, p.18.
 2. Manuel, Herschel Thurman and Wright, Carrie E. "The Language Difficulty of Mexican Children." Journal of Genetic Psychology, v.36, p.461, September 1929.
 3. Otis, Arthur S. Manual of Directions.

differences noted in test results of native children may
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status of the people.

The existence of the language handicap of the native
pupils should be recognized. The method of expression in
their homes is predominantly Spanish and the influence must
be given serious consideration. There are conflicting con-
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difficulty operates to a disadvantage in grades one to six.
Disappearing at the time the child reaches the upper grades.
Hannell and Wright, because the child on entering school
knows little or nothing of the school language, say he has
"more to learn". He has to learn both the oral and the
written language of the school. This belittles the handicap.
There is also a serious question: the language handicap disappears beyond
the lower grades and is almost non-existent in the high
school grades. The role of disappearance occurs more rapidly
among Spanish-speaking pupils of high socio-economic status.
Yoder, a recognized student of the question, classifies
review of a mass of data with these words: "It may be

1. Gutterson, George L. A Study of the Scores of Spanish-
speaking Children on repeated tests, p. 13.
2. Hannell, Herbert William and Wright, L. "The
Language Difficulty of Mexican Children." *Journal of
Educational Psychology*, v. 32, p. 451, September 1941.
3. Wright, Herbert W. *Journal of Educational Psychology*.

correctly concluded that the consensus of competent scientific thought... finds no proof of racial inferiority or superiority..."¹

The question must take into full account such factors as amount of opportunity and education, social status, and the economic level. Not until their influence is definitely ascertained will finalities on innate racial differences be tenable.

1. Yoder, D. "Present Status of the Question of Racial Differences." Journal of Educational Psychology, v.19, p.463-470, October 1928.

Part II

ANALYSIS OF DATA

In seeking a measure of central tendency, both the mean and median were computed. The means and medians of the different parts of the data correspond closely as Figure I graphically shows. The difference between the two is small. There is no reason, then, to use both as measures of central tendency. Since the median corresponds closely to the mean, the latter may be accepted as a fairly representative measure.

The mean, median, range, number of graduates, and percentage relatives of each occupational group, based on the four years' grades of 801 Albuquerque High School graduates, are shown in Table I.

Table I shows the distribution of the graduates' parents over the five occupational groups. The 801 graduates are distributed thus: unskilled labor, 50; semi-skilled labor, 78; skilled labor, 164; lower middle class, 287; and professional class, 222. It is seen that the number of parents in the two lowest occupational groups, unskilled and semi-skilled labor, are comparatively very small. Their numbers combined are less than the number falling in the skilled labor group. The

Page 11

ANALYSIS OF DATA

In making a summary of control measures, both the physical and medical were considered. The physical measures of the different parts of the plant were grouped together as follows:

Physically, the plant was divided into three main sections. There is an engine room, which is the main source of power. There is a boiler room, which is the main source of heat. There is a storage room, which is the main source of materials.

These three sections were further divided into sub-sections. The engine room was divided into four sub-sections: the main engine, the auxiliary engine, the generator, and the motor. The boiler room was divided into three sub-sections: the main boiler, the auxiliary boiler, and the steam engine. The storage room was divided into two sub-sections: the main storage room and the auxiliary storage room.

The following table shows the results of the analysis of the data. The first column shows the name of the section, the second column shows the number of sections, the third column shows the number of sub-sections, and the fourth column shows the number of items.

Section	Number of Sections	Number of Sub-sections	Number of Items
Engine Room	1	4	10
Boiler Room	1	3	8
Storage Room	1	2	5
Total	3	9	23

The following table shows the results of the analysis of the data. The first column shows the name of the section, the second column shows the number of sections, the third column shows the number of sub-sections, and the fourth column shows the number of items.

Section	Number of Sections	Number of Sub-sections	Number of Items
Engine Room	1	4	10
Boiler Room	1	3	8
Storage Room	1	2	5
Total	3	9	23

lower middle class group has the highest number of parents, closely followed by the professional class. Their numbers are decidedly higher. Combined these two upper classes have a total of 509 or 74% of the 801 graduates. The three labor groups have a combined total of 292 or only 36% of the 801 graduates. On the basis of this distribution, the student body of the Albuquerque High School comes, preponderantly, from middle class and professional parents. Roughly, one-third of the graduates belong to the working class.

From an inspection of Table I and Figure I, the relationship between paternal occupation and scholastic achievement is seen to be strong. To present significant comparisons of the means of the five occupational groups, it was considered appropriate to use percentage relatives. Percentage relatives in this study are computed by using the mean of Group I as a base equalling 100%. Thus differences in means are shown in percentage relatives.

The mean of Group V, the professional class, is 3.62, much higher than the mean of any other group. Small differences exist between the means of the lower middle class group and skilled labor. The former's is 3.14 while the latter's is 3.18. The mean of unskilled labor is 2.92; that of semi-skilled labor is 2.95. It is obvious that skilled labor makes a markedly higher average than the other two working class groups, even slightly higher than the lower

middle class group. Significantly enough, the professional class has a percentage relative of 123.84% or 23.84% higher than that of the unskilled labor group.

The ranges of the occupational groups reveal a significant finding: all the groups, except unskilled labor, have similar ranges. This means that the upper four occupational groups have graduates with both very high and very low means, though not in equal proportions. The unskilled labor group is dominated by middle value means with only a few means above 3.40.

Table II shows the frequency distributions of averaged grades in the five occupational groups for the Spanish-speaking and English-speaking graduates combined. It will be noticed that the class intervals in the frequency distributions are all equal, facilitating comparisons among the occupational groups.

Obviously, the frequency distributions show an increase in the number of means above the interval 4.00--4.19 as we move from Group I toward Group II.

middle class group. Significantly enough, the professional class has a percentage relative of 125.84% or 25.61% higher than that of the unskilled labor group.

The ranges of the occupational groups reveal a significant finding: all the groups, except unskilled labor, have similar ranges. This means that the upper four occupational groups have gradations which are very high and very low means. Though not in equal proportion, the unskilled labor group is dominated by middle value means with only a few means above 5.40.

Table II shows the frequency distributions of unskilled

grades in the five occupational groups for the Spanish-speaking and English-speaking gradations combined. It will be noticed that the class intervals in the frequency distributions are all equal, facilitating comparisons among the occupational groups.

Obviously, the frequency distributions show an increase

in the number of means above the interval 4.00-4.19 as we move from Group I toward Group II.

TABLE I

MEANS, MEDIANS, RANGES, NUMBER OF CASES, AND PERCENTAGE
RELATIVES OF THE FIVE OCCUPATIONAL GROUPS
OF THE SPANISH-SPEAKING AND ENGLISH-SPEAKING PUPILS
COMBINED FOR THE THREE GRADUATION CLASSES

Occupational Groups	Number of Pupils	Mean	Median	Range	Percentage Relative ¹
V	222	3.62	3.56	2.87	123.84
IV	287	3.14	3.13	2.93	107.62
III	164	3.18	3.13	2.71	108.74
II	78	2.95	2.92	2.50	101.12
I	50	2.92	2.935	1.94	100.00
Total	801				

1. Percentages in this column are computed using the mean of Group I as a base equalling 100 percent.

TABLE 1

MEANS, STANDARD DEVIATIONS, AND PERCENTAGES OF THE TOTAL SAMPLE OF 1000 SUBJECTS IN THE SPANISH-AMERICAN WAR GROUP, 1917-1918, AS COMPARED FOR THE THREE GROUPS.

Organizational Group	Mean of Page	Mean	Median	Standard Deviation	Percentage of Total
I	80	2.36	2.32	1.34	10.00
II	75	2.30	2.28	1.30	10.00
III	104	2.16	2.12	1.21	10.00
IV	287	2.14	2.12	1.21	10.00
V	289	2.04	2.02	1.19	10.00
Total	601				

1. Percentages in this column are computed using the mean of Group I as a base, assuming 100 percent.

TABLE II

FREQUENCY DISTRIBUTION OF AVERAGED GRADES
IN THE FIVE OCCUPATIONAL GROUPS FOR THE SPANISH-SPEAKING
AND ENGLISH-SPEAKING PUPILS COMBINED

Occupational Groups	I	II	III	IV	V
Arithmetic Mean of Grades	Fre- quency	Fre- quency	Fre- quency	Fre- quency	Fre- quency
5.00-5.19...	0	0	0	1	1
4.80-4.99...	0	0	1	1	8
4.60-4.79...	0	0	5	5	16
4.40-4.59...	0	1	1	6	15
4.20-4.39...	0	0	3	4	18
4.00-4.19...	1	4	10	4	17
3.80-3.99...	3	1	7	15	16
3.60-3.79...	2	4	8	21	19
3.40-3.59...	2	4	13	27	22
3.20-3.39...	4	12	17	44	24
3.00-3.19...	11	12	35	42	19
2.80-2.99...	10	6	21	30	19
2.60-2.79...	3	14	19	38	19
2.40-2.59...	7	10	17	35	7
2.20-2.39...	3	7	7	13	1
2.00-2.19...	4	3	0	1	1
Totals	50	78	164	287	222

1. The first listing on the left is the
 2. in the second column the third column
 3. and the third column listing is the

Geographical Areas					
of Census					
Area	Area	Area	Area	Area	Area
1	2	3	4	5	6
1	1	0	0	0	0.00-0.10
2	1	0	0	0	0.10-0.20
3	2	0	0	0	0.20-0.30
4	2	1	0	0	0.30-0.40
5	3	1	0	0	0.40-0.50
6	4	2	0	0	0.50-0.60
7	5	3	1	0	0.60-0.70
8	6	4	2	0	0.70-0.80
9	7	5	3	1	0.80-0.90
10	8	6	4	2	0.90-1.00
11	9	7	5	3	1.00-1.10
12	10	8	6	4	1.10-1.20
13	11	9	7	5	1.20-1.30
14	12	10	8	6	1.30-1.40
15	13	11	9	7	1.40-1.50
16	14	12	10	8	1.50-1.60
17	15	13	11	9	1.60-1.70
18	16	14	12	10	1.70-1.80
19	17	15	13	11	1.80-1.90
20	18	16	14	12	1.90-2.00
21	19	17	15	13	2.00-2.10
22	20	18	16	14	2.10-2.20
23	21	19	17	15	2.20-2.30
24	22	20	18	16	2.30-2.40
25	23	21	19	17	2.40-2.50
26	24	22	20	18	2.50-2.60
27	25	23	21	19	2.60-2.70
28	26	24	22	20	2.70-2.80
29	27	25	23	21	2.80-2.90
30	28	26	24	22	2.90-3.00
31	29	27	25	23	3.00-3.10
32	30	28	26	24	3.10-3.20
33	31	29	27	25	3.20-3.30
34	32	30	28	26	3.30-3.40
35	33	31	29	27	3.40-3.50
36	34	32	30	28	3.50-3.60
37	35	33	31	29	3.60-3.70
38	36	34	32	30	3.70-3.80
39	37	35	33	31	3.80-3.90
40	38	36	34	32	3.90-4.00
41	39	37	35	33	4.00-4.10
42	40	38	36	34	4.10-4.20
43	41	39	37	35	4.20-4.30
44	42	40	38	36	4.30-4.40
45	43	41	39	37	4.40-4.50
46	44	42	40	38	4.50-4.60
47	45	43	41	39	4.60-4.70
48	46	44	42	40	4.70-4.80
49	47	45	43	41	4.80-4.90
50	48	46	44	42	4.90-5.00
51	49	47	45	43	5.00-5.10
52	50	48	46	44	5.10-5.20
53	51	49	47	45	5.20-5.30
54	52	50	48	46	5.30-5.40
55	53	51	49	47	5.40-5.50
56	54	52	50	48	5.50-5.60
57	55	53	51	49	5.60-5.70
58	56	54	52	50	5.70-5.80
59	57	55	53	51	5.80-5.90
60	58	56	54	52	5.90-6.00
61	59	57	55	53	6.00-6.10
62	60	58	56	54	6.10-6.20
63	61	59	57	55	6.20-6.30
64	62	60	58	56	6.30-6.40
65	63	61	59	57	6.40-6.50
66	64	62	60	58	6.50-6.60
67	65	63	61	59	6.60-6.70
68	66	64	62	60	6.70-6.80
69	67	65	63	61	6.80-6.90
70	68	66	64	62	6.90-7.00
71	69	67	65	63	7.00-7.10
72	70	68	66	64	7.10-7.20
73	71	69	67	65	7.20-7.30
74	72	70	68	66	7.30-7.40
75	73	71	69	67	7.40-7.50
76	74	72	70	68	7.50-7.60
77	75	73	71	69	7.60-7.70
78	76	74	72	70	7.70-7.80
79	77	75	73	71	7.80-7.90
80	78	76	74	72	7.90-8.00
81	79	77	75	73	8.00-8.10
82	80	78	76	74	8.10-8.20
83	81	79	77	75	8.20-8.30
84	82	80	78	76	8.30-8.40
85	83	81	79	77	8.40-8.50
86	84	82	80	78	8.50-8.60
87	85	83	81	79	8.60-8.70
88	86	84	82	80	8.70-8.80
89	87	85	83	81	8.80-8.90
90	88	86	84	82	8.90-9.00
91	89	87	85	83	9.00-9.10
92	90	88	86	84	9.10-9.20
93	91	89	87	85	9.20-9.30
94	92	90	88	86	9.30-9.40
95	93	91	89	87	9.40-9.50
96	94	92	90	88	9.50-9.60
97	95	93	91	89	9.60-9.70
98	96	94	92	90	9.70-9.80
99	97	95	93	91	9.80-9.90
100	98	96	94	92	10.00-10.10
101	99	97	95	93	10.10-10.20
102	100	98	96	94	10.20-10.30
103	101	99	97	95	10.30-10.40
104	102	100	98	96	10.40-10.50
105	103	101	99	97	10.50-10.60
106	104	102	100	98	10.60-10.70
107	105	103	101	99	10.70-10.80
108	106	104	102	100	10.80-10.90
109	107	105	103	101	10.90-11.00
110	108	106	104	102	11.00-11.10
111	109	107	105	103	11.10-11.20
112	110	108	106	104	11.20-11.30
113	111	109	107	105	11.30-11.40
114	112	110	108	106	11.40-11.50
115	113	111	109	107	11.50-11.60
116	114	112	110	108	11.60-11.70
117	115	113	111	109	11.70-11.80
118	116	114	112	110	11.80-11.90
119	117	115	113	111	11.90-12.00
120	118	116	114	112	12.00-12.10
121	119	117	115	113	12.10-12.20
122	120	118	116	114	12.20-12.30
123	121	119	117	115	12.30-12.40
124	122	120	118	116	12.40-12.50
125	123	121	119	117	12.50-12.60
126	124	122	120	118	12.60-12.70
127	125	123	121	119	12.70-12.80
128	126	124	122	120	12.80-12.90
129	127	125	123	121	12.90-13.00
130	128	126	124	122	13.00-13.10
131	129	127	125	123	13.10-13.20
132	130	128	126	124	13.20-13.30
133	131	129	127	125	13.30-13.40
134	132	130	128	126	13.40-13.50
135	133	131	129	127	13.50-13.60
136	134	132	130	128	13.60-13.70
137	135	133	131	129	13.70-13.80
138	136	134	132	130	13.80-13.90
139	137	135	133	131	13.90-14.00
140	138	136	134	132	14.00-14.10
141	139	137	135	133	14.10-14.20
142	140	138	136	134	14.20-14.30
143	141	139	137	135	14.30-14.40
144	142	140	138	136	14.40-14.50
145	143	141	139	137	14.50-14.60
146	144	142	140	138	14.60-14.70
147	145	143	141	139	14.70-14.80
148	146	144	142	140	14.80-14.90
149	147	145	143	141	14.90-15.00
150	148	146	144	142	15.00-15.10
151	149	147	145	143	15.10-15.20
152	150	148	146	144	15.20-15.30
153	151	149	147	145	15.30-15.40
154	152	150	148	146	15.40-15.50
155	153	151	149	147	15.50-15.60
156	154	152	150	148	15.60-15.70
157	155	153	151	149	15.70-15.80
158	156	154	152	150	15.80-15.90
159	157	155	153	151	15.90-16.00
160	158	156	154	152	16.00-16.10
161	159	157	155	153	16.10-16.20
162	160	158	156	154	16.20-16.30
163	161	159	157	155	16.30-16.40
164	162	160	158	156	16.40-16.50
165	163	161	159	157	16.50-16.60
166	164	162	160	158	16.60-16.70
167	165	163	161	159	16.70-16.80
168	166	164	162	160	16.80-16.90
169	167	165	163	161	16.90-17.00
170	168	166	164	162	17.00-17.10
171	169	167	165	163	17.10-17.20
172	170	168	166	164	17.20-17.30
173	171	169	167	165	17.30-17.40
174	172	170	168	166	17.40-17.50
175	173	171	169	167	17.50-17.60
176	174	172	170	168	17.60-17.70
177	175	173	171	169	17.70-17.80
178	176	174	172	170	17.80-17.90
179	177	175	173	171	17.90-18.00
180	178	176	174	172	18.00-18.10
181	179	177	175	173	18.10-18.20
182	180	178	176	174	18.20-18.30
183	181	179	177	175	18.30-18.40
184	182	180	178	176	18.40-18.50
185	183	181	179	177	18.50-18.60
186	184	182	180	178	18.60-18.70
187	185	183	181	179	18.70-18.80
188	186	184	182	180	18.80-18.90
189	187	185	183	181	18.90-19.00
190	188	186	184	182	19.00-19.10
191	189	187	185	183	19.10-19.20
192	190	188	186	184	19.20-19.30
193	191	189	187	185	19.30-19.40
194	192	190	188	186	19.40-19.50
195	193	191	189	187	19.50-19.60
196	194	192	190	188	19.60-19.70
197	195	193	191	189	19.70-19.80
198	196	194	192	190	19.80-19.90
199	197	195	193	191	20.00-20.10
200	198	196	194	192	20.10-20.20
201	199	197	195	193	20.20-20.30
202	200	198	196	194	20.30-20.40
203	201	199	197	195	20.40-20.50
204	202	200	198	196	20.50-20.60
205	203	201	199	197	20.60-20.70
206	204	202	200	198	20.70-20.80
207	205	203	201	199	20.80-20.90
20					

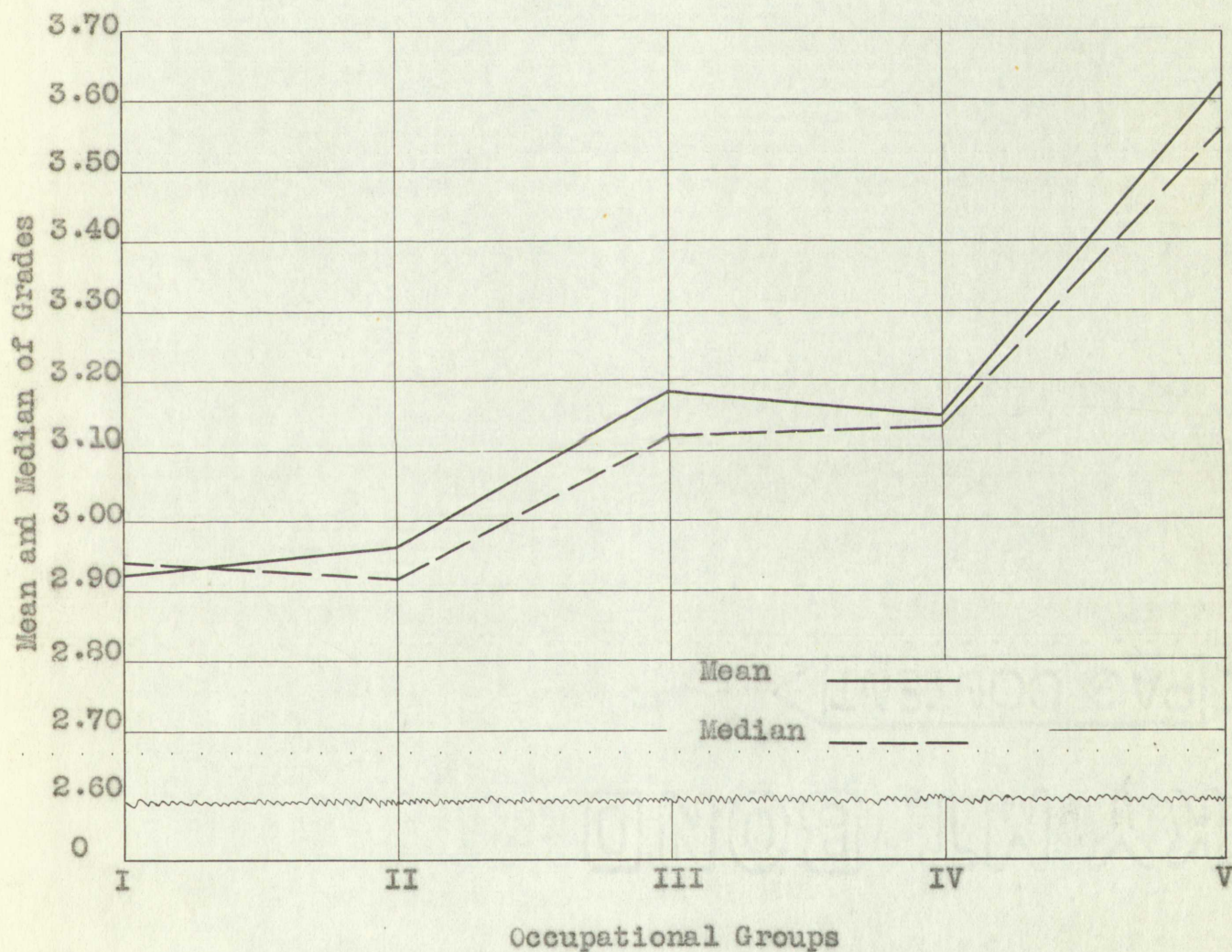


Fig. 1. Mean and Median of High School Grades of 801 Spanish-Speaking and English-Speaking Pupils Combined Among the Five Occupational Groups.

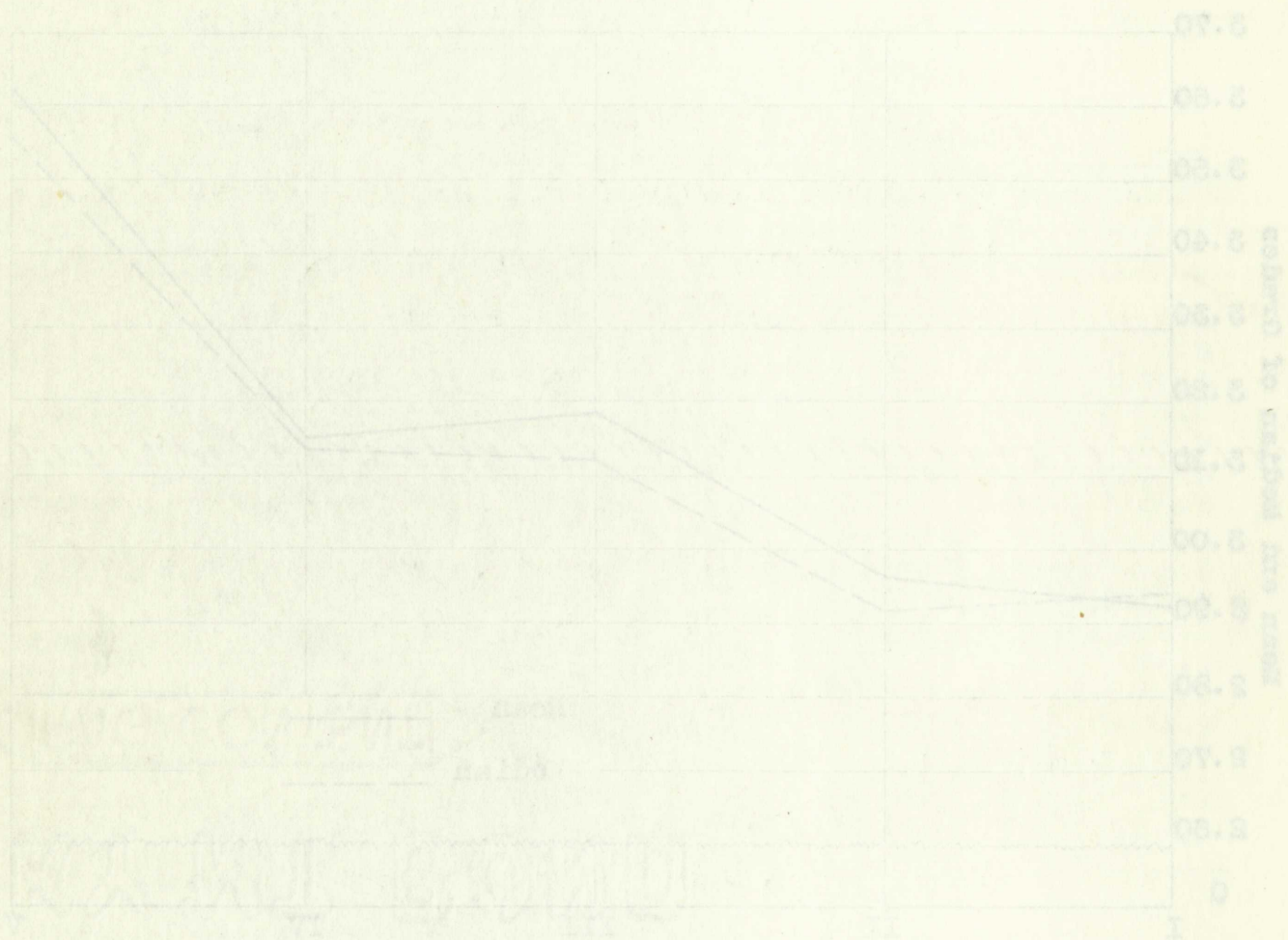


Fig. 1. Effect of time on the percentage of original dry weight remaining in the control and treated groups of cells. The line represents the mean.

Having observed the general data and tendencies of Table I and II and Figure I, it is important to note the data of the component parts to be presented in the following tables and figures. The extent of consistency between the component parts and the data taken as a whole measures the reliability of our findings.

Table III presents the scholastic achievement of the 134 Spanish-speaking graduates among the five occupational groups. The distribution of the Spanish-speaking graduates among the five occupational groups differs from the distribution of the English-speaking and Spanish-speaking graduates combined, where two-thirds are found in the lower middle class and the professional groups. The Spanish-speaking graduates, according to paternal occupation, belong largely in the three working class groups. Only one-third of them are represented in the two upper groups.

In Table III the means and medians, while with some irregularities as indicated in Figure II, are similar to those of Table I and II. A relationship between scholastic achievement and paternal occupation is shown. The mean of the professional class is comparatively much higher than any other group. Its percentage relative is 19.51% higher than that of semi-skilled labor, which is the lowest.

Irregularities occur in the data of the Spanish-speaking graduates. Group IV is noticeably lower even than unskilled labor and barely above semi-skilled labor. While

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Table 1 ...

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the mean of skilled labor does not approach that of the professional class, it is much higher than the other three groups.

Table III shows that only the professional class and skilled labor have wide ranges. It can be said that these two groups possess extreme values, while the other three groups do not. Table IV further indicates this. Only the skilled labor and the professional groups have an appreciable distribution of means above the interval 3.20--3.39.

The comparatively small sampling of Spanish-speaking graduates, 134, lends weakness to the data of this racial group. The results are likely to introduce irregularities due solely to the smallness of the sample. Data based on large and equal samplings of Spanish-speaking and English-speaking graduates would preclude such irregularities.

the mean of skilled labor force, the mean of the
 professional class, it is not higher than the other two
 groups.
 Table 1 shows that only the professional class and
 skilled labor have a high value. It can be seen that these
 two groups possess a high value, while the other three
 groups do not. Table IV further indicates that only the
 skilled labor and the professional groups have a high
 value distribution of income above the average of 10-15%.
 The comparatively small number of skilled labor
 groups, the high income level, and the high value
 group, the professional class, are likely to have a high
 due to the high level of the group. Table IV shows on
 large and small number of groups, and the high
 specific groups would produce high returns.

TABLE III

MEANS, MEDIANS, RANGES, NUMBER OF PUPILS
AND PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE SPANISH-SPEAKING PUPILS OF
THE THREE GRADUATION CLASSES

Occupational Groups	Number of Pupils	Mean	Median	Range	Percentage Relative
V	13	3.39	3.27	2.16	114.19
IV	32	2.88	2.79	1.56	97.08
III	36	3.10	3.095	2.34	106.53
II	28	2.81	2.71	1.51	94.68
I	25	2.97	2.94	1.87	100.00
Total	134				

TABLE III

MEANS, MEDIAN, RANGE, NUMBER OF PUPILS
AND PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE SPEAKING-HEARING PUPILS OF
THE THREE GRADATION CLASSES

Occupational Groups	Number of Pupils	Mean	Median	Range	Percentage Relative
V	13	2.22	2.27	2.12	14.12
IV	32	2.08	2.78	1.98	27.08
III	35	2.10	2.02	2.22	30.82
II	28	2.81	2.71	1.81	24.82
I	22	2.27	2.24	1.97	19.00
Total	130				

TABLE IV

FREQUENCY DISTRIBUTION OF AVERAGED GRADES
IN THE FIVE OCCUPATIONAL GROUPS
FOR THE SPANISH-SPEAKING PUPILS

Occupational Groups	I	II	III	IV	V
Arithmetic Mean of Grades	Fre- quency	Fre- quency	Fre- quency	Fre- quency	Fre- quency
5.00-5.19...	0	0	0	0	0
4.80-4.99...	0	0	0	0	0
4.60-4.79...	0	0	1	0	1
4.40-4.59...	0	0	0	0	0
4.20-4.39...	0	0	0	0	1
4.00-4.19...	1	0	1	0	0
3.80-3.99...	1	0	3	1	1
3.60-3.79...	2	1	2	2	1
3.40-3.59...	1	0	2	1	1
3.20-3.39...	1	5	4	6	4
3.00-3.19...	6	5	8	3	2
2.80-2.99...	5	1	6	3	0
2.60-2.79...	2	8	2	6	1
2.40-2.59...	3	6	5	7	1
2.20-2.39...	2	1	2	3	0
2.00-2.19...	1	1	0	0	0
Totals	25	28	36	32	13

Table V presents the scholastic achievement of the 667 English-speaking graduates in the five occupational groups.

The distribution of English-speaking graduates in the five occupational groups is very similar to the distribution of the two racial groups combined, as is shown in Table I. It is seen that the number of parents falling in the unskilled and semi-skilled labor group is but 75 or 11% of the 665. The professional class and the lower middle class groups claim 464 parents or 69% of the sample. The total number falling in the three working class groups is 203 or 31%. On the basis of this data, it can be said again that a large majority of the Albuquerque High School graduates come from middle class and professional parents. The working class groups contribute only one-third of the graduates.

A close examination of Tables V and VI reveals a strong and consistent relationship between scholastic achievement and paternal occupation. The mean of the professional class is decidedly higher than the means of the other groups. Its mean of 3.63 has a percentage relative of 126.45%. There is a distinct difference between unskilled and semi-skilled labor, and between semi-skilled and skilled labor. The mean and median of both skilled labor and the lower middle class groups are nearly equal. The mean of skilled labor is slightly higher.

Table V shows ranges similar to the ranges of Table I. It appears that the four upper occupational groups of English-

Table V presents the scientific achievement of the 637

English-speaking graduates in the five occupational groups.

The distribution of English-speaking graduates in the

five occupational groups is very similar to the distribution

of the two racial groups combined, as is shown in Table I.

It is seen that the number of persons falling in the unskilled

and semi-skilled labor group is but 78 or 11% of the 637. The

professional class and the lower middle class groups contain 46

persons or 6% of the sample. The total number falling in the

three working class groups is 203 or 31%. On the basis of

both data, it can be said again that a large majority of the

Albuquerque High School graduates come from middle class and

professional parents. The working class group comprises

only one-third of the graduates.

A close examination of Tables V and VI reveals a strong

and consistent relationship between scientific achievement

and parental occupation. The mean of the professional class

is decidedly higher than the means of the other groups. The

mean of 3.55 has a percentage relative of 126.43%. There is

a distinct difference between unskilled and semi-skilled

labor and between semi-skilled and skilled labor. The mean

and median of both skilled labor and the lower middle class

groups are nearly equal. The mean of skilled labor is

slightly higher.

Table V shows ranges similar to the ranges of Table I.

It appears that the four upper occupational groups of English-

speaking graduates have extreme mean values, varying in proportions according to the occupational scale. The distribution of the mean values in the occupational classifications is shown in Table VI. It will be noticed that the number of higher means increase as we move from Group I to Group V.

It was deemed advisable to make a graphic comparison between the means of the Spanish-speaking graduates with the means of the English-speaking graduates. Figure II shows curves for the means of these two groups. Except for a slight drop from Group III to Group IV, the curve of the English-speaking graduates moves consistently and definitely upward as we go from Group I to Group V. While its trend seems also to be upward, the curve of the Spanish-speaking graduates has strong irregularities. From the skilled labor group to the lower middle class group, the curve drops sharply. From the unskilled labor to semi-skilled labor group another drop occurs. Another significant feature of Figure II is the noticeable spread between the two racial groups except in Group I.

speaking graduates have various mean values, varying in the
portions according to the morphological factor. The distribu-
tion of the mean values in the morphological classification
is shown in Table VI. It will be noticed that the range of
higher mean values is in the range 1 to 5 group 1.
It was deemed advisable to make a graphic comparison
between the means of the English-speaking graduates with the
means of the English-speaking graduates. Figure 11 shows
curves for the means of these two groups. Except for a
slight drop from group 11 to group 12, the curve of the
English-speaking graduates rises steadily and definitely
upward as we go from group 1 to group 12. While American
seems also to be upward, the curve of the English-speaking
graduates has a slight irregularity. From the English-speaking
group to the lower middle class group, the curve drops
sharply. From the English-speaking group to semi-skilled labor
group another drop occurs. Another significant feature
of Figure 11 is the noticeable space between the two curves
groups except in group 1.

TABLE V

MEANS, MEDIANS, RANGES, NUMBER OF PUPILS
AND PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE ENGLISH-SPEAKING PUPILS
OF THE THREE GRADUATION CLASSES

Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	209	3.63	3.60	2.87	126.45
IV	255	3.18	3.13	2.93	110.60
III	128	3.20	3.13	2.71	111.39
II	50	3.03	3.00	2.50	105.51
I	25	2.87	2.87	1.82	100.00
Total	667				

MEANS, MEDIAN, RANGE, RANGE OF RANGE
AND VARIANCE OF THE DATA
OF THE DATA

Group	Mean	Median	Range	Range of Range	Variance
I	2.37	2.37	1.55	100.00	
II	2.30	2.30	2.50	100.00	
III	2.41	2.41	2.71	100.00	
IV	2.38	2.38	2.50	100.00	
V	2.35	2.35	2.37	100.00	
Total					

TABLE VI

FREQUENCY DISTRIBUTION OF AVERAGED GRADES
IN THE FIVE OCCUPATIONAL GROUPS
FOR THE ENGLISH-SPEAKING PUPILS

Occupational Groups	I	II	III	IV	V
Scholarship Index/ Arithmetic Mean of Grades	Fre- quency	Fre- quency	Fre- quency	Fre- quency	Fre- quency
5.00-5.19	0	0	0	1	1
4.80-4.99	0	0	1	1	8
4.60-4.79	0	0	4	5	15
4.40-4.59	0	1	1	6	15
4.20-4.39	0	0	3	4	17
4.00-4.19	0	4	9	4	17
3.80-3.99	2	1	4	14	15
3.60-3.79	0	3	6	19	18
3.40-3.59	1	4	11	26	21
3.20-3.39	3	7	13	38	20
3.00-3.19	5	7	27	39	17
2.80-2.99	5	5	15	27	19
2.60-2.79	1	6	17	32	18
2.40-2.59	4	4	12	28	6
2.20-2.39	1	6	5	10	1
2.00-2.19	3	2	0	1	1
Totals	25	50	128	255	209

1. Found by computing the arithmetic mean of all grades earned in high school by given pupils.

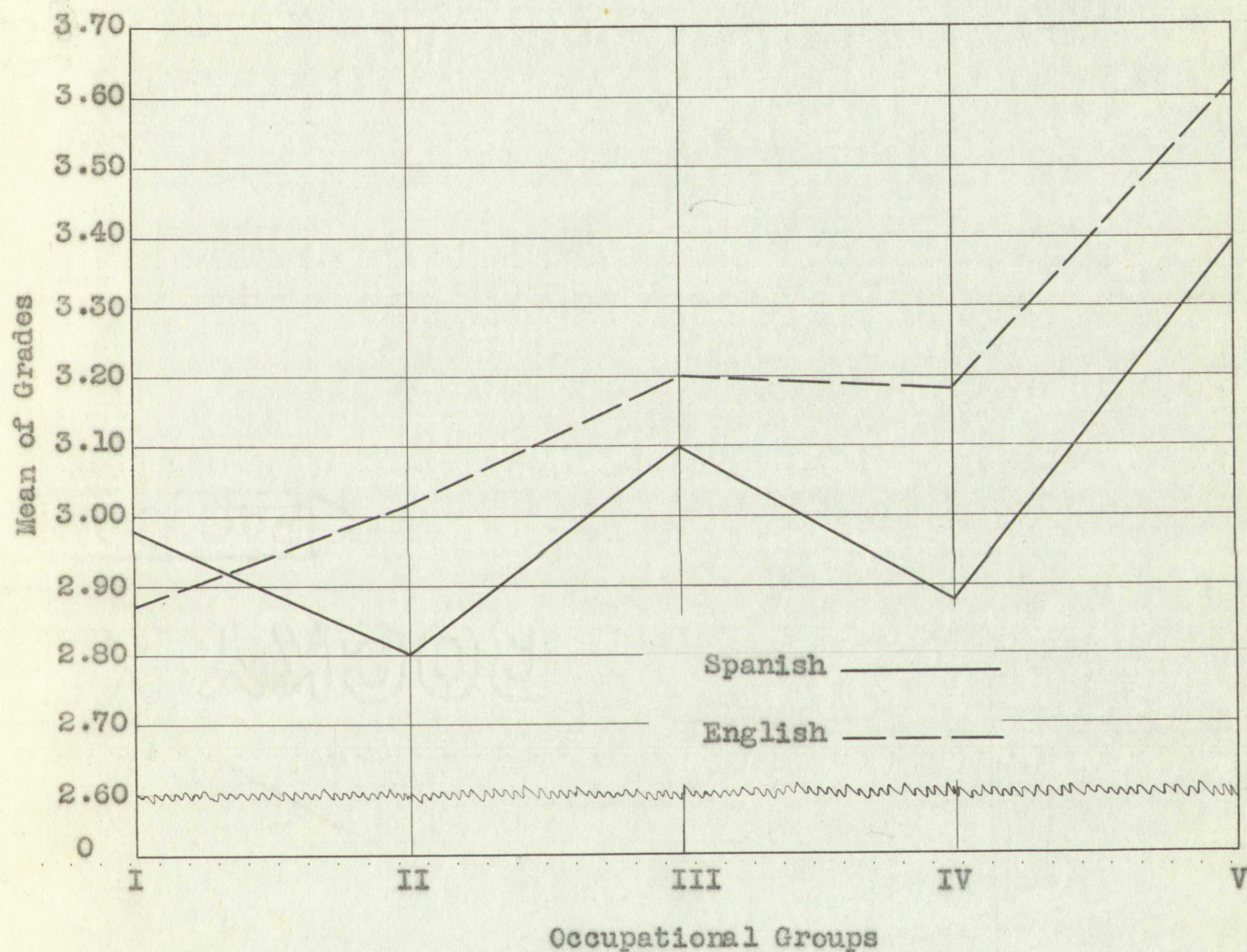


Fig. 2. Mean of the Spanish-Speaking and of the English-Speaking Pupils Based on the Four Years' Grades, Among the Occupational Groups.

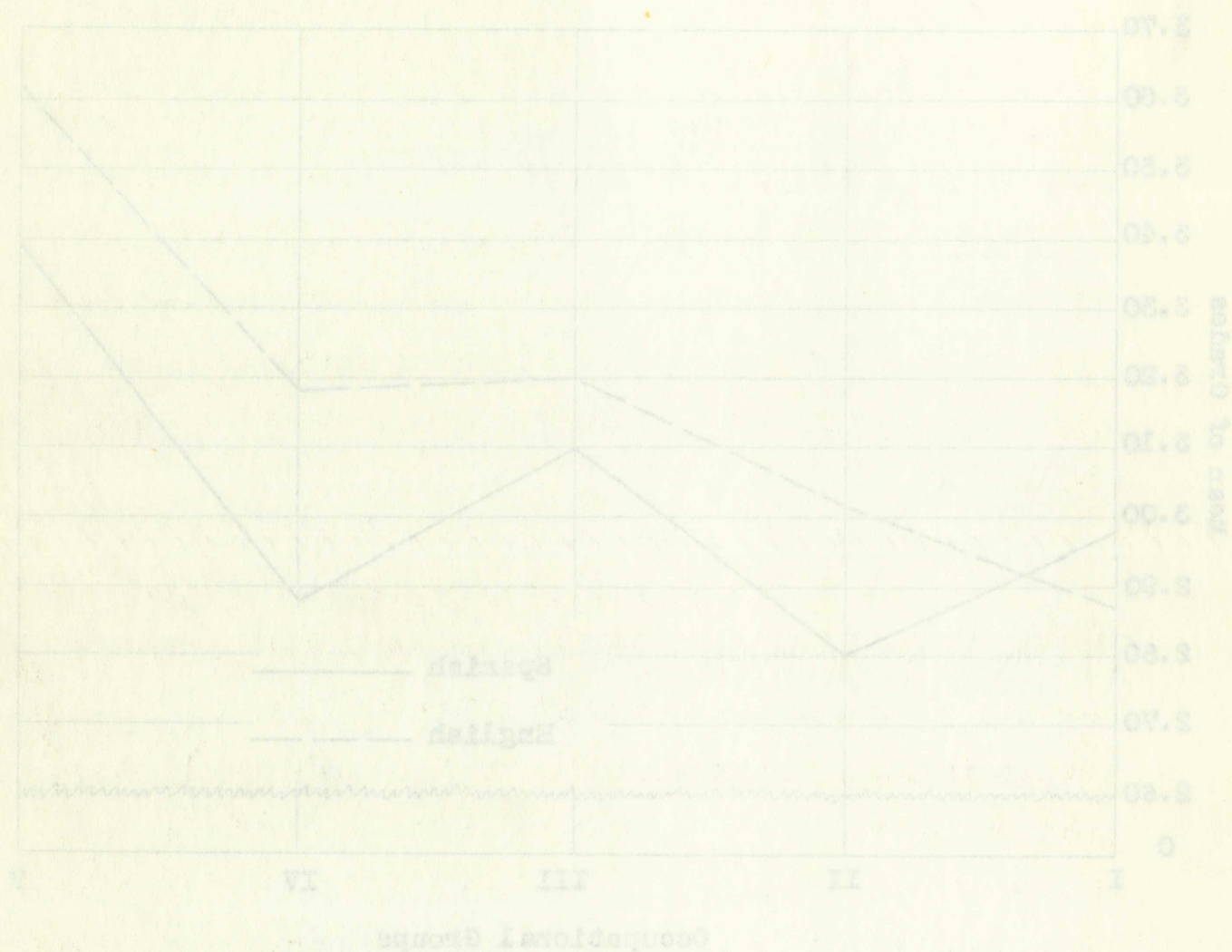


Fig. 2. Mean of the Spanish-Speaking and of the English-Speaking pupils based on the four years' grades, among the Occupational Groups.

Tables VII, VIII, and IX were constructed to present the scholastic achievement of each occupational group within each graduation class. It will be noted that Table VII includes the data of the Spanish-speaking and the English-speaking graduates combined. Tables VIII presents the yearly data of Spanish-speaking graduates, while Table IX presents the yearly data of the English-speaking graduates. Figures III, IV, and V graphically disclose the trends and the relative positions of the five occupational groups within the graduation classes with the two racial groups combined and separated.

When the data is broken up by years as shown in Tables VII, VIII, and IX, and Figures IV and V the results are quite similar to the general data already analyzed. The similarity lies in the consistent relative positions of the occupational groups according to mean, median and percentage relative. The professional class is decidedly highest and the unskilled and semi-skilled labor are uniformly low. The skilled labor in most cases is slightly higher than the lower middle class group. Similarity lies also in the distribution by years, which corresponds closely to the distribution of the general data. With the two racial groups combined about 64% of the graduates come from parents of the lower middle class and professional class. The rest, 36%, come from the working class groups.

Tables VII, VIII, and IX are constructed as follows:

The sociometric membership of each occupational group within each graduation class is still as noted from Table VI. It includes the data of the Spanish-speaking and the English-speaking gradations combined. Table VII presents the data of Spanish-speaking gradations, while Table VIII presents the twenty data of the English-speaking gradations. Tables III, IV, and V graphically display the trends and the relative positions of the two occupational groups within the graduation classes with the two racial groups combined and separated.

When the data is broken up by race as shown in Tables VII, VIII, and IX, and Figures IV and V are compared, quite similar to the general case already analyzed. The similarity lies in the consistent relative position of the occupational groups according to race, within and between gradations. The professional class is generally highest and the working and semi-skilled lower and relatively low. The skilled labor in most cases is relatively higher than the lower middle class group. The similarity lies also in the distribution of groups with respect to the number of gradations of the general case. For the two racial groups combined nearly 65% of the graduates were in the lower middle class and professional class. The rest, 35%, come from the working class groups.

When dealing with the racial groups separated, the results in the Spanish-speaking group are different. Only about 33% belong in the two upper occupational classifications, the rest, or about 67%, belong in the three working class groups.

When dealing with the social groups mentioned, the results
in the Spanish-speaking groups are different. Only about 5%
belong in the two upper occupational classifications, the rest
or about 95% belong in the three working class groups.

TABLE VII

MEANS, MEDIANS, RANGES, NUMBER OF PUPILS,
AND PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE SPANISH-SPEAKING AND ENGLISH-SPEAKING
PUPILS COMBINED FOR EACH GRADUATION CLASS

1933					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	65	3.69	3.60	2.87	128.03
IV	77	3.12	3.13	2.40	108.40
III	44	3.24	3.13	2.51	112.63
II	24	3.05	3.065	1.99	106.08
I	12	2.88	2.77	1.87	100.00
Total	222				

1934					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	79	3.55	3.41	2.42	121.42
IV	103	3.19	3.19	2.68	109.10
III	64	3.27	3.195	2.67	111.87
II	27	2.90	2.87	2.12	99.33
I	17	2.92	2.93	1.10	100.00
Total	290				

1935					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	78	3.60	3.60	2.47	122.01
IV	107	3.125	3.07	2.73	105.90
III	56	3.02	2.87	2.55	102.55
II	27	2.91	2.78	2.32	98.68
I	21	2.95	3.00	1.76	100.00
Total	289				

TABLE VII

MEANS, MEDIAN, RANGE, MODE, AND PERCENTAGE RELATIVE OF THE FIVE OCCUPATIONAL GROUPS OF THE BRITISH-SPRINGING AND SPRING-SPRINGING POINTS COMBINED FOR EACH QUARTER 1953

1953				
Occupational Group	Number	Mean	Median	Percentage Relative
V	88	3.69	3.60	15.03
IV	77	3.12	3.12	10.90
III	64	3.04	3.12	11.33
II	24	3.08	3.08	10.08
I	18	3.68	3.77	10.67
Total	269			

1954				
Occupational Group	Number	Mean	Median	Percentage Relative
V	79	3.58	3.41	12.48
IV	108	3.12	3.12	12.10
III	64	3.07	3.12	11.17
II	27	3.00	3.07	9.83
I	14	3.68	3.68	10.10
Total	290			

1955				
Occupational Group	Number	Mean	Median	Percentage Relative
V	76	3.60	3.60	12.01
IV	107	3.12	3.07	10.60
III	88	3.08	3.07	10.70
II	27	3.01	3.07	9.63
I	21	3.68	3.60	10.00
Total	299			

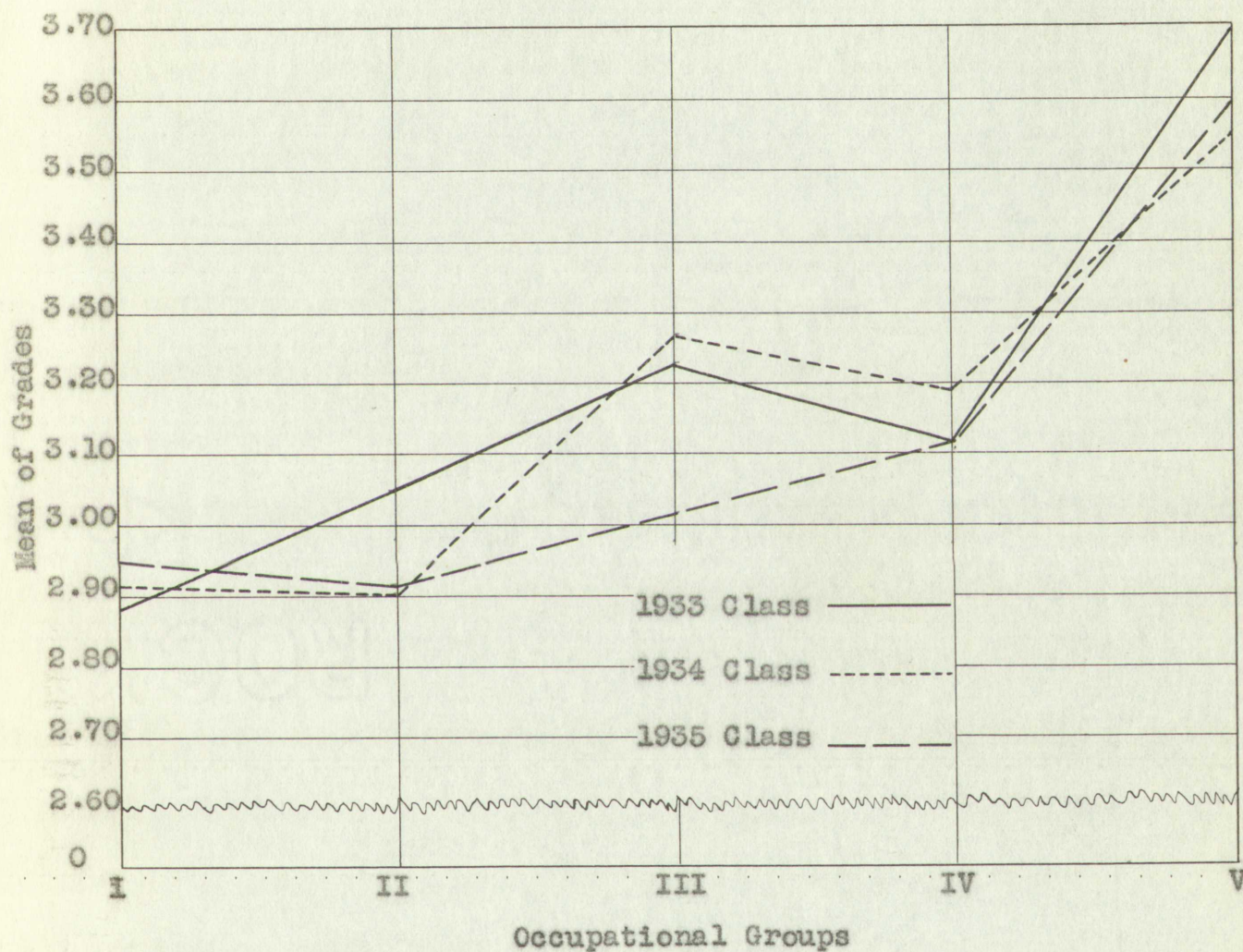


Fig. 3. Mean of English and Spanish-Speaking Graduates Combined for Each Class Year.

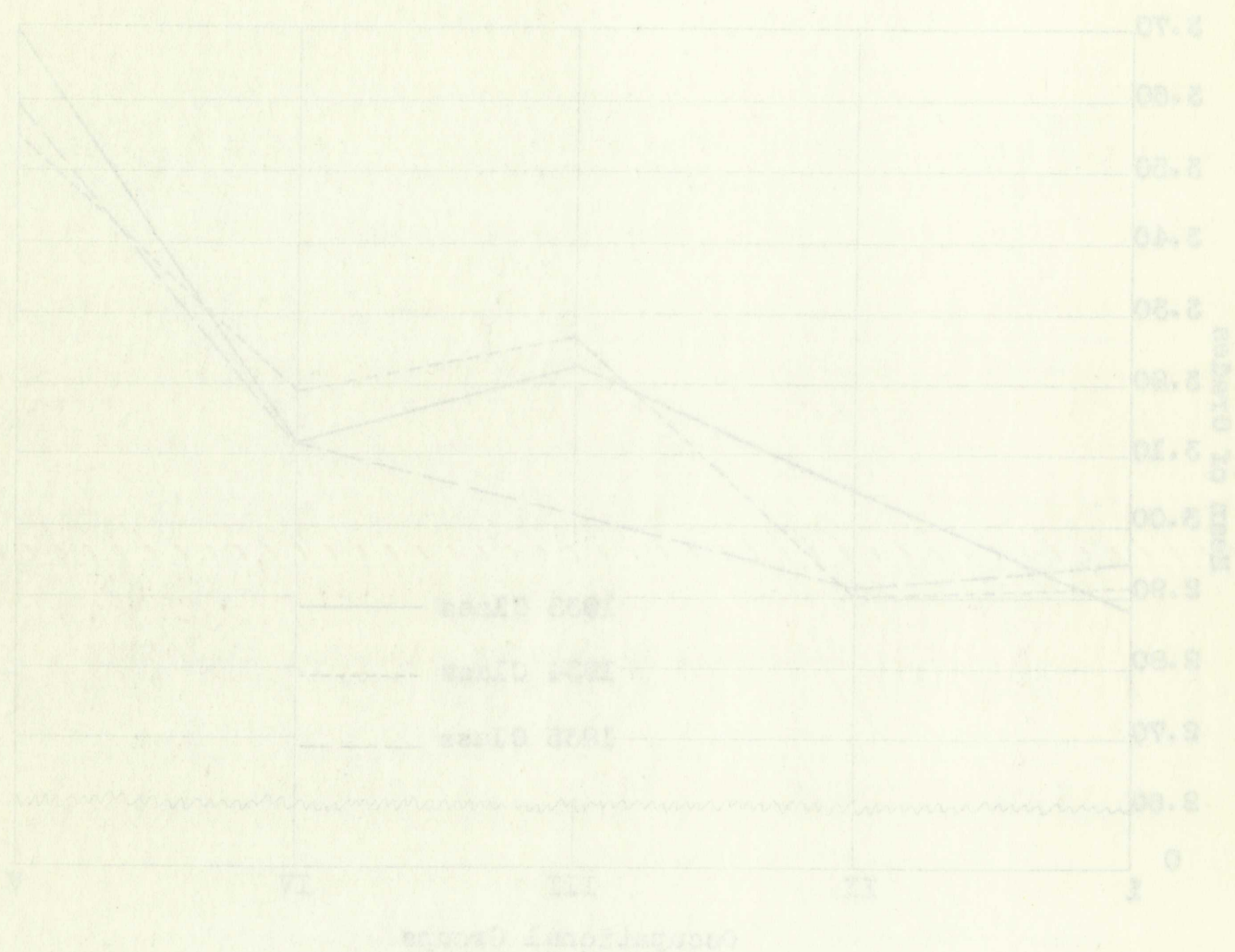


Fig. 3. Rates of English and Spanish Speaking Operators Combined for Each Class Here.

TABLE VIII

MEANS, MEDIANS, RANGES, NUMBER OF PUPILS,
AND PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE SPANISH-SPEAKING PUPILS
FOR EACH GRADUATION CLASS

1933					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	2	3.38	3.38	1.82	110.43
IV	11	2.89	2.87	1.13	95.12
III	8	3.31	3.23	2.34	108.93
II	10	2.80	2.25	1.06	92.03
I	6	3.04	2.97	1.87	100.00
Total	37				

1934					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	5	3.48	3.25	1.56	118.14
IV	7	3.08	3.21	1.56	104.73
III	15	3.09	3.13	1.47	104.90
II	8	2.99	2.975	1.19	101.52
I	9	2.94	2.94	.96	100.00
Total	44				

1935					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	6	3.33	3.39	1.06	112.68
IV	14	2.78	2.66	1.30	94.07
III	13	2.97	2.80	1.80	100.71
II	10	2.69	2.65	.95	90.97
I	10	2.95	2.935	1.31	100.00
Total	53				

TABLE VIII

MEANS, MEDIAN, RANGE, NUMBER OF STUDENTS
AND ESTIMATE RELATIVE OF THE FIVE OCCUPATIONAL
GROUPS OF THE BACHELOR-GRADUATE STUDENT
FOR EACH GRADUATION CLASS

1935					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	2	3.25	3.25	1.25	10.43
IV	11	3.25	3.25	1.25	32.12
III	8	3.21	3.25	2.21	100.75
II	10	3.25	3.25	1.25	32.12
I	5	3.04	3.25	1.25	100.75
Total	36				

1936					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	2	3.48	3.25	1.25	10.43
IV	7	3.06	3.21	1.25	32.12
III	15	3.08	3.12	1.25	100.75
II	8	3.25	3.25	1.25	32.12
I	5	3.04	3.04	.75	100.75
Total	47				

1937					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	2	3.25	3.25	1.25	11.43
IV	14	3.25	3.25	1.25	34.29
III	12	3.27	3.25	1.25	100.71
II	10	3.25	3.25	1.25	30.71
I	10	3.25	3.25	1.25	100.71
Total	58				

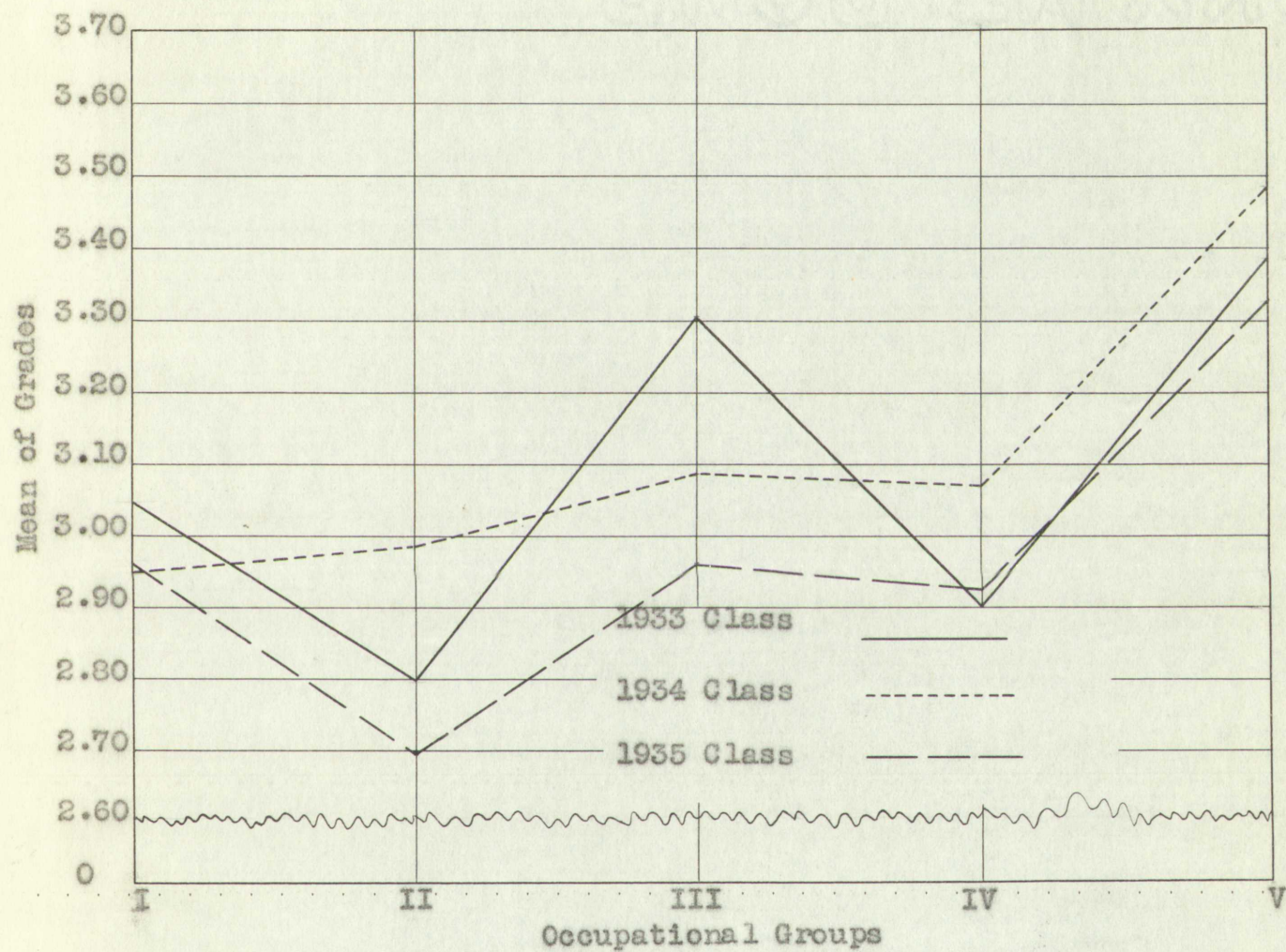


Fig. 5. Mean of the Spanish Students' Grades Among the Five Occupational Groups for Each Graduation Class.

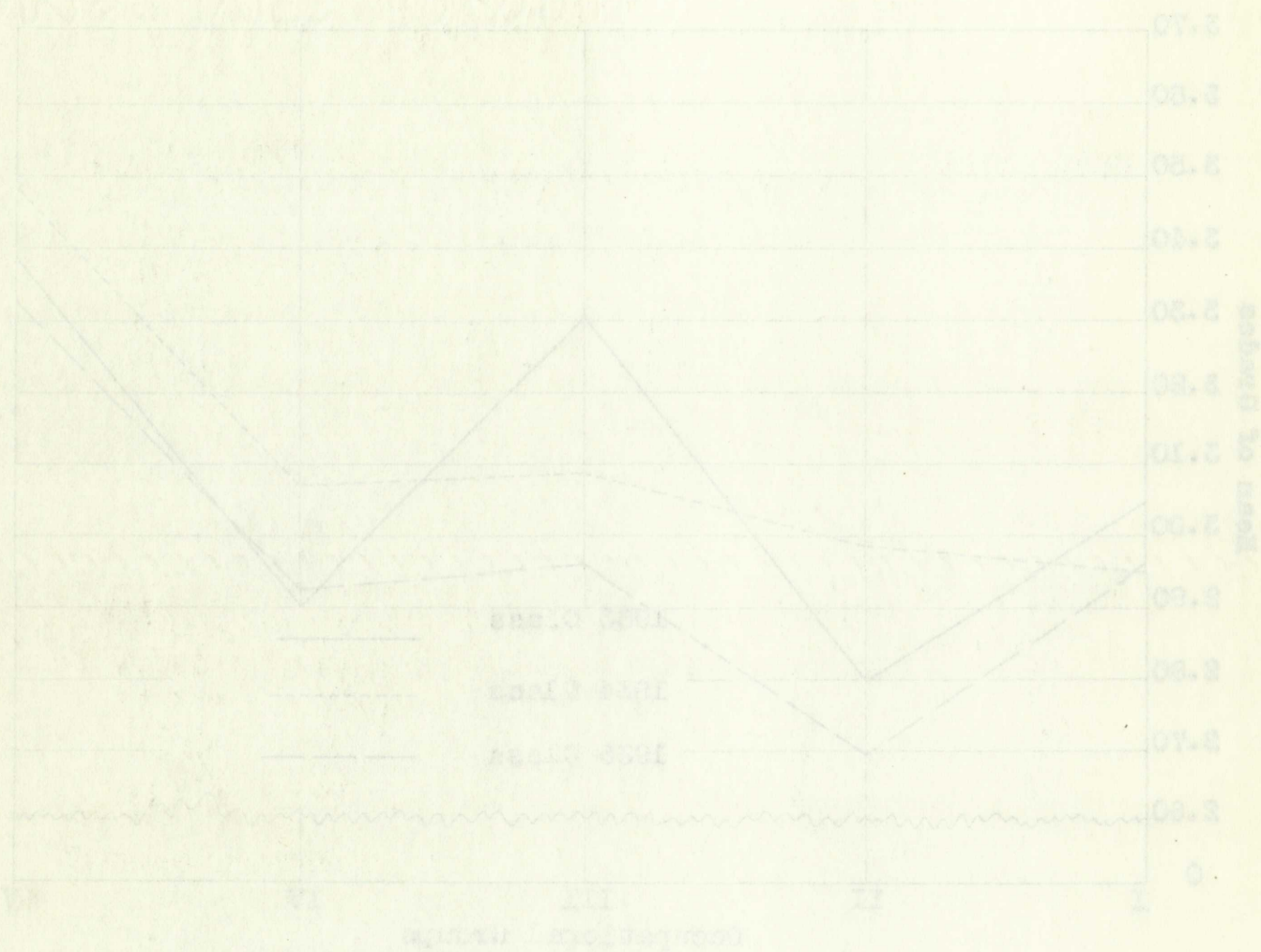


Fig. 5. Diagram of the specific resistance of the fish of the 1933, 1934 and 1935 classes for each of the five temperature points.

TABLE IX

MEANS, MEDIANS, RANGES, NUMBER OF PUPILS,
PERCENTAGE RELATIVES OF THE FIVE OCCUPATIONAL
GROUPS OF THE ENGLISH-SPEAKING PUPILS
FOR EACH GRADUATION CLASS

1933					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	63	3.70	3.60	2.87	136.04
IV	66	3.16	3.16	2.40	116.27
III	36	3.23	3.13	2.31	118.79
II	14	3.24	3.675	1.99	119.12
I	6	2.72	2.535	1.69	100.00
Total	185				

1934					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	74	3.55	3.50	2.42	122.66
IV	96	3.18	3.16	2.68	109.95
III	49	3.32	3.25	2.67	114.76
II	19	2.885	2.87	2.12	99.48
I	8	2.90	2.90	.98	100.00
Total	246				

1935					
Occupational Groups	Number	Mean	Median	Range	Percentage Relative
V	72	3.665	3.66	2.47	124.45
IV	93	3.17	3.13	2.73	107.86
III	43	3.04	2.88	2.55	103.24
II	17	3.04	3.00	2.25	103.31
I	11	2.945	3.00	1.76	100.00
Total	236				

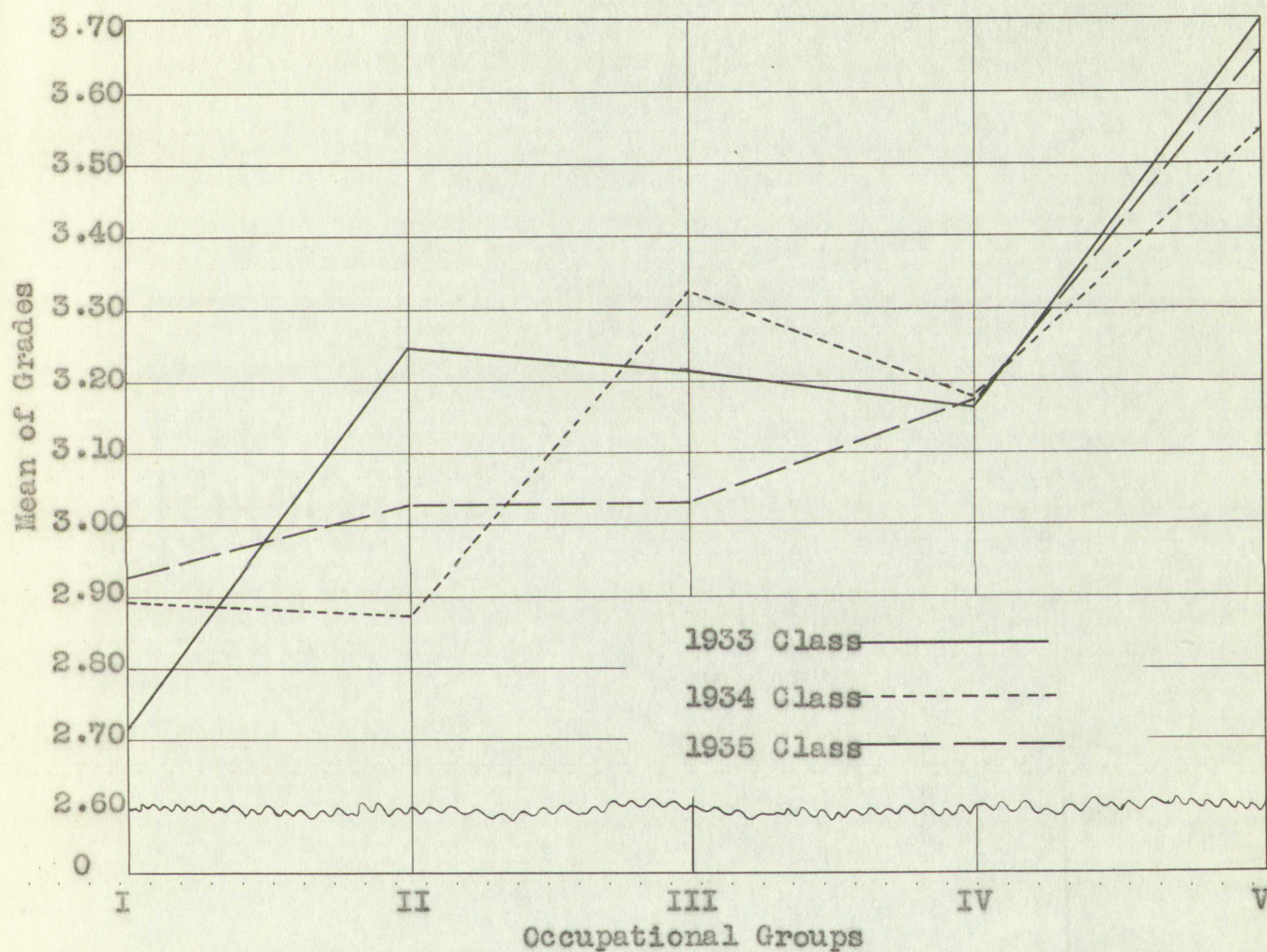


Fig. 4. Mean of the English-Speaking Students' Grades Among the Five Occupational Groups for Each Graduation Class.

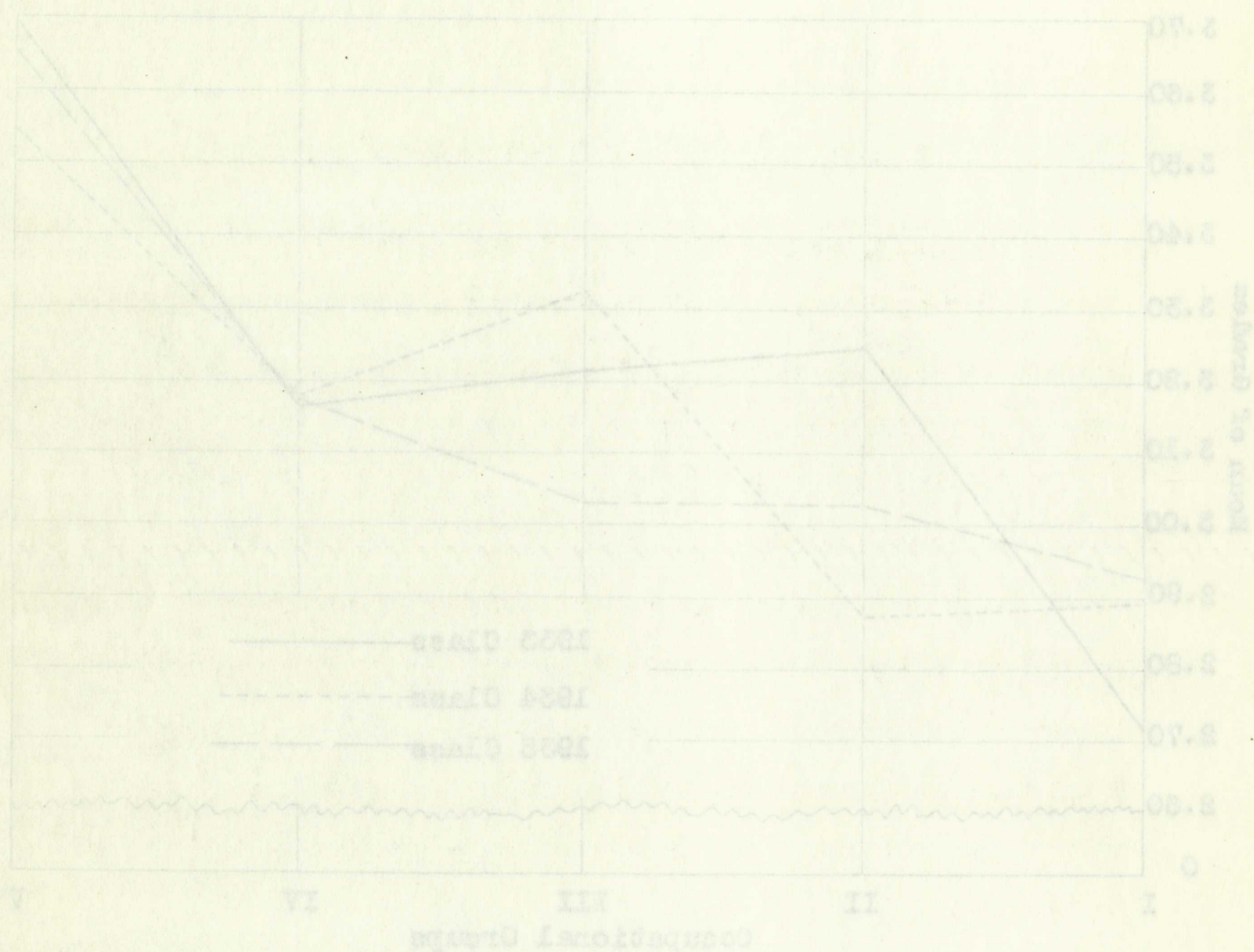


Fig. 4. Mean of the English-Speaking Students' Grades across the Five Occupational Groups for Each Graduation Class.

Part III

GENERAL SUMMARY AND CONCLUSIONS

To summarize the analysis of the data, observable evidences have been presented showing a strong relationship between scholastic achievement and paternal occupational status. High school graduates whose parents belong to the most favored social and economic class, the professional group, have the highest scholastic achievement. On the other hand, the graduates whose parents belong to the least favored classes, the unskilled and semi-skilled labor groups, have the lowest scholastic achievement. Graduates of the skilled labor group are slightly above those of the lower middle class group. However, the scholastic achievement of both is only fair.

A two-thirds majority of the Albuquerque High School graduates come from parents of the middle class and professional groups. This is true when considering the Spanish-speaking and the English-speaking graduates combined and the latter separately. However, two-thirds of the Spanish-speaking graduates come from parents who belong to the three working class groups. Only one-third may be classed as

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1049 COMMENT

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middle class and professional. This distribution of the Spanish-speaking graduates in the occupational groups has a direct bearing on their scholastic achievement.

The charts presented in this study show a somewhat constant spread between the mean curve of the English-speaking and that of the Spanish-speaking graduates, whose mean curve is lower. In other words, the scholastic achievement of the Spanish-speaking graduates is inferior to that of the other racial group.

The writer is of the opinion that the lower scholastic achievement of the Spanish-speaking graduates is a result of their generally low socio-economic status. The writer is in agreement with Sanchez, Tireman, and Manuel. The Spanish-speaking people in the Southwest have inferior living conditions and are underprivileged. Brilliant school work, refinement and culture are hardly paralleled by pitifully low wages, unsteady employment, low standard of living, poor housing and inadequate nourishment, which are the observable living conditions of most Spanish-speaking people.

Because of more and more new evidence, the assumption of innate racial or individual inferiority or superiority is not accepted by most investigators. Finalities on the question are no longer tenable.

The factor of occupational status is important in both English-speaking and Spanish-speaking students. In the

words of Davis,

"The absence of culture in workers' homes is often cited as a mark of their inferiority, although most people forget that culture is generally expensive... privilege always has a tendency to deny the lowest classes abundant opportunities and then to accuse them of innate defects because they do not have the¹ culture which privilege itself has denied".

1. Davis, Jerome. Capitalism and Its Culture, p.448,451.

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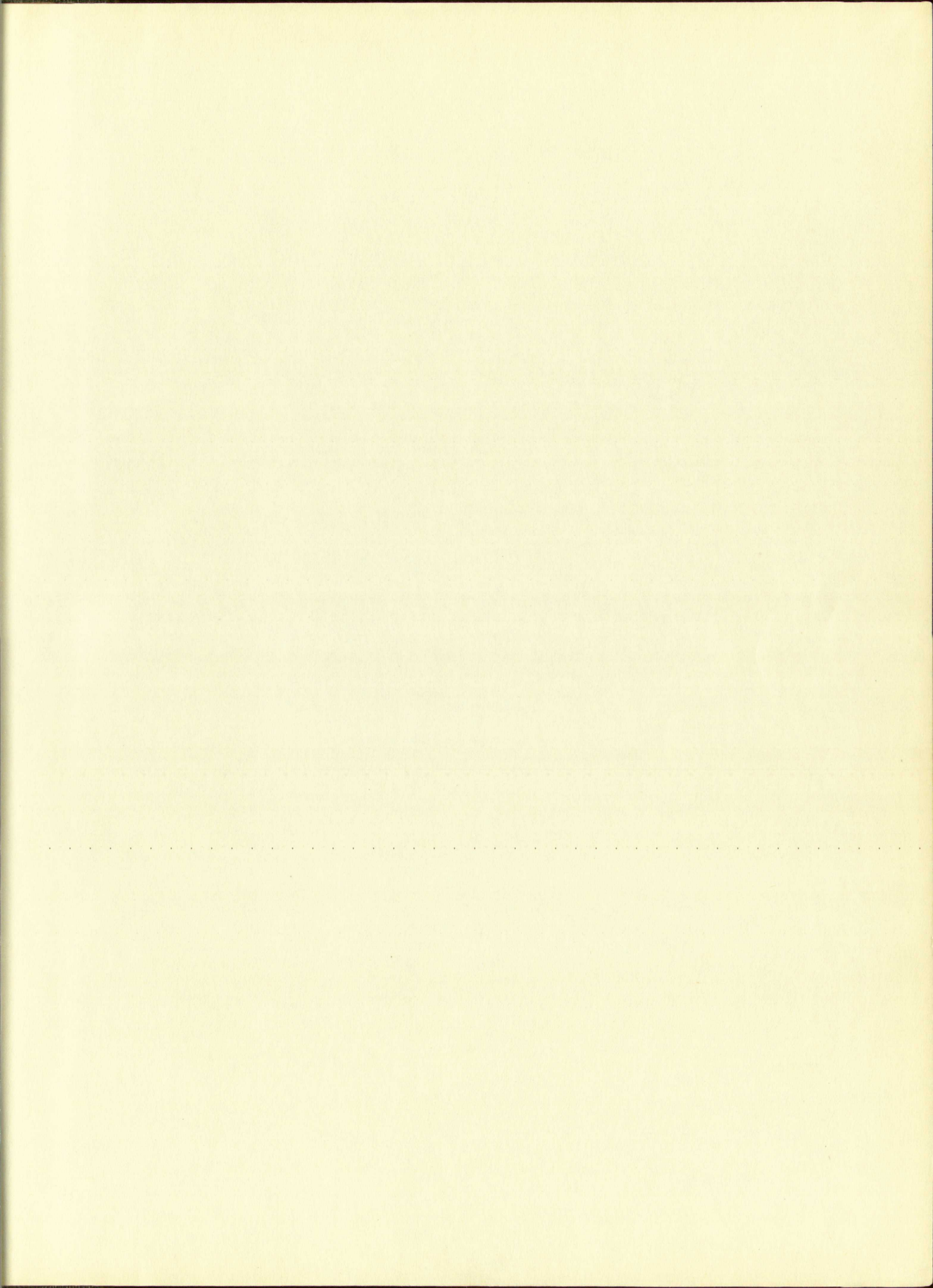
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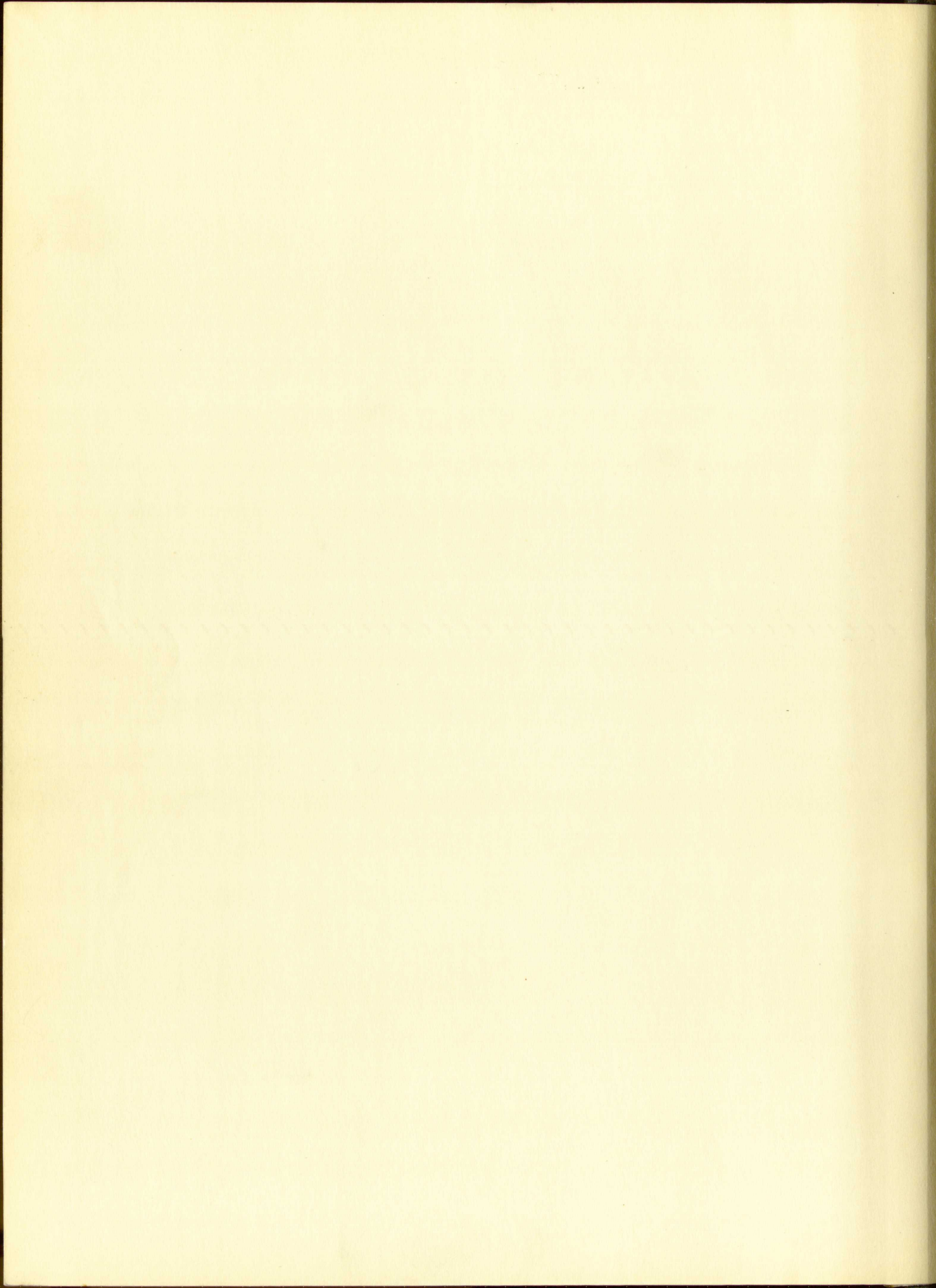
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